WEBVTT

NOTE duration: "01:26:01.600"

NOTE Confidence: 0.9412657

00:00:00.080 --> 00:00:02.020 Twenty twenty six CME series.

NOTE Confidence: 0.95431584

00:00:03.679 --> 00:00:05.920 Today is March nineteenth. We

NOTE Confidence: 0.95431584

00:00:05.920 --> 00:00:07.700 are in the middle of,

NOTE Confidence: 0.9789928

00:00:08.639 --> 00:00:09.139 colorectal

NOTE Confidence: 0.94983846

00:00:09.519 --> 00:00:12.080 cancer awareness month. And so,

NOTE Confidence: 0.99909675

00:00:13.405 --> 00:00:15.245 this event tonight is gonna

NOTE Confidence: 0.99909675

00:00:15.245 --> 00:00:16.145 focus on,

NOTE Confidence: 0.9749711

00:00:16.925 --> 00:00:18.864 colorectal cancer, specifically,

NOTE Confidence: 0.9956338

00:00:20.045 --> 00:00:22.044 the management options for patients

NOTE Confidence: 0.9956338

00:00:22.044 --> 00:00:24.224 with, colorectal liver metastases.

NOTE Confidence: 0.9190419

00:00:25.460 --> 00:00:26.439 I'm Jeremy Kortmansky.

NOTE Confidence: 0.98212296

00:00:26.820 --> 00:00:27.300 I'm,

NOTE Confidence: 0.99160624

00:00:27.859 --> 00:00:29.320 a associate professor

NOTE Confidence: 0.9381068

00:00:29.699 --> 00:00:31.619 of medicine and GI medical

NOTE Confidence: 0.9381068

00:00:31.619 --> 00:00:32.120 oncology

NOTE Confidence: 0.925267

00:00:33.059 --> 00:00:33.800 at Yale.

NOTE Confidence: 0.9980119

00:00:34.260 --> 00:00:36.120 I am joined by doctor

NOTE Confidence: 0.98703915

00:00:36.979 --> 00:00:38.979 Khan, a surgical oncologist and

NOTE Confidence: 0.98703915

00:00:38.979 --> 00:00:40.120 chief of the hepatobiliary

NOTE Confidence: 0.96342963

00:00:40.845 --> 00:00:41.585 surgery service,

NOTE Confidence: 0.9953224

00:00:42.524 --> 00:00:43.024 doctor

NOTE Confidence: 0.9975407

00:00:43.325 --> 00:00:45.885 Madoff, an interventional radiologist and

NOTE Confidence: 0.9975407

00:00:45.885 --> 00:00:47.585 chief of the interventional radiology

NOTE Confidence: 0.9975407

00:00:47.725 --> 00:00:48.225 service,

NOTE Confidence: 0.98910636

00:00:48.925 --> 00:00:51.405 and, doctor Kevin Du, a

NOTE Confidence: 0.98910636

00:00:51.405 --> 00:00:52.704 radiation oncologist.

NOTE Confidence: 0.96864575

00:00:55.140 --> 00:00:56.760 And so I will,

NOTE Confidence: 0.9903011

00:00:57.860 --> 00:00:59.080 get us going,

NOTE Confidence: 0.9887886

00:01:00.420 --> 00:01:00.920 hopefully.

NOTE Confidence: 0.9879632

00:01:01.860 --> 00:01:03.880 Colo as a background, colorectal

NOTE Confidence: 0.9879632

00:01:04.100 --> 00:01:05.940 cancer is the third leading

NOTE Confidence: 0.9879632

00:01:05.940 --> 00:01:07.300 cause of cancer in the

NOTE Confidence: 0.9879632

00:01:07.300 --> 00:01:08.500 United States and the second

NOTE Confidence: 0.9879632

00:01:08.500 --> 00:01:10.600 leading cause of cancer death.

NOTE Confidence: 0.9433409

00:01:11.225 --> 00:01:13.225 It's estimated there'll be about

NOTE Confidence: 0.9433409

00:01:13.225 --> 00:01:14.505 a hundred and fifty nine

NOTE Confidence: 0.9433409

00:01:14.505 --> 00:01:15.005 thousand,

NOTE Confidence: 0.9997279

00:01:15.625 --> 00:01:17.145 new cases in the US

NOTE Confidence: 0.9997279

00:01:17.145 --> 00:01:18.685 in twenty twenty six

NOTE Confidence: 0.9735927

00:01:19.145 --> 00:01:20.505 with more than fifty five

NOTE Confidence: 0.9735927

00:01:20.505 --> 00:01:21.565 thousand deaths.

NOTE Confidence: 0.997676

00:01:22.185 --> 00:01:23.385 Nearly a third of these

NOTE Confidence: 0.997676

00:01:23.385 --> 00:01:24.925 cases are rectal cancer.

NOTE Confidence: 0.99946916

00:01:26.130 --> 00:01:27.670 In men under fifty,

NOTE Confidence: 0.9993326

00:01:28.770 --> 00:01:30.210 colorectal cancer is now the

NOTE Confidence: 0.9993326

00:01:30.210 --> 00:01:31.730 number one cause of cancer

NOTE Confidence: 0.9993326

00:01:31.730 --> 00:01:32.710 related mortality.

NOTE Confidence: 0.999081

00:01:34.210 --> 00:01:35.890 Recent trends that we're seeing

NOTE Confidence: 0.999081

00:01:35.890 --> 00:01:36.630 is that,

NOTE Confidence: 0.9327027

00:01:37.250 --> 00:01:39.635 the number of incidence in

NOTE Confidence: 0.9327027

00:01:39.635 --> 00:01:41.555 patients over sixty five years

NOTE Confidence: 0.9327027

00:01:41.555 --> 00:01:42.775 of age is decreasing,

NOTE Confidence: 0.9883324

00:01:43.955 --> 00:01:45.715 but is rapidly increasing in

NOTE Confidence: 0.9883324

00:01:45.715 --> 00:01:47.395 patients who are under fifty

NOTE Confidence: 0.9883324

00:01:47.395 --> 00:01:48.435 years old at a rate

NOTE Confidence: 0.9883324

00:01:48.435 --> 00:01:50.055 of three percent per year.

NOTE Confidence: 0.996292

00:01:50.690 --> 00:01:52.450 And patients under sixty five

NOTE Confidence: 0.996292

00:01:52.450 --> 00:01:53.350 now represent

NOTE Confidence: 0.9969982

00:01:53.810 --> 00:01:55.330 forty five percent of all

NOTE Confidence: 0.9969982

00:01:55.330 --> 00:01:55.990 new cases.

NOTE Confidence: 0.99299675

00:01:57.170 --> 00:01:58.870 Seventy five percent of patients

NOTE Confidence: 0.99299675

00:01:59.170 --> 00:02:01.190 under fifty present with advanced

NOTE Confidence: 0.99299675

00:02:01.250 --> 00:02:01.750 disease.

NOTE Confidence: 0.99975187

00:02:04.104 --> 00:02:05.564 In this group of patients,

NOTE Confidence: 0.9866056

00:02:06.424 --> 00:02:08.264 forty to fifty percent will

NOTE Confidence: 0.9866056

00:02:08.264 --> 00:02:09.565 develop liver metastases.

NOTE Confidence: 0.9984866

00:02:11.065 --> 00:02:12.845 Conventional systemic chemotherapy

NOTE Confidence: 0.9994134

00:02:13.145 --> 00:02:14.845 alone has limited efficacy

NOTE Confidence: 0.9951293

00:02:15.720 --> 00:02:17.419 with five year overall survival

NOTE Confidence: 0.9951293

00:02:17.560 --> 00:02:19.180 less than fourteen percent

NOTE Confidence: 0.9743809

00:02:19.639 --> 00:02:20.860 with modern regimens,

NOTE Confidence: 0.97493666

00:02:22.280 --> 00:02:23.660 and only a two percent,

NOTE Confidence: 0.9732925

00:02:24.280 --> 00:02:26.200 having durable response at five

NOTE Confidence: 0.9732925

00:02:26.200 --> 00:02:26.700 years.

NOTE Confidence: 0.9764637

00:02:27.755 --> 00:02:29.595 Sightedness matters. It's something we

NOTE Confidence: 0.9764637

00:02:29.595 --> 00:02:31.194 talk about often with left

NOTE Confidence: 0.9764637

00:02:31.194 --> 00:02:33.114 sided tumors having a higher

NOTE Confidence: 0.9764637

00:02:33.114 --> 00:02:33.614 incidence

NOTE Confidence: 0.9869892

00:02:33.915 --> 00:02:35.055 of liver metastases

NOTE Confidence: 0.91746205

00:02:35.435 --> 00:02:36.575 versus right sided,

NOTE Confidence: 0.9841631

00:02:37.114 --> 00:02:38.635 but right sided tumors and

NOTE Confidence: 0.9841631

00:02:38.635 --> 00:02:39.135 rectal,

NOTE Confidence: 0.9126523

00:02:39.514 --> 00:02:41.375 cancers having a worse survival.

NOTE Confidence: 0.9994437

00:02:42.730 --> 00:02:44.170 This is likely related to

NOTE Confidence: 0.9994437

00:02:44.170 --> 00:02:44.670 biology.

NOTE Confidence: 0.99917203

00:02:46.010 --> 00:02:47.770 Right sided tumors have more

NOTE Confidence: 0.99917203

00:02:47.770 --> 00:02:48.750 KRAS mutations,

NOTE Confidence: 0.99546504

00:02:49.050 --> 00:02:50.030 BRAF mutations,

NOTE Confidence: 0.9985502

00:02:51.050 --> 00:02:51.790 and microsatellite

NOTE Confidence: 0.9987259

00:02:52.170 --> 00:02:52.670 instability.

NOTE Confidence: 0.9927275

00:02:53.610 --> 00:02:55.370 Left sided tumors are more

NOTE Confidence: 0.9927275

00:02:55.370 --> 00:02:57.745 often KRAS wild type and

NOTE Confidence: 0.9927275

00:02:57.745 --> 00:03:00.245 driven by EGFR mediated pathways.

NOTE Confidence: 0.9998128

00:03:02.544 --> 00:03:03.845 Looking at prognosis

NOTE Confidence: 0.9901047

00:03:04.145 --> 00:03:05.445 based on these factors,

NOTE Confidence: 0.9766247

00:03:06.465 --> 00:03:08.465 patients with left sided KRAS

NOTE Confidence: 0.9766247

00:03:08.465 --> 00:03:09.825 wild type tumors have the

NOTE Confidence: 0.9766247

00:03:09.825 --> 00:03:10.565 best prognosis,

NOTE Confidence: 0.9863869

00:03:11.799 --> 00:03:13.239 whereas those with right sided

NOTE Confidence: 0.9863869

00:03:13.239 --> 00:03:15.159 and KRAS mutated tumors have

NOTE Confidence: 0.9863869

00:03:15.159 --> 00:03:16.139 the worst prognosis.

NOTE Confidence: 0.99588084

00:03:19.239 --> 00:03:21.079 Aggressive local management of liver

NOTE Confidence: 0.99588084

00:03:21.079 --> 00:03:21.579 metastases

NOTE Confidence: 0.9985054

00:03:21.879 --> 00:03:23.400 can improve five year overall

NOTE Confidence: 0.9985054

00:03:23.400 --> 00:03:25.340 survival and cure some patients.

NOTE Confidence: 0.995382

00:03:26.264 --> 00:03:27.945 The risk of relapse remains

NOTE Confidence: 0.995382

00:03:27.945 --> 00:03:29.805 high, and there are multiple

NOTE Confidence: 0.99873465

00:03:30.505 --> 00:03:31.945 risk factors that can be

NOTE Confidence: 0.99873465

00:03:31.945 --> 00:03:33.165 attributed to that,

NOTE Confidence: 0.9722457

00:03:33.705 --> 00:03:34.685 risk of relapse,

NOTE Confidence: 0.98208046

00:03:34.985 --> 00:03:36.845 including elevated CEA,

NOTE Confidence: 0.9979269

00:03:37.545 --> 00:03:39.085 the number of liver metastases,

NOTE Confidence: 0.9993299

00:03:40.320 --> 00:03:42.900 large liver lesions, bilateral involvement,

NOTE Confidence: 0.9968777

00:03:43.360 --> 00:03:44.820 the stage of the primary

NOTE Confidence: 0.9968777

00:03:44.880 --> 00:03:45.380 tumor,

NOTE Confidence: 0.99762946

00:03:46.240 --> 00:03:47.780 regional nodal involvement,

NOTE Confidence: 0.9868594

00:03:48.400 --> 00:03:50.080 a short disease free interval

NOTE Confidence: 0.9868594

00:03:50.080 --> 00:03:51.460 or synchronous metastases,

NOTE Confidence: 0.99926394

00:03:52.480 --> 00:03:53.620 and tumor biology.

NOTE Confidence: 0.988613

00:03:56.974 --> 00:03:58.415 As I said, I am

NOTE Confidence: 0.988613

00:03:58.415 --> 00:03:59.635 fortunate to be,

NOTE Confidence: 0.99971277

00:04:00.095 --> 00:04:02.334 joined by experts in all

NOTE Confidence: 0.99971277

00:04:02.334 --> 00:04:02.834 aspects

NOTE Confidence: 0.9729947

00:04:03.775 --> 00:04:05.535 of management of patients with

NOTE Confidence: 0.9729947

00:04:05.535 --> 00:04:06.355 liver metastases,

NOTE Confidence: 0.97962683

00:04:07.535 --> 00:04:08.415 and I will,

NOTE Confidence: 0.95562965

00:04:08.815 --> 00:04:09.455 start by,

NOTE Confidence: 0.99929255

00:04:10.709 --> 00:04:12.650 turning it over to doctor

NOTE Confidence: 0.9919581

00:04:13.190 --> 00:04:14.390 Khan to talk to us

NOTE Confidence: 0.9919581

00:04:14.390 --> 00:04:15.290 about surgery.

NOTE Confidence: 0.9228202

00:04:21.270 --> 00:04:22.970 Excellent. Thanks, doctor Kordomanski,

NOTE Confidence: 0.982345

00:04:23.589 --> 00:04:24.710 for getting us started. I'm

NOTE Confidence: 0.982345

00:04:24.710 --> 00:04:26.325 really excited to to do

NOTE Confidence: 0.982345

00:04:26.325 --> 00:04:28.085 this session with yourself and

NOTE Confidence: 0.982345

00:04:28.085 --> 00:04:29.785 doctor Madoff and doctor Du,

NOTE Confidence: 0.999418

00:04:30.325 --> 00:04:31.445 and it's great to work

NOTE Confidence: 0.999418

00:04:31.445 --> 00:04:32.585 at Yale with such

NOTE Confidence: 0.8436219

00:04:32.885 --> 00:04:34.025 wonderful experts.

NOTE Confidence: 0.9578407

00:04:35.685 --> 00:04:36.964 So, you know, so I'm

NOTE Confidence: 0.9578407

00:04:36.964 --> 00:04:38.404 the surgical oncologist in the

NOTE Confidence: 0.9578407

00:04:38.404 --> 00:04:39.225 group. So,

NOTE Confidence: 0.9840204

00:04:39.990 --> 00:04:41.509 I will be focusing on,

NOTE Confidence: 0.9840204

00:04:41.830 --> 00:04:42.949 this this part of the

NOTE Confidence: 0.9840204

00:04:42.949 --> 00:04:43.349 talk,

NOTE Confidence: 0.9993649

00:04:43.830 --> 00:04:46.250 discussing the very basic surgical

NOTE Confidence: 0.9993649

00:04:46.310 --> 00:04:47.750 approaches to the management of

NOTE Confidence: 0.9993649

00:04:47.750 --> 00:04:48.889 colorectal cancer

NOTE Confidence: 0.9107837

00:04:49.270 --> 00:04:50.089 liver metastases.

NOTE Confidence: 0.97030777

00:04:51.975 --> 00:04:53.415 This is a slide, similar

NOTE Confidence: 0.97030777

00:04:53.415 --> 00:04:54.935 to doctor Hartmansky's. It's probably

NOTE Confidence: 0.97030777

00:04:54.935 --> 00:04:56.375 a year outdated compared to

NOTE Confidence: 0.97030777

00:04:56.375 --> 00:04:58.135 his slides, but colorectal cancer

NOTE Confidence: 0.97030777

00:04:58.135 --> 00:04:58.635 is

NOTE Confidence: 0.8567929

00:04:59.014 --> 00:05:00.635 a common cause of diagnosis,

NOTE Confidence: 0.9068337

00:05:01.495 --> 00:05:02.535 of cancer in the United

NOTE Confidence: 0.9068337

00:05:02.535 --> 00:05:04.695 States affecting female and male

NOTE Confidence: 0.9068337

00:05:04.695 --> 00:05:05.195 patients,

NOTE Confidence: 0.7805519

00:05:06.455 --> 00:05:06.955 regularly.

NOTE Confidence: 0.98300284

00:05:07.710 --> 00:05:08.670 It's one of the leading

NOTE Confidence: 0.98300284

00:05:08.670 --> 00:05:10.029 cause of cancer deaths as

NOTE Confidence: 0.98300284

00:05:10.029 --> 00:05:11.250 well in the United States.

NOTE Confidence: 0.9461389

00:05:12.029 --> 00:05:13.470 But specifically, when we talk

NOTE Confidence: 0.9461389

00:05:13.470 --> 00:05:15.150 about colorectal cancer, it's important

NOTE Confidence: 0.9461389

00:05:15.150 --> 00:05:16.850 to understand the that metastasis

NOTE Confidence: 0.9984061

00:05:17.470 --> 00:05:18.510 is the leading cause of

NOTE Confidence: 0.9984061

00:05:18.510 --> 00:05:20.050 cancer specific deaths.

NOTE Confidence: 0.98659533

00:05:22.275 --> 00:05:23.714 Over fifty percent of patients

NOTE Confidence: 0.98659533

00:05:23.714 --> 00:05:25.315 with colorectal cancer will develop

NOTE Confidence: 0.98659533

00:05:25.315 --> 00:05:26.995 liver metastases at some point

NOTE Confidence: 0.98659533

00:05:26.995 --> 00:05:28.355 in their diagnosis either at

NOTE Confidence: 0.98659533

00:05:28.355 --> 00:05:29.495 the time of the diagnosis

NOTE Confidence: 0.9848911

00:05:30.115 --> 00:05:31.815 or, at a later time.

NOTE Confidence: 0.9256019

00:05:32.515 --> 00:05:34.115 When someone has developed diagnosed

NOTE Confidence: 0.9256019

00:05:34.115 --> 00:05:35.900 with liver metastases at the

NOTE Confidence: 0.9256019

00:05:35.900 --> 00:05:37.180 time of the diagnosis of

NOTE Confidence: 0.9256019

00:05:37.180 --> 00:05:38.540 the colon cancer, this is

NOTE Confidence: 0.9256019

00:05:38.540 --> 00:05:40.800 referred to as synchronous metastases.

NOTE Confidence: 0.9539438

00:05:41.180 --> 00:05:42.540 And this effect, this is

NOTE Confidence: 0.9539438

00:05:42.540 --> 00:05:44.060 a diagnosed in twenty to

NOTE Confidence: 0.9539438

00:05:44.060 --> 00:05:46.220 thirty four percent of, of

NOTE Confidence: 0.9539438

00:05:46.220 --> 00:05:47.740 individuals with the new colon

NOTE Confidence: 0.9539438

00:05:47.740 --> 00:05:48.640 cancer diagnosis.

NOTE Confidence: 0.9729767

00:05:49.605 --> 00:05:51.285 However, the majority do present

NOTE Confidence: 0.9729767

00:05:51.285 --> 00:05:52.725 in a metachronous fashion, which

NOTE Confidence: 0.9729767

00:05:52.725 --> 00:05:53.785 means they're diagnosed

NOTE Confidence: 0.99059147

00:05:54.245 --> 00:05:55.605 at least six months after

NOTE Confidence: 0.99059147

00:05:55.605 --> 00:05:56.265 the index,

NOTE Confidence: 0.9972332

00:05:56.885 --> 00:05:57.385 diagnosis.

NOTE Confidence: 0.9895278

00:05:58.645 --> 00:06:00.885 Conventional systemic chemotherapy has seen

NOTE Confidence: 0.9895278

00:06:00.885 --> 00:06:01.625 great advances,

NOTE Confidence: 0.9985156

00:06:02.404 --> 00:06:03.605 over the last twenty five

NOTE Confidence: 0.9985156

00:06:03.605 --> 00:06:04.505 to thirty years.

NOTE Confidence: 0.9696651

00:06:05.010 --> 00:06:07.089 However, it, it has some

NOTE Confidence: 0.9696651

00:06:07.089 --> 00:06:07.910 limited efficacies,

NOTE Confidence: 0.99295413

00:06:08.610 --> 00:06:09.410 and I think we're gonna

NOTE Confidence: 0.99295413

00:06:09.410 --> 00:06:10.529 spend some time talking a

NOTE Confidence: 0.99295413

00:06:10.529 --> 00:06:11.970 bit more about what some,

NOTE Confidence: 0.99295413

00:06:12.450 --> 00:06:13.750 liver specific treatments,

NOTE Confidence: 0.90527207

00:06:14.610 --> 00:06:14.930 can,

NOTE Confidence: 0.9482139

00:06:15.490 --> 00:06:16.930 be an advantage for patients

NOTE Confidence: 0.9482139

00:06:16.930 --> 00:06:18.529 with the colon cancer, liver

NOTE Confidence: 0.9482139

00:06:18.529 --> 00:06:19.669 metastasis diagnosis.

NOTE Confidence: 0.97086483

00:06:21.065 --> 00:06:22.985 Five year survival, with just

NOTE Confidence: 0.97086483

00:06:22.985 --> 00:06:23.485 chemotherapy

NOTE Confidence: 0.9855159

00:06:23.865 --> 00:06:24.765 can be low,

NOTE Confidence: 0.8553509

00:06:25.705 --> 00:06:27.545 and oftentimes patients don't have

NOTE Confidence: 0.8553509

00:06:27.545 --> 00:06:28.904 a durable response at five

NOTE Confidence: 0.8553509

00:06:28.904 --> 00:06:30.825 years. So hence the thought

NOTE Confidence: 0.8553509

00:06:30.825 --> 00:06:31.325 about,

NOTE Confidence: 0.99936104

00:06:31.785 --> 00:06:32.605 other options.

NOTE Confidence: 0.9885596

00:06:33.310 --> 00:06:35.310 Before jumping ahead to what

NOTE Confidence: 0.9885596

00:06:35.310 --> 00:06:36.750 the surgical treatments may be

NOTE Confidence: 0.9885596

00:06:36.750 --> 00:06:38.270 for patients with colorectal cancer,

NOTE Confidence: 0.9885596

00:06:38.270 --> 00:06:39.330 I do wanna share,

NOTE Confidence: 0.99012625

00:06:39.790 --> 00:06:40.529 a patient,

NOTE Confidence: 0.9904715

00:06:41.389 --> 00:06:42.669 with you that we our

NOTE Confidence: 0.9904715

00:06:42.669 --> 00:06:43.570 Yale multidisciplinary

NOTE Confidence: 0.891939

00:06:43.949 --> 00:06:45.389 team has taken care of

NOTE Confidence: 0.891939

00:06:45.389 --> 00:06:46.750 here at, the Yale Cancer

NOTE Confidence: 0.891939

00:06:46.750 --> 00:06:48.029 Center and Smile of Cancer

NOTE Confidence: 0.891939

00:06:48.029 --> 00:06:48.529 Hospital,

NOTE Confidence: 0.98589385

00:06:49.235 --> 00:06:50.354 and this is a patient

NOTE Confidence: 0.98589385

00:06:50.354 --> 00:06:51.974 that's fifty seven years old,

NOTE Confidence: 0.9834026

00:06:52.514 --> 00:06:54.354 had a partial colectomy, meaning

NOTE Confidence: 0.9834026

00:06:54.354 --> 00:06:55.315 part of the colon was

NOTE Confidence: 0.9834026

00:06:55.315 --> 00:06:55.815 resected,

NOTE Confidence: 0.9762414

00:06:57.555 --> 00:06:59.235 and, for what's called a

NOTE Confidence: 0.9762414

00:06:59.235 --> 00:07:00.595 node one positive for a

NOTE Confidence: 0.9762414

00:07:00.595 --> 00:07:02.055 node positive colon cancer.

NOTE Confidence: 0.9524221

00:07:02.514 --> 00:07:03.654 That patient received,

NOTE Confidence: 0.91057897

00:07:04.190 --> 00:07:05.889 six cycles of chemotherapy,

NOTE Confidence: 0.9847717

00:07:07.710 --> 00:07:08.110 and,

NOTE Confidence: 0.93529797

00:07:08.750 --> 00:07:10.130 and then he has some

NOTE Confidence: 0.93529797

00:07:10.190 --> 00:07:11.570 relatively healthy individual.

NOTE Confidence: 0.9135125

00:07:13.710 --> 00:07:15.310 He was followed by our,

NOTE Confidence: 0.9135125

00:07:15.630 --> 00:07:16.590 one of our one of

NOTE Confidence: 0.9135125

00:07:16.590 --> 00:07:18.505 our SmileCare Centers by one

NOTE Confidence: 0.9135125

00:07:18.505 --> 00:07:19.545 of our very good medical

NOTE Confidence: 0.9135125

00:07:19.545 --> 00:07:21.145 oncologists and what was noted

NOTE Confidence: 0.9135125

00:07:21.145 --> 00:07:22.605 with the tumor marker surveillance

NOTE Confidence: 0.9135125

00:07:22.665 --> 00:07:24.185 and CEAs, the tumor marker

NOTE Confidence: 0.9135125

00:07:24.185 --> 00:07:24.685 surveillance

NOTE Confidence: 0.97364557

00:07:25.065 --> 00:07:26.365 was shown to be rising.

NOTE Confidence: 0.9741138

00:07:28.185 --> 00:07:30.025 And, hence, eventually, the patient

NOTE Confidence: 0.9741138

00:07:30.025 --> 00:07:31.485 was found to have a

NOTE Confidence: 0.9842385

00:07:31.980 --> 00:07:32.800 liver metastasis

NOTE Confidence: 0.99425095

00:07:33.100 --> 00:07:34.080 in the right liver,

NOTE Confidence: 0.9309012

00:07:34.540 --> 00:07:35.840 in the right medial liver.

NOTE Confidence: 0.9816773

00:07:36.300 --> 00:07:36.780 And,

NOTE Confidence: 0.97347206

00:07:37.340 --> 00:07:38.780 and then he was referred

NOTE Confidence: 0.97347206

00:07:38.780 --> 00:07:40.460 to our surgical oncology team

NOTE Confidence: 0.97347206

00:07:40.460 --> 00:07:41.340 in our as part of

NOTE Confidence: 0.97347206

00:07:41.340 --> 00:07:41.920 our multidisciplinary

NOTE Confidence: 0.95516586

00:07:42.380 --> 00:07:42.880 program,

NOTE Confidence: 0.99721706

00:07:43.260 --> 00:07:44.320 for what to do.

NOTE Confidence: 0.9381254

00:07:44.655 --> 00:07:45.615 And we went ahead and

NOTE Confidence: 0.9381254

00:07:45.615 --> 00:07:47.615 performed a liver resection, performed

NOTE Confidence: 0.9381254

00:07:47.615 --> 00:07:48.915 what's called the right hepatectomy,

NOTE Confidence: 0.9772982

00:07:49.855 --> 00:07:51.055 for this patient, and this

NOTE Confidence: 0.9772982

00:07:51.055 --> 00:07:52.095 is an example of what

NOTE Confidence: 0.9772982

00:07:52.095 --> 00:07:52.595 the,

NOTE Confidence: 0.9919043

00:07:53.055 --> 00:07:54.815 what the specimen looks like

NOTE Confidence: 0.9919043

00:07:54.815 --> 00:07:55.935 after it's removed from the

NOTE Confidence: 0.9919043

00:07:55.935 --> 00:07:57.075 body of the patient,

NOTE Confidence: 0.8856671

00:07:58.175 --> 00:07:59.295 on what's called a gross

NOTE Confidence: 0.8856671

00:07:59.295 --> 00:07:59.795 image.

NOTE Confidence: 0.999141

00:08:01.670 --> 00:08:02.170 So

NOTE Confidence: 0.9854388

00:08:02.550 --> 00:08:03.270 with that,

NOTE Confidence: 0.99411297

00:08:03.670 --> 00:08:04.570 case presentation,

NOTE Confidence: 0.9983406

00:08:05.190 --> 00:08:06.010 in the background,

NOTE Confidence: 0.96370655

00:08:06.310 --> 00:08:07.030 here are some of the

NOTE Confidence: 0.96370655

00:08:07.190 --> 00:08:08.150 I wanted to talk use

NOTE Confidence: 0.96370655

00:08:08.150 --> 00:08:08.950 that as an opportunity to

NOTE Confidence: 0.96370655

00:08:08.950 --> 00:08:09.750 talk about some of the

NOTE Confidence: 0.96370655

00:08:09.750 --> 00:08:11.750 surgical options for colorectal cancer

NOTE Confidence: 0.96370655

00:08:11.750 --> 00:08:12.570 liver metastases.

NOTE Confidence: 0.9838585

00:08:13.335 --> 00:08:14.635 One option is a hepatectomy,

NOTE Confidence: 0.9838585

00:08:14.935 --> 00:08:16.535 which means, the portion of

NOTE Confidence: 0.9838585

00:08:16.535 --> 00:08:17.835 the cancer is removed,

NOTE Confidence: 0.98752373

00:08:18.535 --> 00:08:19.415 along with the portion of

NOTE Confidence: 0.98752373

00:08:19.415 --> 00:08:20.075 the liver.

NOTE Confidence: 0.94385105

00:08:20.615 --> 00:08:21.975 Sorry. The cancer is removed

NOTE Confidence: 0.94385105

00:08:21.975 --> 00:08:22.935 along with the portion of

NOTE Confidence: 0.94385105

00:08:22.935 --> 00:08:24.935 the liver. Microwave ablation, we

NOTE Confidence: 0.94385105

00:08:24.935 --> 00:08:26.055 have doctor Madoff here who's

NOTE Confidence: 0.94385105

00:08:26.055 --> 00:08:27.415 an a world expert, and

NOTE Confidence: 0.94385105

00:08:27.415 --> 00:08:28.120 I suspect expect he'll be

NOTE Confidence: 0.94385105

00:08:28.120 --> 00:08:29.000 talking about some of this

NOTE Confidence: 0.94385105

00:08:29.000 --> 00:08:30.040 as well too. It's something

NOTE Confidence: 0.94385105

00:08:30.040 --> 00:08:31.160 that some of the surgical

NOTE Confidence: 0.94385105

00:08:31.160 --> 00:08:32.760 oncologists we consider in our,

NOTE Confidence: 0.94385105

00:08:33.000 --> 00:08:33.980 surgical armamentarium.

NOTE Confidence: 0.9636824

00:08:34.840 --> 00:08:37.000 Hepatic Arterial Infusion Pump Placement,

NOTE Confidence: 0.9636824

00:08:37.000 --> 00:08:37.880 which we'll spend a little

NOTE Confidence: 0.9636824

00:08:37.880 --> 00:08:39.240 bit of time talking about,

NOTE Confidence: 0.9636824

00:08:39.400 --> 00:08:40.200 and tell you a little

NOTE Confidence: 0.9636824

00:08:40.200 --> 00:08:41.645 bit more about our hepaticartrial

NOTE Confidence: 0.9636824

00:08:41.645 --> 00:08:42.145 infusion,

NOTE Confidence: 0.98352146

00:08:43.245 --> 00:08:43.985 pump program.

NOTE Confidence: 0.9898026

00:08:44.525 --> 00:08:45.965 And liver transplant, we're not

NOTE Confidence: 0.9898026

00:08:45.965 --> 00:08:47.005 gonna talk too much about,

NOTE Confidence: 0.9898026

00:08:47.005 --> 00:08:48.385 but it is something that's

NOTE Confidence: 0.9898026

00:08:48.525 --> 00:08:49.645 starting to become as an

NOTE Confidence: 0.9898026

00:08:49.645 --> 00:08:50.625 emerging option,

NOTE Confidence: 0.98235106

00:08:51.325 --> 00:08:52.845 more so in Europe, than

NOTE Confidence: 0.98235106

00:08:52.845 --> 00:08:54.065 in the United States.

NOTE Confidence: 0.9892025

00:08:56.090 --> 00:08:57.470 In regards to a hepatectomy,

NOTE Confidence: 0.9892025

00:08:57.690 --> 00:08:58.650 so why would we do

NOTE Confidence: 0.9892025

00:08:58.650 --> 00:09:00.030 it? So, you know, anytime,

NOTE Confidence: 0.97587085

00:09:00.490 --> 00:09:02.170 patients and their family members

NOTE Confidence: 0.97587085

00:09:02.170 --> 00:09:02.990 see us in,

NOTE Confidence: 0.9706419

00:09:03.290 --> 00:09:05.130 our surgical oncology clinic, you

NOTE Confidence: 0.9706419

00:09:05.130 --> 00:09:06.570 know, one thing that, we

NOTE Confidence: 0.9706419

00:09:06.570 --> 00:09:07.929 have a discussion about is

NOTE Confidence: 0.9706419

00:09:07.929 --> 00:09:08.809 what is the best way

NOTE Confidence: 0.9706419

00:09:08.809 --> 00:09:10.350 we can help, the patient

NOTE Confidence: 0.9706419

00:09:10.565 --> 00:09:11.925 and their family member in

NOTE Confidence: 0.9706419

00:09:11.925 --> 00:09:13.125 this not just the short

NOTE Confidence: 0.9706419

00:09:13.125 --> 00:09:14.084 term, but in the long

NOTE Confidence: 0.9706419

00:09:14.084 --> 00:09:14.584 term.

NOTE Confidence: 0.98208123

00:09:14.885 --> 00:09:16.565 And this is, some data

NOTE Confidence: 0.98208123

00:09:16.565 --> 00:09:18.084 to support the benefit of

NOTE Confidence: 0.98208123

00:09:18.084 --> 00:09:19.385 doing a liver resection,

NOTE Confidence: 0.9672055

00:09:20.165 --> 00:09:21.925 for patients that develop a

NOTE Confidence: 0.9672055

00:09:21.925 --> 00:09:23.144 colorectal liver metastases

NOTE Confidence: 0.7492753

00:09:23.445 --> 00:09:23.765 because,

NOTE Confidence: 0.9921555

00:09:25.290 --> 00:09:26.490 a surgical approach for the

NOTE Confidence: 0.9921555

00:09:26.490 --> 00:09:28.170 resection of these tumors can

NOTE Confidence: 0.9921555

00:09:28.170 --> 00:09:28.670 provide,

NOTE Confidence: 0.9995415

00:09:29.529 --> 00:09:30.029 survival

NOTE Confidence: 0.90836406

00:09:30.970 --> 00:09:32.809 improvement and sometimes cure in

NOTE Confidence: 0.90836406

00:09:32.809 --> 00:09:33.309 patients.

NOTE Confidence: 0.8800764

00:09:33.929 --> 00:09:34.970 So and these are some

NOTE Confidence: 0.8800764

00:09:34.970 --> 00:09:35.470 series,

NOTE Confidence: 0.943583

00:09:35.929 --> 00:09:36.649 that have been,

NOTE Confidence: 0.99965864

00:09:37.290 --> 00:09:38.570 very well published over the

NOTE Confidence: 0.99965864

00:09:38.570 --> 00:09:39.070 years.

NOTE Confidence: 0.9995013

00:09:40.645 --> 00:09:41.865 This picture shows

NOTE Confidence: 0.973871

00:09:42.325 --> 00:09:43.525 some of the common types

NOTE Confidence: 0.973871

00:09:43.525 --> 00:09:44.885 of liver sections that we

NOTE Confidence: 0.973871

00:09:44.885 --> 00:09:45.385 perform.

NOTE Confidence: 0.95032704

00:09:46.245 --> 00:09:47.365 So the liver the way

NOTE Confidence: 0.95032704

00:09:47.365 --> 00:09:48.165 we look at it, the

NOTE Confidence: 0.95032704

00:09:48.165 --> 00:09:49.684 liver has eight different segments,

NOTE Confidence: 0.95032704

00:09:49.684 --> 00:09:50.725 and there's a right portion

NOTE Confidence: 0.95032704

00:09:50.725 --> 00:09:51.765 of the left liver and

NOTE Confidence: 0.95032704

00:09:51.765 --> 00:09:52.725 a left portion of the

NOTE Confidence: 0.95032704

00:09:52.725 --> 00:09:53.925 liver. And there's also a

NOTE Confidence: 0.95032704

00:09:53.925 --> 00:09:55.065 low called the caudate.

NOTE Confidence: 0.9448282

00:09:56.380 --> 00:09:57.100 These are some of the

NOTE Confidence: 0.9448282

00:09:57.100 --> 00:09:58.460 major liver sections that we

NOTE Confidence: 0.9448282

00:09:58.460 --> 00:09:58.960 performed,

NOTE Confidence: 0.99734753

00:09:59.420 --> 00:10:01.440 on figure in figure a.

NOTE Confidence: 0.94708496

00:10:01.820 --> 00:10:02.780 It shows what's called a

NOTE Confidence: 0.94708496

00:10:02.780 --> 00:10:04.480 right hepatectomy, which means,

NOTE Confidence: 0.94901454

00:10:04.860 --> 00:10:06.220 segments five, six, seven, and

NOTE Confidence: 0.94901454

00:10:06.220 --> 00:10:07.260 eight or the right portion

NOTE Confidence: 0.94901454

00:10:07.260 --> 00:10:07.920 of the liver,

NOTE Confidence: 0.9995732

00:10:08.220 --> 00:10:08.960 is resected.

NOTE Confidence: 0.98600376

00:10:09.925 --> 00:10:11.605 Picture b shows a left

NOTE Confidence: 0.98600376

00:10:11.605 --> 00:10:13.125 hepatectomy, which means,

NOTE Confidence: 0.94813186

00:10:13.525 --> 00:10:15.525 segments two, three, and four

NOTE Confidence: 0.94813186

00:10:15.525 --> 00:10:16.965 are resected. So the left

NOTE Confidence: 0.94813186

00:10:16.965 --> 00:10:18.405 portion of liver is, resected.

NOTE Confidence: 0.94813186

00:10:18.405 --> 00:10:19.705 The right portion remains.

NOTE Confidence: 0.95684

00:10:21.445 --> 00:10:22.885 Picture c shows an extended

NOTE Confidence: 0.95684

00:10:22.885 --> 00:10:24.325 right hepatectomy, which means we

NOTE Confidence: 0.95684

00:10:24.325 --> 00:10:25.380 take out the entire right

NOTE Confidence: 0.95684

00:10:25.380 --> 00:10:26.660 liver and part of the,

NOTE Confidence: 0.95684

00:10:26.900 --> 00:10:28.200 left liver as well.

NOTE Confidence: 0.95039076

00:10:28.820 --> 00:10:29.800 And then segment,

NOTE Confidence: 0.8096428

00:10:30.260 --> 00:10:32.120 picture D shows

NOTE Confidence: 0.89596015

00:10:32.740 --> 00:10:33.720 a left lateral

NOTE Confidence: 0.7950375

00:10:35.140 --> 00:10:35.640 sectionectomy,

NOTE Confidence: 0.9447919

00:10:36.100 --> 00:10:36.980 which means we take out

NOTE Confidence: 0.9447919

00:10:36.980 --> 00:10:38.100 part of the left lateral

NOTE Confidence: 0.9447919

00:10:38.100 --> 00:10:39.800 liver, segments two and three.

NOTE Confidence: 0.9447919

00:10:39.915 --> 00:10:41.615 And then picture e

NOTE Confidence: 0.9179636

00:10:42.074 --> 00:10:44.095 shows, an extended left hepatectomy.

NOTE Confidence: 0.9857141

00:10:45.035 --> 00:10:46.074 One thing I do wanna

NOTE Confidence: 0.9857141

00:10:46.074 --> 00:10:47.115 comment on is, you know,

NOTE Confidence: 0.9857141

00:10:47.115 --> 00:10:47.834 this is a lot of

NOTE Confidence: 0.9857141

00:10:47.834 --> 00:10:48.954 liver that we resect, and

NOTE Confidence: 0.9857141

00:10:48.954 --> 00:10:49.915 this is, you know, the

NOTE Confidence: 0.9857141

00:10:49.915 --> 00:10:51.434 resilience of the human body

NOTE Confidence: 0.9857141

00:10:51.434 --> 00:10:51.934 because,

NOTE Confidence: 0.97472435

00:10:52.475 --> 00:10:53.195 you know, when we were

NOTE Confidence: 0.97472435

00:10:53.355 --> 00:10:54.175 we can resect

NOTE Confidence: 0.9981929

00:10:54.490 --> 00:10:55.690 up to eighty percent of

NOTE Confidence: 0.9981929

00:10:55.690 --> 00:10:56.590 one's liver,

NOTE Confidence: 0.9947003

00:10:57.050 --> 00:10:58.830 with some anatomical considerations,

NOTE Confidence: 0.9707952

00:11:00.490 --> 00:11:01.230 in play,

NOTE Confidence: 0.95415586

00:11:01.690 --> 00:11:03.230 and the liver will regenerate

NOTE Confidence: 0.95415586

00:11:03.370 --> 00:11:05.130 for individuals and people patients

NOTE Confidence: 0.95415586

00:11:05.130 --> 00:11:06.010 can go on to live

NOTE Confidence: 0.95415586

00:11:06.010 --> 00:11:06.670 a very,

NOTE Confidence: 0.99024373

00:11:07.050 --> 00:11:08.330 solid quality of life in

NOTE Confidence: 0.99024373

00:11:08.330 --> 00:11:09.135 the long term

NOTE Confidence: 0.93076336

00:11:09.695 --> 00:11:10.415 even with,

NOTE Confidence: 0.9352571

00:11:11.054 --> 00:11:12.815 major operations such as, such

NOTE Confidence: 0.9352571

00:11:12.815 --> 00:11:13.695 as the ones that are

NOTE Confidence: 0.9352571

00:11:13.695 --> 00:11:14.755 listed over here.

NOTE Confidence: 0.9236898

00:11:17.695 --> 00:11:19.855 Synchronous hepatic metastases, I alluded

NOTE Confidence: 0.9236898

00:11:19.855 --> 00:11:20.735 to a bit earlier, and

NOTE Confidence: 0.9236898

00:11:20.735 --> 00:11:22.415 these are metastases that are,

NOTE Confidence: 0.9236898

00:11:22.735 --> 00:11:24.507 essentially diagnosed at at the

NOTE Confidence: 0.9236898

00:11:24.507 --> 00:11:26.225 time that the colon cancer

NOTE Confidence: 0.9236898

00:11:26.225 --> 00:11:27.944 is diagnosed, and it's found

NOTE Confidence: 0.9236898

00:11:27.944 --> 00:11:29.662 in about twenty to thirty

NOTE Confidence: 0.9236898

00:11:29.662 --> 00:11:31.380 four percent of individuals with

NOTE Confidence: 0.9236898

00:11:31.380 --> 00:11:33.099 the new colorectal cancer diagnosis.

NOTE Confidence: 0.9236898

00:11:33.099 --> 00:11:34.817 And I had mentioned before

NOTE Confidence: 0.9236898

00:11:34.817 --> 00:11:36.535 that metastasis development of metastasis

NOTE Confidence: 0.9236898

00:11:36.535 --> 00:11:38.253 more than six months after

NOTE Confidence: 0.9236898

00:11:38.253 --> 00:11:39.285 the primary tumor.

NOTE Confidence: 0.9487757

00:11:40.404 --> 00:11:42.165 For patients with synchronous hepatic

NOTE Confidence: 0.9487757

00:11:42.165 --> 00:11:43.605 metastases, there are different ways

NOTE Confidence: 0.9487757

00:11:43.605 --> 00:11:45.204 to approach it. And, at

NOTE Confidence: 0.9487757

00:11:45.204 --> 00:11:46.084 Yale, we have a great

NOTE Confidence: 0.9487757

00:11:46.084 --> 00:11:47.925 multidisciplinary team that does that

NOTE Confidence: 0.9487757

00:11:47.925 --> 00:11:50.245 includes our intervention radiologists, our

NOTE Confidence: 0.9487757

00:11:50.245 --> 00:11:52.264 radiation oncologist, our medical oncologist,

NOTE Confidence: 0.93041384

00:11:52.760 --> 00:11:54.200 and other surgeons other in

NOTE Confidence: 0.93041384

00:11:54.200 --> 00:11:56.040 addition to HPV surgical oncologist

NOTE Confidence: 0.93041384

00:11:56.040 --> 00:11:57.960 such as colorectal surgeons. One

NOTE Confidence: 0.93041384

00:11:57.960 --> 00:11:59.420 thing that comes up frequently

NOTE Confidence: 0.93041384

00:11:59.480 --> 00:12:00.760 is in patients that present

NOTE Confidence: 0.93041384

00:12:00.760 --> 00:12:02.140 with a synchronous pattern.

NOTE Confidence: 0.9656059

00:12:02.760 --> 00:12:04.120 Sometimes we can remove the

NOTE Confidence: 0.9656059

00:12:04.120 --> 00:12:05.385 colon tumor first,

NOTE Confidence: 0.97196656

00:12:05.785 --> 00:12:06.505 and there's some,

NOTE Confidence: 0.98512447

00:12:06.905 --> 00:12:08.505 advantages and disadvantages to doing

NOTE Confidence: 0.98512447

00:12:08.505 --> 00:12:09.465 in that in that sort

NOTE Confidence: 0.98512447

00:12:09.465 --> 00:12:10.585 of a manner. So that's

NOTE Confidence: 0.98512447

00:12:10.585 --> 00:12:12.025 what's called the primary first

NOTE Confidence: 0.98512447

00:12:12.025 --> 00:12:12.525 approach.

NOTE Confidence: 0.9474941

00:12:13.065 --> 00:12:14.585 Another is a combined approach,

NOTE Confidence: 0.9474941

00:12:14.585 --> 00:12:15.465 and this is where the

NOTE Confidence: 0.9474941

00:12:15.465 --> 00:12:16.985 primary tumor where the colon

NOTE Confidence: 0.9474941

00:12:16.985 --> 00:12:18.740 tumor arose from and the,

NOTE Confidence: 0.9474941

00:12:19.059 --> 00:12:21.059 liver metastases are resected in

NOTE Confidence: 0.9474941

00:12:21.059 --> 00:12:22.899 one, separate in one single

NOTE Confidence: 0.9474941

00:12:22.899 --> 00:12:23.399 setting.

NOTE Confidence: 0.97887367

00:12:24.420 --> 00:12:25.940 This, it can be applied

NOTE Confidence: 0.97887367

00:12:25.940 --> 00:12:27.240 to many patients,

NOTE Confidence: 0.9840915

00:12:27.940 --> 00:12:28.899 but it tends to work

NOTE Confidence: 0.9840915

00:12:28.899 --> 00:12:29.860 well if you're we're not

NOTE Confidence: 0.9840915

00:12:29.860 --> 00:12:31.320 doing a major liver resection

NOTE Confidence: 0.9840915

00:12:31.460 --> 00:12:32.899 and, we're not doing a

NOTE Confidence: 0.9840915

00:12:32.899 --> 00:12:34.875 major, colorectal resection at the

NOTE Confidence: 0.9840915

00:12:34.875 --> 00:12:35.695 same time.

NOTE Confidence: 0.9743687

00:12:36.475 --> 00:12:37.995 So but sometimes we can

NOTE Confidence: 0.9743687

00:12:37.995 --> 00:12:39.275 remove both tumors at the

NOTE Confidence: 0.9743687

00:12:39.275 --> 00:12:40.795 same time. And then there's

NOTE Confidence: 0.9743687

00:12:40.795 --> 00:12:41.375 a metastasis

NOTE Confidence: 0.9905529

00:12:41.675 --> 00:12:42.795 first approach, and this is

NOTE Confidence: 0.9905529

00:12:42.795 --> 00:12:44.395 something that I tend to

NOTE Confidence: 0.9905529

00:12:44.395 --> 00:12:44.895 favor,

NOTE Confidence: 0.9992827

00:12:45.515 --> 00:12:46.635 if a combined approach is

NOTE Confidence: 0.9992827

00:12:46.635 --> 00:12:47.455 not possible

NOTE Confidence: 0.94348764

00:12:47.820 --> 00:12:49.200 because, a hepatectomy

NOTE Confidence: 0.82409334

00:12:49.820 --> 00:12:51.600 that meaning the hepatic metastasis

NOTE Confidence: 0.87483996

00:12:52.140 --> 00:12:53.200 is removed first,

NOTE Confidence: 0.95874524

00:12:53.740 --> 00:12:55.020 and there's some advantages to

NOTE Confidence: 0.95874524

00:12:55.020 --> 00:12:56.059 this sort of approach as

NOTE Confidence: 0.95874524

00:12:56.059 --> 00:12:56.800 well too.

NOTE Confidence: 0.97584695

00:12:57.100 --> 00:12:58.300 But all of these approaches

NOTE Confidence: 0.97584695

00:12:58.300 --> 00:12:58.940 are are,

NOTE Confidence: 0.99543256

00:12:59.420 --> 00:13:00.559 are well accepted.

NOTE Confidence: 0.9526461

00:13:02.745 --> 00:13:04.505 Sometimes if patients present with

NOTE Confidence: 0.9526461

00:13:04.505 --> 00:13:06.425 bilateral metastases, which means there

NOTE Confidence: 0.9526461

00:13:06.425 --> 00:13:07.945 are metastases present in the

NOTE Confidence: 0.9526461

00:13:07.945 --> 00:13:09.304 right liver and the left

NOTE Confidence: 0.9526461

00:13:09.304 --> 00:13:09.804 liver,

NOTE Confidence: 0.94565564

00:13:10.904 --> 00:13:12.765 it could create some challenges.

NOTE Confidence: 0.9520211

00:13:13.304 --> 00:13:14.825 However, I do want to

NOTE Confidence: 0.9520211

00:13:14.825 --> 00:13:16.059 say that we, even in

NOTE Confidence: 0.9520211

00:13:16.059 --> 00:13:17.740 the presence of bilateral hepatic

NOTE Confidence: 0.9520211

00:13:17.740 --> 00:13:18.240 metastases,

NOTE Confidence: 0.9781303

00:13:19.179 --> 00:13:20.379 is not what's called a

NOTE Confidence: 0.9781303

00:13:20.379 --> 00:13:22.379 contraindication of surgery. There are

NOTE Confidence: 0.9781303

00:13:22.379 --> 00:13:23.980 patients that present with bilateral

NOTE Confidence: 0.9781303

00:13:23.980 --> 00:13:25.420 hepatic metastases where we can

NOTE Confidence: 0.9781303

00:13:25.420 --> 00:13:26.720 resect both,

NOTE Confidence: 0.94424134

00:13:27.899 --> 00:13:28.879 sides of metastases.

NOTE Confidence: 0.98989546

00:13:29.654 --> 00:13:31.334 And, and this is something

NOTE Confidence: 0.98989546

00:13:31.334 --> 00:13:33.014 that we consider, and we

NOTE Confidence: 0.98989546

00:13:33.014 --> 00:13:34.554 do treat patients like this

NOTE Confidence: 0.9621268

00:13:37.095 --> 00:13:38.774 relatively extensively here at our

NOTE Confidence: 0.9621268

00:13:38.774 --> 00:13:40.454 Yale Cancer Center. So it's

NOTE Confidence: 0.9621268

00:13:40.454 --> 00:13:41.334 a it's a very good

NOTE Confidence: 0.9621268

00:13:41.334 --> 00:13:43.095 armamentarium to have. So bilateral

NOTE Confidence: 0.9621268

00:13:43.095 --> 00:13:43.595 metastases,

NOTE Confidence: 0.89437187

00:13:44.620 --> 00:13:46.380 patient patient with bilateral hepatic

NOTE Confidence: 0.89437187

00:13:46.380 --> 00:13:47.920 metastases can still undergo,

NOTE Confidence: 0.84802663

00:13:48.459 --> 00:13:49.679 surgical approach.

NOTE Confidence: 0.9819446

00:13:50.300 --> 00:13:51.339 And this is just these

NOTE Confidence: 0.9819446

00:13:51.339 --> 00:13:52.779 are some examples of how,

NOTE Confidence: 0.9819446

00:13:53.100 --> 00:13:55.100 we sometimes consider patients, that

NOTE Confidence: 0.9819446

00:13:55.100 --> 00:13:56.480 present bilateral metastases.

NOTE Confidence: 0.9391736

00:13:57.179 --> 00:13:59.019 Some patients will consider giving

NOTE Confidence: 0.9391736

00:13:59.019 --> 00:14:00.774 them systemic therapy upfront with

NOTE Confidence: 0.9391736

00:14:00.774 --> 00:14:02.214 doctor Kortmansky and his medical

NOTE Confidence: 0.9391736

00:14:02.214 --> 00:14:04.134 oncology colleagues and then consider

NOTE Confidence: 0.9391736

00:14:04.134 --> 00:14:04.634 doing,

NOTE Confidence: 0.8855669

00:14:05.014 --> 00:14:06.054 removing a part part of

NOTE Confidence: 0.8855669

00:14:06.054 --> 00:14:07.175 the liver or recall what's

NOTE Confidence: 0.8855669

00:14:07.175 --> 00:14:08.235 called a minor hepatectomy.

NOTE Confidence: 0.9565935

00:14:08.934 --> 00:14:09.815 And in that kind of

NOTE Confidence: 0.9565935

00:14:09.815 --> 00:14:11.195 a circumstance, sometimes,

NOTE Confidence: 0.97219574

00:14:11.975 --> 00:14:13.334 the you know, I think

NOTE Confidence: 0.97219574

00:14:13.334 --> 00:14:14.615 doctor Madoff may talk about

NOTE Confidence: 0.97219574

00:14:14.615 --> 00:14:16.480 it, but, sometimes the liver

NOTE Confidence: 0.97219574

00:14:16.480 --> 00:14:18.000 needs to have what's called

NOTE Confidence: 0.97219574

00:14:18.000 --> 00:14:18.500 hypertrophy

NOTE Confidence: 0.98027086

00:14:18.880 --> 00:14:20.240 in order to recover from

NOTE Confidence: 0.98027086

00:14:20.240 --> 00:14:21.300 two liver operation.

NOTE Confidence: 0.9566619

00:14:22.000 --> 00:14:23.360 That's where we'll involve doctor

NOTE Confidence: 0.9566619

00:14:23.360 --> 00:14:24.400 Madoff's team to do what's

NOTE Confidence: 0.9566619

00:14:24.400 --> 00:14:25.700 called a portal vein embolization

NOTE Confidence: 0.96011424

00:14:26.160 --> 00:14:27.760 and then take remove do

NOTE Confidence: 0.96011424

00:14:27.760 --> 00:14:29.120 the major hepatectomy in a

NOTE Confidence: 0.96011424

00:14:29.120 --> 00:14:30.640 second setting and then finish

NOTE Confidence: 0.96011424

00:14:30.640 --> 00:14:32.025 the systemic therapy. So that

NOTE Confidence: 0.96011424

00:14:32.025 --> 00:14:33.065 is one approach that we

NOTE Confidence: 0.96011424

00:14:33.065 --> 00:14:35.625 sometimes use. Another approach, can

NOTE Confidence: 0.96011424

00:14:35.625 --> 00:14:36.925 be doing a minor hepatectomy

NOTE Confidence: 0.96011424

00:14:37.145 --> 00:14:37.645 first,

NOTE Confidence: 0.95812416

00:14:38.105 --> 00:14:39.465 plus or minus the PBE,

NOTE Confidence: 0.95812416

00:14:39.465 --> 00:14:40.685 then doing a major hepatectomy,

NOTE Confidence: 0.8995996

00:14:41.545 --> 00:14:43.565 later and then, saving systemic

NOTE Confidence: 0.8995996

00:14:43.625 --> 00:14:44.685 therapy for later.

NOTE Confidence: 0.9975356

00:14:45.000 --> 00:14:46.300 So that's another approach.

NOTE Confidence: 0.94982153

00:14:46.600 --> 00:14:47.960 And then sometimes a single

NOTE Confidence: 0.94982153

00:14:47.960 --> 00:14:49.640 liver surgery is possible even

NOTE Confidence: 0.94982153

00:14:49.640 --> 00:14:50.680 in the case of bilateral

NOTE Confidence: 0.94982153

00:14:50.680 --> 00:14:52.360 hepatic metastases, and this is

NOTE Confidence: 0.94982153

00:14:52.360 --> 00:14:54.140 where parenchymal sparing resections,

NOTE Confidence: 0.94943565

00:14:54.760 --> 00:14:55.800 can become a bit more

NOTE Confidence: 0.94943565

00:14:55.800 --> 00:14:56.300 useful.

NOTE Confidence: 0.9764567

00:14:56.985 --> 00:14:58.584 There's a concept known as

NOTE Confidence: 0.9764567

00:14:58.584 --> 00:15:00.265 disappearing liver metastases. And the

NOTE Confidence: 0.9764567

00:15:00.265 --> 00:15:01.464 reason I wanna mention this

NOTE Confidence: 0.9764567

00:15:01.464 --> 00:15:02.125 is because,

NOTE Confidence: 0.996377

00:15:02.584 --> 00:15:04.265 I think it's important that,

NOTE Confidence: 0.9860385

00:15:04.665 --> 00:15:05.865 when a patient is diagnosed

NOTE Confidence: 0.9860385

00:15:05.865 --> 00:15:07.625 with colon cancer and liver

NOTE Confidence: 0.9860385

00:15:07.625 --> 00:15:09.404 metastases, they see the hepatobiliary

NOTE Confidence: 0.9860385

00:15:09.625 --> 00:15:11.144 surgeon early on in the

NOTE Confidence: 0.9860385

00:15:11.144 --> 00:15:11.644 diagnosis

NOTE Confidence: 0.8939503

00:15:11.945 --> 00:15:12.845 because sometimes

NOTE Confidence: 0.95174253

00:15:13.200 --> 00:15:15.120 patients can be given systemic

NOTE Confidence: 0.95174253

00:15:15.120 --> 00:15:16.800 therapy and the lesions will

NOTE Confidence: 0.95174253

00:15:16.800 --> 00:15:17.300 disappear.

NOTE Confidence: 0.9568908

00:15:17.920 --> 00:15:19.680 And, and that can create

NOTE Confidence: 0.9568908

00:15:19.680 --> 00:15:21.280 some challenges down the road.

NOTE Confidence: 0.9568908

00:15:21.280 --> 00:15:22.480 So that's why we love

NOTE Confidence: 0.9568908

00:15:22.480 --> 00:15:24.240 for our patients to, see

NOTE Confidence: 0.9568908

00:15:24.240 --> 00:15:24.900 our multidisciplinary

NOTE Confidence: 0.84816027

00:15:25.280 --> 00:15:25.725 team,

NOTE Confidence: 0.9486004

00:15:26.285 --> 00:15:27.185 early on,

NOTE Confidence: 0.9350484

00:15:27.964 --> 00:15:29.404 all the disciplines in order

NOTE Confidence: 0.9350484

00:15:29.404 --> 00:15:30.764 to help provide the best

NOTE Confidence: 0.9350484

00:15:30.764 --> 00:15:32.285 not just short outcome, best

NOTE Confidence: 0.9350484

00:15:32.285 --> 00:15:33.264 long term outcome.

NOTE Confidence: 0.96751624

00:15:35.884 --> 00:15:37.805 Ablation, I'll go through this

NOTE Confidence: 0.96751624

00:15:37.805 --> 00:15:39.324 relatively quickly because I believe

NOTE Confidence: 0.96751624

00:15:39.324 --> 00:15:40.480 Doctor. Madoff will talk about

NOTE Confidence: 0.96751624

00:15:40.480 --> 00:15:41.120 it, but this is a

NOTE Confidence: 0.96751624

00:15:41.120 --> 00:15:42.240 very good option that we

NOTE Confidence: 0.96751624

00:15:42.240 --> 00:15:44.000 sometimes use as a surgical

NOTE Confidence: 0.96751624

00:15:44.000 --> 00:15:46.000 oncologist where we burn the

NOTE Confidence: 0.96751624

00:15:46.000 --> 00:15:47.680 tumor with microwave ablation and

NOTE Confidence: 0.96751624

00:15:47.680 --> 00:15:49.840 less frequently radio frequency ablation

NOTE Confidence: 0.96751624

00:15:49.840 --> 00:15:50.580 these days.

NOTE Confidence: 0.9812962

00:15:51.520 --> 00:15:53.295 And there is data to

NOTE Confidence: 0.9812962

00:15:53.295 --> 00:15:55.214 support the use of, ablation

NOTE Confidence: 0.9812962

00:15:55.214 --> 00:15:56.754 for the treatment for patients.

NOTE Confidence: 0.9677525

00:15:57.774 --> 00:15:59.134 And there is a more

NOTE Confidence: 0.9677525

00:15:59.134 --> 00:16:00.654 recent trial called the collision

NOTE Confidence: 0.9677525

00:16:00.654 --> 00:16:02.495 trial where microwave treatment,

NOTE Confidence: 0.99856746

00:16:02.894 --> 00:16:04.254 can be effective in tumors

NOTE Confidence: 0.99856746

00:16:04.254 --> 00:16:05.394 less than three centimeters.

NOTE Confidence: 0.6851009

00:16:06.290 --> 00:16:06.790 However,

NOTE Confidence: 0.9752505

00:16:07.250 --> 00:16:08.529 and so that's that's a

NOTE Confidence: 0.9752505

00:16:08.529 --> 00:16:09.889 very important study that was

NOTE Confidence: 0.9752505

00:16:09.889 --> 00:16:11.510 published relatively recently.

NOTE Confidence: 0.96549606

00:16:11.889 --> 00:16:12.610 And the way I look

NOTE Confidence: 0.96549606

00:16:12.610 --> 00:16:13.490 at that study is it

NOTE Confidence: 0.96549606

00:16:13.490 --> 00:16:15.010 can it shows that microwave

NOTE Confidence: 0.96549606

00:16:15.010 --> 00:16:16.370 ablation can be very good

NOTE Confidence: 0.96549606

00:16:16.370 --> 00:16:16.870 adjunct,

NOTE Confidence: 0.89609885

00:16:17.410 --> 00:16:18.870 to treating patients with colorectal

NOTE Confidence: 0.89609885

00:16:19.010 --> 00:16:20.449 liver metastases, and sometimes it

NOTE Confidence: 0.89609885

00:16:20.449 --> 00:16:21.445 can be used patients with

NOTE Confidence: 0.89609885

00:16:21.445 --> 00:16:22.904 bilobar hepatic metastases.

NOTE Confidence: 0.9738074

00:16:23.845 --> 00:16:24.644 But I do want to

NOTE Confidence: 0.9738074

00:16:24.644 --> 00:16:25.845 say that still, if a

NOTE Confidence: 0.9738074

00:16:25.845 --> 00:16:27.225 resection is possible,

NOTE Confidence: 0.9651456

00:16:28.005 --> 00:16:29.125 it tends to be better

NOTE Confidence: 0.9651456

00:16:29.125 --> 00:16:30.885 oncologically, and I think in

NOTE Confidence: 0.9651456

00:16:30.885 --> 00:16:32.165 future years, we may hear

NOTE Confidence: 0.9651456

00:16:32.165 --> 00:16:33.204 a little bit more about

NOTE Confidence: 0.9651456

00:16:33.204 --> 00:16:33.704 that.

NOTE Confidence: 0.96433157

00:16:35.980 --> 00:16:37.100 And the the last bit

NOTE Confidence: 0.96433157

00:16:37.100 --> 00:16:37.900 of the talk is to

NOTE Confidence: 0.96433157

00:16:37.900 --> 00:16:39.660 talk about, I'll talk about

NOTE Confidence: 0.96433157

00:16:39.660 --> 00:16:41.900 HAI pumps, which, will be

NOTE Confidence: 0.96433157

00:16:41.900 --> 00:16:43.120 talked a bit more later.

NOTE Confidence: 0.96433157

00:16:43.180 --> 00:16:44.780 And the concept behind this

NOTE Confidence: 0.96433157

00:16:44.780 --> 00:16:47.035 is many patients that do

NOTE Confidence: 0.96433157

00:16:47.035 --> 00:16:48.335 undergo liver resection,

NOTE Confidence: 0.93686306

00:16:49.835 --> 00:16:51.195 can develop a liver,

NOTE Confidence: 0.77729493

00:16:51.915 --> 00:16:52.415 recurrence.

NOTE Confidence: 0.9720329

00:16:52.955 --> 00:16:55.035 And, that's a relatively this

NOTE Confidence: 0.9720329

00:16:55.035 --> 00:16:56.235 is that's not an uncommon

NOTE Confidence: 0.9720329

00:16:56.235 --> 00:16:57.775 scenario that we're faced with.

NOTE Confidence: 0.9728796

00:16:58.959 --> 00:17:00.480 And the reason for that

NOTE Confidence: 0.9728796

00:17:00.480 --> 00:17:02.339 is, the biology of colorectal

NOTE Confidence: 0.9728796

00:17:02.399 --> 00:17:02.899 cancer,

NOTE Confidence: 0.9628664

00:17:03.440 --> 00:17:04.720 is unique and compared to

NOTE Confidence: 0.9628664

00:17:04.720 --> 00:17:06.480 many other cancers where patients

NOTE Confidence: 0.9628664

00:17:06.480 --> 00:17:08.260 can develop liver only metastases,

NOTE Confidence: 0.98778874

00:17:09.440 --> 00:17:11.440 and HAI therapy is a

NOTE Confidence: 0.98778874

00:17:11.440 --> 00:17:13.054 form of chemotherapy to provide

NOTE Confidence: 0.98778874

00:17:13.054 --> 00:17:14.434 liver specific chemotherapy

NOTE Confidence: 0.95959556

00:17:14.975 --> 00:17:16.815 where our surgical oncology team,

NOTE Confidence: 0.95959556

00:17:16.815 --> 00:17:18.195 we have an HAI program,

NOTE Confidence: 0.9196114

00:17:18.655 --> 00:17:20.494 inserts a catheter into gas

NOTE Confidence: 0.9196114

00:17:20.734 --> 00:17:22.895 an artery that eventually supplies

NOTE Confidence: 0.9196114

00:17:22.895 --> 00:17:24.415 blood to the liver, and

NOTE Confidence: 0.9196114

00:17:24.415 --> 00:17:26.035 chemotherapy can be administered.

NOTE Confidence: 0.9049964

00:17:26.450 --> 00:17:27.809 I'll go through this relatively

NOTE Confidence: 0.9049964

00:17:27.809 --> 00:17:28.850 quickly as I know doctor

NOTE Confidence: 0.9049964

00:17:28.850 --> 00:17:30.550 Corvansky talked about it.

NOTE Confidence: 0.98970455

00:17:31.730 --> 00:17:33.170 And but the principle is

NOTE Confidence: 0.98970455

00:17:33.170 --> 00:17:34.930 that the liver metastases are

NOTE Confidence: 0.98970455

00:17:34.930 --> 00:17:35.430 perfused

NOTE Confidence: 0.9817387

00:17:35.890 --> 00:17:37.330 by the hepatic artery. So

NOTE Confidence: 0.9817387

00:17:37.330 --> 00:17:38.710 if one can give chemotherapy,

NOTE Confidence: 0.99917024

00:17:39.490 --> 00:17:40.869 through that hepatic artery,

NOTE Confidence: 0.9555292

00:17:41.215 --> 00:17:42.255 you can provide a much

NOTE Confidence: 0.9555292

00:17:42.255 --> 00:17:43.395 higher dose of chemotherapy,

NOTE Confidence: 0.96838653

00:17:44.415 --> 00:17:45.775 than can be administered just

NOTE Confidence: 0.96838653

00:17:45.775 --> 00:17:46.515 through intravenous

NOTE Confidence: 0.9095371

00:17:46.815 --> 00:17:47.315 fashion,

NOTE Confidence: 0.98789465

00:17:47.855 --> 00:17:48.815 and it can have a

NOTE Confidence: 0.98789465

00:17:48.815 --> 00:17:49.775 very good effect,

NOTE Confidence: 0.8082074

00:17:50.975 --> 00:17:51.795 of cytotoxicity

NOTE Confidence: 0.97455674

00:17:52.335 --> 00:17:54.195 to the liver metastasis tumors.

NOTE Confidence: 0.972253

00:17:55.649 --> 00:17:56.850 I will skip this slide,

NOTE Confidence: 0.972253

00:17:56.850 --> 00:17:58.070 but I think doctor Korvansky

NOTE Confidence: 0.972253

00:17:58.129 --> 00:17:59.169 may talk about this, but

NOTE Confidence: 0.972253

00:17:59.169 --> 00:18:00.549 there is good evidence,

NOTE Confidence: 0.98967224

00:18:01.409 --> 00:18:04.070 that HAI therapy provides oncologic

NOTE Confidence: 0.98967224

00:18:04.210 --> 00:18:04.710 benefit.

NOTE Confidence: 0.9987297

00:18:05.809 --> 00:18:07.409 Generally speaking, these are patients

NOTE Confidence: 0.9987297

00:18:07.409 --> 00:18:09.029 we will consider for HAI

NOTE Confidence: 0.9987297

00:18:09.090 --> 00:18:09.590 therapy.

NOTE Confidence: 0.9967154

00:18:10.355 --> 00:18:11.655 One has to be histological

NOTE Confidence: 0.9763651

00:18:12.115 --> 00:18:14.275 confirmation of colorectal liver metastasis.

NOTE Confidence: 0.9763651

00:18:14.275 --> 00:18:15.175 We also do,

NOTE Confidence: 0.928274

00:18:15.795 --> 00:18:17.555 consider HAI therapy for patients

NOTE Confidence: 0.928274

00:18:17.555 --> 00:18:18.695 with intrepatic cholangiocarcinoma,

NOTE Confidence: 0.9796251

00:18:19.315 --> 00:18:20.275 which we're not going to

NOTE Confidence: 0.9796251

00:18:20.275 --> 00:18:22.115 talk about today. Patients must

NOTE Confidence: 0.9796251

00:18:22.115 --> 00:18:23.140 be fit to undergo a

NOTE Confidence: 0.9796251

00:18:23.140 --> 00:18:24.580 major abdominal operation, and it

NOTE Confidence: 0.9796251

00:18:24.580 --> 00:18:25.880 is not a minor operation,

NOTE Confidence: 0.9895539

00:18:26.980 --> 00:18:28.020 but it's not a major

NOTE Confidence: 0.9895539

00:18:28.020 --> 00:18:29.000 operation either.

NOTE Confidence: 0.9792646

00:18:29.700 --> 00:18:31.059 They cannot have evidence of

NOTE Confidence: 0.9792646

00:18:31.059 --> 00:18:32.820 portal hypertension or portal vein

NOTE Confidence: 0.9792646

00:18:32.820 --> 00:18:33.320 thrombosis.

NOTE Confidence: 0.9981645

00:18:33.700 --> 00:18:34.500 They have to have good

NOTE Confidence: 0.9981645

00:18:34.500 --> 00:18:35.320 liver parameters.

NOTE Confidence: 0.94586366

00:18:36.725 --> 00:18:38.244 The favorable hepatic anatomy, you

NOTE Confidence: 0.94586366

00:18:38.244 --> 00:18:39.205 know, that's a little bit

NOTE Confidence: 0.94586366

00:18:39.205 --> 00:18:40.665 subjective because there's a lot

NOTE Confidence: 0.94586366

00:18:40.965 --> 00:18:42.244 of innovative ways where the

NOTE Confidence: 0.94586366

00:18:42.244 --> 00:18:44.265 anatomy can be worked around

NOTE Confidence: 0.93378985

00:18:44.565 --> 00:18:46.645 and limited to, you know,

NOTE Confidence: 0.93378985

00:18:46.645 --> 00:18:48.505 no extrahepatic disease,

NOTE Confidence: 0.79032034

00:18:48.805 --> 00:18:49.785 generally speaking.

NOTE Confidence: 0.9453784

00:18:51.560 --> 00:18:53.000 This is one algorithm that

NOTE Confidence: 0.9453784

00:18:53.000 --> 00:18:54.220 we sometimes use,

NOTE Confidence: 0.9171046

00:18:54.600 --> 00:18:56.760 where patients present with resectable

NOTE Confidence: 0.9171046

00:18:56.760 --> 00:18:58.520 colorectal liver metastases. They had

NOTE Confidence: 0.9171046

00:18:58.520 --> 00:18:59.900 no extra hepatic disease.

NOTE Confidence: 0.9835877

00:19:00.359 --> 00:19:01.320 If they are at high

NOTE Confidence: 0.9835877

00:19:01.320 --> 00:19:03.480 risk for liver only recurrence,

NOTE Confidence: 0.9835877

00:19:03.480 --> 00:19:04.921 we can consider placing one

NOTE Confidence: 0.9835877

00:19:04.921 --> 00:19:06.335 of these liver pumps at

NOTE Confidence: 0.9835877

00:19:06.335 --> 00:19:07.294 the time that the liver

NOTE Confidence: 0.9835877

00:19:07.294 --> 00:19:08.274 resection is performed.

NOTE Confidence: 0.96954477

00:19:08.654 --> 00:19:10.034 But the more common scenario

NOTE Confidence: 0.96954477

00:19:10.095 --> 00:19:11.794 is patients present with unresectable

NOTE Confidence: 0.96954477

00:19:12.014 --> 00:19:13.475 colon cancer liver metastasis.

NOTE Confidence: 0.99640423

00:19:13.855 --> 00:19:15.394 They'll get systemic chemotherapy,

NOTE Confidence: 0.9557576

00:19:16.255 --> 00:19:18.034 by our medical oncology team,

NOTE Confidence: 0.96782494

00:19:18.400 --> 00:19:20.080 and there's no development or

NOTE Confidence: 0.96782494

00:19:20.080 --> 00:19:21.200 progression of disease.

NOTE Confidence: 0.93154454

00:19:22.080 --> 00:19:22.580 And,

NOTE Confidence: 0.8165879

00:19:23.359 --> 00:19:25.040 and sometimes with the or

NOTE Confidence: 0.8165879

00:19:25.040 --> 00:19:26.559 there is development progression of

NOTE Confidence: 0.8165879

00:19:26.559 --> 00:19:28.800 the extra of, extrahepatic disease.

NOTE Confidence: 0.8165879

00:19:28.800 --> 00:19:29.920 In that case, we'll we're

NOTE Confidence: 0.8165879

00:19:29.920 --> 00:19:31.460 less likely considered HAI.

NOTE Confidence: 0.97702813

00:19:32.405 --> 00:19:33.765 But sometimes there's a limited

NOTE Confidence: 0.97702813

00:19:33.765 --> 00:19:35.365 or no response, and we

NOTE Confidence: 0.97702813

00:19:35.365 --> 00:19:36.725 can consider HAI in these

NOTE Confidence: 0.97702813

00:19:36.725 --> 00:19:38.325 kinds of circumstances where the

NOTE Confidence: 0.97702813

00:19:38.325 --> 00:19:39.304 pump is placed.

NOTE Confidence: 0.89735514

00:19:42.164 --> 00:19:44.424 This is a cartoon depicting

NOTE Confidence: 0.89735514

00:19:44.484 --> 00:19:46.005 what exactly we do. So

NOTE Confidence: 0.89735514

00:19:46.005 --> 00:19:46.885 the pump is,

NOTE Confidence: 0.9771923

00:19:47.419 --> 00:19:48.299 is about the size of

NOTE Confidence: 0.9771923

00:19:48.299 --> 00:19:49.500 a hockey puck that's placed

NOTE Confidence: 0.9771923

00:19:49.500 --> 00:19:52.080 in the abdominal wall, underneath

NOTE Confidence: 0.9771923

00:19:52.140 --> 00:19:52.720 the skin,

NOTE Confidence: 0.9633215

00:19:53.580 --> 00:19:54.940 and oftentimes, we'll put on

NOTE Confidence: 0.9633215

00:19:54.940 --> 00:19:55.740 the left side of the

NOTE Confidence: 0.9633215

00:19:55.740 --> 00:19:57.020 patient, but there's other areas

NOTE Confidence: 0.9633215

00:19:57.020 --> 00:19:58.400 we can place these pumps,

NOTE Confidence: 0.9954488

00:19:58.779 --> 00:20:00.080 pumps as well too.

NOTE Confidence: 0.99770963

00:20:00.460 --> 00:20:01.580 The pump is connected to

NOTE Confidence: 0.99770963

00:20:01.580 --> 00:20:02.159 a catheter,

NOTE Confidence: 0.89533234

00:20:02.655 --> 00:20:03.775 which is placed in this

NOTE Confidence: 0.89533234

00:20:03.775 --> 00:20:04.255 hepatic,

NOTE Confidence: 0.9631025

00:20:04.895 --> 00:20:05.395 gastroduodenal

NOTE Confidence: 0.9517846

00:20:05.695 --> 00:20:06.575 artery, which supplies

NOTE Confidence: 0.97993785

00:20:07.055 --> 00:20:08.575 which, connects to the hepatic

NOTE Confidence: 0.97993785

00:20:08.575 --> 00:20:10.175 artery, which is where this,

NOTE Confidence: 0.986533

00:20:10.655 --> 00:20:13.155 chemotherapy is is, is delivered.

NOTE Confidence: 0.99354714

00:20:14.095 --> 00:20:15.375 Actually, after the implant, it's

NOTE Confidence: 0.99354714

00:20:15.375 --> 00:20:16.619 interesting that the body heat

NOTE Confidence: 0.99354714

00:20:16.700 --> 00:20:18.220 serves as an ongoing power

NOTE Confidence: 0.99354714

00:20:18.220 --> 00:20:19.600 supply for the drug delivery,

NOTE Confidence: 0.9572395

00:20:20.700 --> 00:20:22.400 and, our medical oncology,

NOTE Confidence: 0.90355134

00:20:23.100 --> 00:20:24.059 HAI team,

NOTE Confidence: 0.9961844

00:20:24.780 --> 00:20:26.220 helps manage this very carefully

NOTE Confidence: 0.9961844

00:20:26.220 --> 00:20:27.119 and very well.

NOTE Confidence: 0.9708124

00:20:28.300 --> 00:20:30.460 Everyone that, we consider for

NOTE Confidence: 0.9708124

00:20:30.460 --> 00:20:31.985 an HAI pump at EL

NOTE Confidence: 0.9708124

00:20:31.985 --> 00:20:33.105 is part of our HAI

NOTE Confidence: 0.9708124

00:20:33.105 --> 00:20:33.845 pump program,

NOTE Confidence: 0.95040894

00:20:34.225 --> 00:20:34.945 which is part of a

NOTE Confidence: 0.95040894

00:20:34.945 --> 00:20:35.445 multidisciplinary

NOTE Confidence: 0.99465215

00:20:35.825 --> 00:20:36.325 team.

NOTE Confidence: 0.8234091

00:20:37.185 --> 00:20:38.625 Patients are presented at our

NOTE Confidence: 0.8234091

00:20:38.625 --> 00:20:39.125 multidisciplinary

NOTE Confidence: 0.9955301

00:20:39.505 --> 00:20:40.325 tumor board.

NOTE Confidence: 0.91070515

00:20:40.865 --> 00:20:42.465 They are consulted. They seek

NOTE Confidence: 0.91070515

00:20:42.465 --> 00:20:44.145 different consultants such as surgical

NOTE Confidence: 0.91070515

00:20:44.145 --> 00:20:45.605 oncologists, medical oncologists,

NOTE Confidence: 0.88564813

00:20:46.410 --> 00:20:47.850 a social worker. They work

NOTE Confidence: 0.88564813

00:20:47.850 --> 00:20:49.230 with their radiologists,

NOTE Confidence: 0.94759554

00:20:49.770 --> 00:20:50.730 to get a good mapping

NOTE Confidence: 0.94759554

00:20:50.730 --> 00:20:52.830 study. The catheter is placed.

NOTE Confidence: 0.94759554

00:20:52.890 --> 00:20:54.030 Our nuclear medicine,

NOTE Confidence: 0.9558532

00:20:54.410 --> 00:20:54.910 doctors,

NOTE Confidence: 0.98756206

00:20:55.530 --> 00:20:56.810 help confirm that the catheter

NOTE Confidence: 0.98756206

00:20:56.810 --> 00:20:57.850 is in the right spot,

NOTE Confidence: 0.98756206

00:20:57.850 --> 00:20:59.230 and then the medical oncology

NOTE Confidence: 0.98756206

00:20:59.369 --> 00:21:00.350 team takes over.

NOTE Confidence: 0.957547

00:21:01.265 --> 00:21:02.404 So this is,

NOTE Confidence: 0.97280324

00:21:02.784 --> 00:21:04.005 one of the last slides,

NOTE Confidence: 0.97280324

00:21:04.144 --> 00:21:05.284 but this is a proposed

NOTE Confidence: 0.97280324

00:21:05.345 --> 00:21:06.544 algorithm for the management of

NOTE Confidence: 0.97280324

00:21:06.544 --> 00:21:07.524 hepatic metastases.

NOTE Confidence: 0.9311255

00:21:08.784 --> 00:21:10.385 Again, it's important to have

NOTE Confidence: 0.9311255

00:21:10.385 --> 00:21:11.744 the the patient seen by

NOTE Confidence: 0.9311255

00:21:11.744 --> 00:21:14.085 HPB surgical oncologist early on.

NOTE Confidence: 0.9128162

00:21:14.419 --> 00:21:15.640 If one has a resectable

NOTE Confidence: 0.9128162

00:21:15.780 --> 00:21:16.280 disease,

NOTE Confidence: 0.95085776

00:21:16.820 --> 00:21:18.440 sometimes they can get systemic

NOTE Confidence: 0.95085776

00:21:18.580 --> 00:21:19.700 therapy for four to six

NOTE Confidence: 0.95085776

00:21:19.700 --> 00:21:21.059 cycles early on and then

NOTE Confidence: 0.95085776

00:21:21.059 --> 00:21:22.359 undergo a liver resection.

NOTE Confidence: 0.9675197

00:21:22.820 --> 00:21:24.419 Or sometimes they can undergo

NOTE Confidence: 0.9675197

00:21:24.419 --> 00:21:25.700 liver surgery upfront, and we

NOTE Confidence: 0.9675197

00:21:25.700 --> 00:21:26.580 talked a little bit more

NOTE Confidence: 0.9675197

00:21:26.580 --> 00:21:27.539 about we talked a little

NOTE Confidence: 0.9675197

00:21:27.539 --> 00:21:28.500 bit about the different kinds

NOTE Confidence: 0.9675197

00:21:28.500 --> 00:21:29.559 of surgical approaches

NOTE Confidence: 0.8791267

00:21:29.914 --> 00:21:31.674 and sometimes post op post,

NOTE Confidence: 0.8791267

00:21:32.075 --> 00:21:32.895 liver surgery,

NOTE Confidence: 0.8850317

00:21:33.434 --> 00:21:35.215 the post hepatectomy therapy,

NOTE Confidence: 0.96798235

00:21:35.515 --> 00:21:37.515 systemic therapies needed. There are

NOTE Confidence: 0.96798235

00:21:37.515 --> 00:21:38.794 some patients that may present

NOTE Confidence: 0.96798235

00:21:38.794 --> 00:21:40.174 with unresectable disease,

NOTE Confidence: 0.9687474

00:21:40.955 --> 00:21:42.475 where we, start treatment with

NOTE Confidence: 0.9687474

00:21:42.475 --> 00:21:44.640 systemic therapy. We they'll be

NOTE Confidence: 0.9687474

00:21:44.640 --> 00:21:45.840 reimaged, and then at that

NOTE Confidence: 0.9687474

00:21:45.840 --> 00:21:47.680 point, we can consider liver

NOTE Confidence: 0.9687474

00:21:47.680 --> 00:21:48.880 surgery for those that have

NOTE Confidence: 0.9687474

00:21:48.880 --> 00:21:51.119 treatment response or consider additional

NOTE Confidence: 0.9687474

00:21:51.119 --> 00:21:52.560 systemic therapy or even liver

NOTE Confidence: 0.9687474

00:21:52.560 --> 00:21:54.320 directed therapy as was mentioned

NOTE Confidence: 0.9687474

00:21:54.320 --> 00:21:54.980 as well.

NOTE Confidence: 0.89751697

00:21:55.600 --> 00:21:56.684 So So in summary for

NOTE Confidence: 0.89751697

00:21:56.684 --> 00:21:58.225 colorectal cancer liver metastases,

NOTE Confidence: 0.9843825

00:21:58.845 --> 00:22:00.285 about fifty percent of patients

NOTE Confidence: 0.9843825

00:22:00.285 --> 00:22:01.725 with colon cancer liver with

NOTE Confidence: 0.9843825

00:22:01.725 --> 00:22:03.345 colorectal cancer will develop,

NOTE Confidence: 0.9985444

00:22:04.605 --> 00:22:06.145 or present with liver metastases.

NOTE Confidence: 0.98009115

00:22:06.765 --> 00:22:08.205 Liver surgery is an important

NOTE Confidence: 0.98009115

00:22:08.205 --> 00:22:08.705 armamentarium

NOTE Confidence: 0.95859176

00:22:09.005 --> 00:22:10.605 for patients with colorectal cancer

NOTE Confidence: 0.95859176

00:22:10.605 --> 00:22:11.345 liver metastases.

NOTE Confidence: 0.97787905

00:22:11.700 --> 00:22:13.000 We went over hepatectomies,

NOTE Confidence: 0.9960685

00:22:13.619 --> 00:22:14.679 microwave ablations,

NOTE Confidence: 0.8599988

00:22:15.139 --> 00:22:17.159 hepatic articular infusion pump placement.

NOTE Confidence: 0.9176702

00:22:17.779 --> 00:22:18.279 Multidisciplinary

NOTE Confidence: 0.95898736

00:22:18.820 --> 00:22:20.899 care incorporating liver surgery can

NOTE Confidence: 0.95898736

00:22:20.899 --> 00:22:22.200 improve patient survival,

NOTE Confidence: 0.97483677

00:22:23.779 --> 00:22:24.659 and that is in the

NOTE Confidence: 0.97483677

00:22:24.659 --> 00:22:26.279 case of synchronous and metacritic

NOTE Confidence: 0.97483677

00:22:26.419 --> 00:22:26.919 metastasis,

NOTE Confidence: 0.9784617

00:22:27.915 --> 00:22:30.475 disappearing lesions, and bilateral hepatic

NOTE Confidence: 0.9784617

00:22:30.475 --> 00:22:30.975 metastases.

NOTE Confidence: 0.99688995

00:22:32.155 --> 00:22:33.455 Thank you for your time.

NOTE Confidence: 0.98810875

00:22:33.994 --> 00:22:34.875 I'm gonna hand it off

NOTE Confidence: 0.98810875

00:22:34.875 --> 00:22:36.155 to my colleagues, for the

NOTE Confidence: 0.98810875

00:22:36.155 --> 00:22:37.295 next part of the talk.

NOTE Confidence: 0.990559

00:22:38.635 --> 00:22:40.395 Alright. Thank you, doctor Khan.

NOTE Confidence: 0.990559

00:22:40.395 --> 00:22:42.015 That was a fantastic talk.

NOTE Confidence: 0.9789955

00:22:43.090 --> 00:22:44.210 Just to help us stay

NOTE Confidence: 0.9789955

00:22:44.210 --> 00:22:45.830 on time, I'm gonna request,

NOTE Confidence: 0.83590734

00:22:47.090 --> 00:22:47.590 that,

NOTE Confidence: 0.9523369

00:22:48.050 --> 00:22:49.910 question. We'll address the questions,

NOTE Confidence: 0.98082566

00:22:51.090 --> 00:22:51.970 at the end of all

NOTE Confidence: 0.98082566

00:22:51.970 --> 00:22:52.790 of the talks,

NOTE Confidence: 0.9206099

00:22:53.330 --> 00:22:55.090 but certainly along the way,

NOTE Confidence: 0.9206099

00:22:55.090 --> 00:22:56.369 feel free to enter them

NOTE Confidence: 0.9206099

00:22:56.369 --> 00:22:57.010 into the,

NOTE Confidence: 0.9972878

00:22:58.065 --> 00:22:58.804 the chat.

NOTE Confidence: 0.99183583

00:22:59.184 --> 00:23:01.125 The panelists do have the

NOTE Confidence: 0.99183583

00:23:01.265 --> 00:23:02.885 option to respond,

NOTE Confidence: 0.9969801

00:23:03.505 --> 00:23:05.044 in the chat as well,

NOTE Confidence: 0.9938188

00:23:05.904 --> 00:23:07.585 if they feel so so

NOTE Confidence: 0.9938188

00:23:07.585 --> 00:23:08.085 compelled.

NOTE Confidence: 0.8880636

00:23:10.359 --> 00:23:11.640 On switching gears, I'm gonna

NOTE Confidence: 0.8880636

00:23:11.640 --> 00:23:12.140 talk,

NOTE Confidence: 0.83345175

00:23:12.600 --> 00:23:13.100 about,

NOTE Confidence: 0.90530956

00:23:15.320 --> 00:23:16.059 the chemotherapy.

NOTE Confidence: 0.9971094

00:23:17.880 --> 00:23:19.980 And I wanted to focus

NOTE Confidence: 0.89150393

00:23:21.960 --> 00:23:23.500 my part of this talk,

NOTE Confidence: 0.9985852

00:23:24.674 --> 00:23:26.375 not on all of chemotherapy

NOTE Confidence: 0.9543316

00:23:26.914 --> 00:23:27.414 for,

NOTE Confidence: 0.9845389

00:23:27.794 --> 00:23:29.015 metastatic colorectal,

NOTE Confidence: 0.98489815

00:23:29.955 --> 00:23:31.315 cancer, which could take a

NOTE Confidence: 0.98489815

00:23:31.315 --> 00:23:32.054 few hours,

NOTE Confidence: 0.9764543

00:23:32.835 --> 00:23:34.294 but really focusing

NOTE Confidence: 0.9968914

00:23:34.595 --> 00:23:36.900 on a follow-up to doctor

NOTE Confidence: 0.9968914

00:23:36.900 --> 00:23:38.500 Khan's talk in terms of

NOTE Confidence: 0.9968914

00:23:38.500 --> 00:23:39.880 the role of perioperative

NOTE Confidence: 0.9959484

00:23:40.180 --> 00:23:40.680 chemotherapy,

NOTE Confidence: 0.99620384

00:23:42.100 --> 00:23:43.560 in patients who are undergoing

NOTE Confidence: 0.99620384

00:23:43.780 --> 00:23:44.280 resection,

NOTE Confidence: 0.993965

00:23:45.540 --> 00:23:46.260 and then,

NOTE Confidence: 0.9997227

00:23:46.580 --> 00:23:47.240 the role

NOTE Confidence: 0.9880821

00:23:47.619 --> 00:23:49.240 of hepatic arterial infusion

NOTE Confidence: 0.9760447

00:23:49.635 --> 00:23:50.994 therapy, both for patients who

NOTE Confidence: 0.9760447

00:23:50.994 --> 00:23:51.895 have had resection

NOTE Confidence: 0.97743464

00:23:52.755 --> 00:23:53.955 as well as patients who

NOTE Confidence: 0.97743464

00:23:53.955 --> 00:23:54.855 are unresectable.

NOTE Confidence: 0.9829271

00:23:56.195 --> 00:23:57.955 I will emphasize that for

NOTE Confidence: 0.9829271

00:23:57.955 --> 00:23:59.575 patients who are upfront

NOTE Confidence: 0.93197113

00:24:00.035 --> 00:24:00.535 unresectable,

NOTE Confidence: 0.9710162

00:24:02.309 --> 00:24:04.010 or who have extra hepatic

NOTE Confidence: 0.9710162

00:24:04.070 --> 00:24:04.570 disease,

NOTE Confidence: 0.9991388

00:24:06.070 --> 00:24:07.510 it's always important for us

NOTE Confidence: 0.9991388

00:24:07.510 --> 00:24:08.630 to put our best foot

NOTE Confidence: 0.9991388

00:24:08.630 --> 00:24:09.909 forward in terms of our

NOTE Confidence: 0.9991388

00:24:09.909 --> 00:24:12.090 chemotherapy choices based on,

NOTE Confidence: 0.9720893

00:24:13.109 --> 00:24:15.270 the tumor sightedness and and

NOTE Confidence: 0.9720893

00:24:15.270 --> 00:24:16.330 tumor biology

NOTE Confidence: 0.78089684

00:24:16.630 --> 00:24:17.085 and,

NOTE Confidence: 0.98944104

00:24:17.484 --> 00:24:18.544 molecular profiling.

NOTE Confidence: 0.9975344

00:24:19.645 --> 00:24:20.684 I I think there are

NOTE Confidence: 0.9975344

00:24:20.684 --> 00:24:22.385 three important studies,

NOTE Confidence: 0.99067056

00:24:23.085 --> 00:24:23.904 to discuss,

NOTE Confidence: 0.965358

00:24:24.605 --> 00:24:26.385 in the world of perioperative

NOTE Confidence: 0.965358

00:24:26.684 --> 00:24:27.184 chemotherapy,

NOTE Confidence: 0.9901069

00:24:29.085 --> 00:24:29.585 EORTC

NOTE Confidence: 0.9962247

00:24:30.125 --> 00:24:31.825 four zero nine eight three

NOTE Confidence: 0.94662094

00:24:32.359 --> 00:24:33.720 or the EPOC study,

NOTE Confidence: 0.9607833

00:24:36.119 --> 00:24:37.900 which was a European study,

NOTE Confidence: 0.93774205

00:24:38.440 --> 00:24:40.700 JCOG zero six zero three,

NOTE Confidence: 0.9826272

00:24:41.080 --> 00:24:42.600 which was a Japanese study

NOTE Confidence: 0.9826272

00:24:42.600 --> 00:24:44.600 that just, reported out its

NOTE Confidence: 0.9826272

00:24:44.600 --> 00:24:45.340 long term,

NOTE Confidence: 0.80906546

00:24:46.520 --> 00:24:47.020 data,

NOTE Confidence: 0.76379466

00:24:48.425 --> 00:24:49.804 in January, and

NOTE Confidence: 0.9638984

00:24:50.345 --> 00:24:52.045 then new epoch,

NOTE Confidence: 0.9993247

00:24:52.505 --> 00:24:54.425 which was a follow-up to

NOTE Confidence: 0.9993247

00:24:54.425 --> 00:24:56.045 the original EORTC

NOTE Confidence: 0.99915075

00:24:56.505 --> 00:24:57.005 study.

NOTE Confidence: 0.9788629

00:25:03.080 --> 00:25:04.440 The reason why I chose

NOTE Confidence: 0.9788629

00:25:04.440 --> 00:25:06.600 these, three studies was that

NOTE Confidence: 0.9788629

00:25:06.600 --> 00:25:07.560 there has been a lot

NOTE Confidence: 0.9788629

00:25:07.560 --> 00:25:08.220 of work

NOTE Confidence: 0.9632003

00:25:08.760 --> 00:25:09.820 that was done,

NOTE Confidence: 0.9486595

00:25:10.840 --> 00:25:12.300 prior to those studies.

NOTE Confidence: 0.8922348

00:25:14.385 --> 00:25:14.965 Looking at,

NOTE Confidence: 0.99981374

00:25:15.744 --> 00:25:16.244 chemotherapy

NOTE Confidence: 0.9940703

00:25:16.705 --> 00:25:17.605 and surgery,

NOTE Confidence: 0.99036455

00:25:18.145 --> 00:25:19.345 some studies used,

NOTE Confidence: 0.97774965

00:25:19.744 --> 00:25:21.205 hepatic arterial infusion.

NOTE Confidence: 0.98845667

00:25:23.105 --> 00:25:24.145 The flaw in all of

NOTE Confidence: 0.98845667

00:25:24.145 --> 00:25:25.424 these studies is that they

NOTE Confidence: 0.98845667

00:25:25.424 --> 00:25:27.525 tended to be poorly powered,

NOTE Confidence: 0.985626

00:25:28.225 --> 00:25:29.580 to answer the question

NOTE Confidence: 0.98181176

00:25:30.119 --> 00:25:31.259 or had incomplete

NOTE Confidence: 0.9839854

00:25:32.119 --> 00:25:32.619 accrual.

NOTE Confidence: 0.98146296

00:25:33.559 --> 00:25:34.059 But

NOTE Confidence: 0.991615

00:25:34.359 --> 00:25:35.240 if you look at the

NOTE Confidence: 0.991615

00:25:35.240 --> 00:25:36.940 general trend of that data,

NOTE Confidence: 0.991615

00:25:37.080 --> 00:25:38.279 we do see that there

NOTE Confidence: 0.991615

00:25:38.279 --> 00:25:40.279 is improvements in progression free

NOTE Confidence: 0.991615

00:25:40.279 --> 00:25:40.779 survival,

NOTE Confidence: 0.94576734

00:25:42.035 --> 00:25:43.955 but not improvements in median

NOTE Confidence: 0.94576734

00:25:43.955 --> 00:25:44.934 overall survival.

NOTE Confidence: 0.99583906

00:25:46.595 --> 00:25:47.975 And so EORTC

NOTE Confidence: 0.99776614

00:25:48.595 --> 00:25:50.054 four zero nine eight three

NOTE Confidence: 0.996172

00:25:50.434 --> 00:25:51.414 looked at perioperative

NOTE Confidence: 0.99966955

00:25:51.715 --> 00:25:52.215 chemotherapy

NOTE Confidence: 0.97403896

00:25:52.595 --> 00:25:53.335 with FOLFOX

NOTE Confidence: 0.9957013

00:25:54.035 --> 00:25:54.695 four, a

NOTE Confidence: 0.9576763

00:25:55.170 --> 00:25:57.270 modern regimen incorporating oxaliplatin,

NOTE Confidence: 0.8994909

00:25:57.810 --> 00:25:59.570 whereas prior studies used five

NOTE Confidence: 0.8994909

00:25:59.570 --> 00:26:00.470 f u alone,

NOTE Confidence: 0.99506557

00:26:01.490 --> 00:26:03.810 and surgery versus surgery alone

NOTE Confidence: 0.99506557

00:26:03.810 --> 00:26:05.270 in patients who had

NOTE Confidence: 0.96860504

00:26:05.970 --> 00:26:07.510 resectable liver metastases.

NOTE Confidence: 0.7412618

00:26:08.369 --> 00:26:09.030 This study

NOTE Confidence: 0.9977757

00:26:09.675 --> 00:26:11.275 enrolled three hundred and sixty

NOTE Confidence: 0.9977757

00:26:11.275 --> 00:26:12.715 four patients with up to

NOTE Confidence: 0.9977757

00:26:12.715 --> 00:26:13.855 four liver metastases.

NOTE Confidence: 0.99372715

00:26:15.115 --> 00:26:16.795 All patients had previously had

NOTE Confidence: 0.99372715

00:26:16.795 --> 00:26:18.575 their primary tumor resected.

NOTE Confidence: 0.9841298

00:26:19.675 --> 00:26:22.015 Patients received either surgery alone

NOTE Confidence: 0.9841298

00:26:22.235 --> 00:26:24.415 or six cycles of FOLFOX,

NOTE Confidence: 0.9762545

00:26:25.630 --> 00:26:26.130 before,

NOTE Confidence: 0.9627137

00:26:26.510 --> 00:26:28.290 surgery and then an additional

NOTE Confidence: 0.9627137

00:26:28.350 --> 00:26:29.250 six after.

NOTE Confidence: 0.9780708

00:26:29.869 --> 00:26:31.869 The primary endpoint was progression

NOTE Confidence: 0.9780708

00:26:31.869 --> 00:26:32.609 free survival.

NOTE Confidence: 0.9901914

00:26:34.109 --> 00:26:35.309 A hundred and eighty two

NOTE Confidence: 0.9901914

00:26:35.309 --> 00:26:37.470 patients were enrolled to each

NOTE Confidence: 0.9901914

00:26:37.470 --> 00:26:37.869 arm.

NOTE Confidence: 0.9980375

00:26:38.270 --> 00:26:39.549 A hundred and seventy one

NOTE Confidence: 0.9980375

00:26:39.549 --> 00:26:40.750 in each arm turned out

NOTE Confidence: 0.9980375

00:26:40.750 --> 00:26:41.175 to be

NOTE Confidence: 0.986895

00:26:42.135 --> 00:26:44.775 eligible. Patients were evenly matched

NOTE Confidence: 0.986895

00:26:44.775 --> 00:26:46.615 for stage, number of liver

NOTE Confidence: 0.986895

00:26:46.615 --> 00:26:47.115 metastases,

NOTE Confidence: 0.99691284

00:26:47.655 --> 00:26:49.575 the disease free interval between

NOTE Confidence: 0.99691284

00:26:49.575 --> 00:26:50.795 their primary tumor,

NOTE Confidence: 0.9835517

00:26:51.735 --> 00:26:53.675 and, metastatic disease,

NOTE Confidence: 0.9786426

00:26:54.600 --> 00:26:55.340 prior treatments,

NOTE Confidence: 0.98054874

00:26:55.799 --> 00:26:56.619 and CEA.

NOTE Confidence: 0.99878526

00:26:58.119 --> 00:26:59.160 In the group that got

NOTE Confidence: 0.99878526

00:26:59.160 --> 00:26:59.660 perioperative

NOTE Confidence: 0.99739814

00:27:00.040 --> 00:27:00.540 chemotherapy,

NOTE Confidence: 0.9703552

00:27:01.640 --> 00:27:03.720 eighty or eighty percent completed

NOTE Confidence: 0.9703552

00:27:03.720 --> 00:27:05.260 their preoperative treatment,

NOTE Confidence: 0.99930733

00:27:05.720 --> 00:27:07.400 with ninety two percent dose

NOTE Confidence: 0.99930733

00:27:07.400 --> 00:27:07.900 intensity

NOTE Confidence: 0.99830264

00:27:08.885 --> 00:27:10.244 and a response rate of

NOTE Confidence: 0.99830264

00:27:10.244 --> 00:27:11.304 forty three percent,

NOTE Confidence: 0.9691062

00:27:11.924 --> 00:27:13.465 with three percent CR,

NOTE Confidence: 0.9790024

00:27:14.484 --> 00:27:16.325 a number that corresponds with

NOTE Confidence: 0.9790024

00:27:16.325 --> 00:27:17.845 what we usually see with

NOTE Confidence: 0.9790024

00:27:17.845 --> 00:27:18.904 FOLFOX chemotherapy,

NOTE Confidence: 0.99244225

00:27:19.924 --> 00:27:21.544 and seven percent progressed

NOTE Confidence: 0.93111897

00:27:21.845 --> 00:27:22.505 on their,

NOTE Confidence: 0.9922076

00:27:23.020 --> 00:27:24.240 preoperative treatment.

NOTE Confidence: 0.97913814

00:27:25.100 --> 00:27:26.700 Ultimately, of the hundred and

NOTE Confidence: 0.97913814

00:27:26.700 --> 00:27:28.160 seventy one who are eligible,

NOTE Confidence: 0.97913814

00:27:28.220 --> 00:27:29.580 a hundred and fifty nine

NOTE Confidence: 0.97913814

00:27:29.580 --> 00:27:30.800 went on to surgery,

NOTE Confidence: 0.99830323

00:27:31.580 --> 00:27:33.340 but only forty six percent

NOTE Confidence: 0.99830323

00:27:33.340 --> 00:27:34.700 were able to complete their

NOTE Confidence: 0.99830323

00:27:34.700 --> 00:27:35.200 postoperative

NOTE Confidence: 0.9995431

00:27:35.500 --> 00:27:36.000 chemotherapy.

NOTE Confidence: 0.99814785

00:27:37.365 --> 00:27:38.725 For the surgery alone group,

NOTE Confidence: 0.99814785

00:27:38.725 --> 00:27:40.085 a hundred and seventy out

NOTE Confidence: 0.99814785

00:27:40.085 --> 00:27:41.785 of the one seventy one,

NOTE Confidence: 0.9964569

00:27:42.484 --> 00:27:43.705 went on to surgery.

NOTE Confidence: 0.9970304

00:27:45.605 --> 00:27:47.785 And so the the progression

NOTE Confidence: 0.9970304

00:27:47.925 --> 00:27:49.685 free survival was the first

NOTE Confidence: 0.9970304

00:27:49.685 --> 00:27:51.065 data that was presented.

NOTE Confidence: 0.9941236

00:27:52.170 --> 00:27:53.630 They broke it up into,

NOTE Confidence: 0.9988776

00:27:54.650 --> 00:27:55.150 multiple

NOTE Confidence: 0.93882954

00:27:55.850 --> 00:27:57.930 subsets looking at all those

NOTE Confidence: 0.93882954

00:27:57.930 --> 00:27:58.590 who were,

NOTE Confidence: 0.9725584

00:27:59.450 --> 00:28:01.610 who were randomly assigned, patients

NOTE Confidence: 0.9725584

00:28:01.610 --> 00:28:02.810 who were eligible, and then,

NOTE Confidence: 0.9725584

00:28:02.810 --> 00:28:04.430 ultimately, the patients who underwent

NOTE Confidence: 0.9725584

00:28:04.650 --> 00:28:05.150 resection.

NOTE Confidence: 0.97074777

00:28:06.494 --> 00:28:08.755 But it's a consistent theme,

NOTE Confidence: 0.97074777

00:28:08.975 --> 00:28:10.975 which is that, the three

NOTE Confidence: 0.97074777

00:28:10.975 --> 00:28:12.595 year progression free survival

NOTE Confidence: 0.9984464

00:28:13.775 --> 00:28:15.455 increased by about seven and

NOTE Confidence: 0.9984464

00:28:15.455 --> 00:28:16.435 a half percent

NOTE Confidence: 0.9812586

00:28:17.135 --> 00:28:18.415 from twenty eight point one

NOTE Confidence: 0.9812586

00:28:18.415 --> 00:28:20.255 percent to thirty five point

NOTE Confidence: 0.9812586

00:28:20.255 --> 00:28:21.075 four percent,

NOTE Confidence: 0.99893

00:28:21.640 --> 00:28:23.660 and median progression free survival

NOTE Confidence: 0.99893

00:28:23.799 --> 00:28:25.980 improved from eleven point seven

NOTE Confidence: 0.9993496

00:28:26.440 --> 00:28:28.299 to eighteen point seven months.

NOTE Confidence: 0.991195

00:28:29.160 --> 00:28:30.040 And so this,

NOTE Confidence: 0.9200166

00:28:31.000 --> 00:28:32.540 PFS data was,

NOTE Confidence: 0.965464

00:28:33.695 --> 00:28:36.434 was presented initially, and perioperative

NOTE Confidence: 0.99982697

00:28:36.815 --> 00:28:37.315 chemotherapy

NOTE Confidence: 0.9721997

00:28:37.695 --> 00:28:38.915 based on this study,

NOTE Confidence: 0.99934596

00:28:39.855 --> 00:28:41.795 really became a standard approach.

NOTE Confidence: 0.99837893

00:28:43.855 --> 00:28:45.215 What they saw in this

NOTE Confidence: 0.99837893

00:28:45.215 --> 00:28:46.950 study is that the predictors

NOTE Confidence: 0.99837893

00:28:47.010 --> 00:28:49.350 of benefit from perioperative chemotherapy

NOTE Confidence: 0.99857557

00:28:49.730 --> 00:28:50.230 included

NOTE Confidence: 0.98769605

00:28:50.610 --> 00:28:51.830 patients who had a CEA

NOTE Confidence: 0.99571204

00:28:52.210 --> 00:28:53.750 level greater than five,

NOTE Confidence: 0.9980549

00:28:54.850 --> 00:28:56.390 a good performance status,

NOTE Confidence: 0.97266567

00:28:56.930 --> 00:28:58.550 BMI less than thirty.

NOTE Confidence: 0.9659542

00:28:59.105 --> 00:29:00.545 But, interestingly, the number of

NOTE Confidence: 0.9659542

00:29:00.545 --> 00:29:01.445 liver metastases,

NOTE Confidence: 0.9984172

00:29:01.905 --> 00:29:03.265 whether it was one or

NOTE Confidence: 0.9984172

00:29:03.265 --> 00:29:03.765 four,

NOTE Confidence: 0.9955037

00:29:04.305 --> 00:29:06.085 did not predict the chemotherapy

NOTE Confidence: 0.9955037

00:29:06.385 --> 00:29:06.885 benefit.

NOTE Confidence: 0.9854791

00:29:09.185 --> 00:29:10.965 But, alas, when they published

NOTE Confidence: 0.9854791

00:29:11.025 --> 00:29:12.785 the long term results in

NOTE Confidence: 0.9854791

00:29:12.785 --> 00:29:13.685 twenty thirteen,

NOTE Confidence: 0.9526377

00:29:14.779 --> 00:29:16.539 that disease that improvement in

NOTE Confidence: 0.9526377

00:29:16.539 --> 00:29:17.600 disease free survival

NOTE Confidence: 0.9949171

00:29:18.460 --> 00:29:20.140 did not translate into an

NOTE Confidence: 0.9949171

00:29:20.140 --> 00:29:21.760 overall survival advantage,

NOTE Confidence: 0.99921507

00:29:23.419 --> 00:29:24.940 presumed to be related to

NOTE Confidence: 0.99921507

00:29:24.940 --> 00:29:25.919 the secondary

NOTE Confidence: 0.99226373

00:29:26.220 --> 00:29:27.760 therapies that these patients,

NOTE Confidence: 0.9996307

00:29:28.380 --> 00:29:28.880 received.

NOTE Confidence: 0.99773705

00:29:31.615 --> 00:29:32.815 One of the questions that

NOTE Confidence: 0.99773705

00:29:32.815 --> 00:29:33.555 comes up,

NOTE Confidence: 0.9986234

00:29:34.095 --> 00:29:35.395 when we think about,

NOTE Confidence: 0.995792

00:29:36.015 --> 00:29:37.635 giving preoperative chemotherapy

NOTE Confidence: 0.9940184

00:29:38.015 --> 00:29:39.955 is whether that enhances surgical

NOTE Confidence: 0.9940184

00:29:40.015 --> 00:29:40.515 morbidity.

NOTE Confidence: 0.99930584

00:29:41.935 --> 00:29:43.715 The risk of surgical complications

NOTE Confidence: 0.9996756

00:29:44.175 --> 00:29:45.155 does increase

NOTE Confidence: 0.9906672

00:29:45.520 --> 00:29:46.640 with the number of cycles

NOTE Confidence: 0.9906672

00:29:46.640 --> 00:29:48.980 of chemotherapy that patients receive.

NOTE Confidence: 0.99658406

00:29:49.920 --> 00:29:51.140 But if it is,

NOTE Confidence: 0.99979705

00:29:51.600 --> 00:29:52.100 below

NOTE Confidence: 0.9964866

00:29:52.400 --> 00:29:54.160 six or below, it tends

NOTE Confidence: 0.9964866

00:29:54.160 --> 00:29:54.820 to be,

NOTE Confidence: 0.9753833

00:29:55.840 --> 00:29:57.120 safe, which is,

NOTE Confidence: 0.9986912

00:29:57.920 --> 00:30:00.400 why our surgical colleagues often

NOTE Confidence: 0.9986912

00:30:00.400 --> 00:30:01.059 ask us

NOTE Confidence: 0.9969054

00:30:01.435 --> 00:30:02.575 to limit any,

NOTE Confidence: 0.9844195

00:30:03.355 --> 00:30:04.495 preoperative chemotherapy

NOTE Confidence: 0.99697936

00:30:04.955 --> 00:30:06.495 to that three month range.

NOTE Confidence: 0.9979925

00:30:10.235 --> 00:30:11.935 Just this past January,

NOTE Confidence: 0.78363603

00:30:13.195 --> 00:30:15.275 j cog zero six zero

NOTE Confidence: 0.78363603

00:30:15.275 --> 00:30:15.775 three,

NOTE Confidence: 0.99015975

00:30:16.780 --> 00:30:18.800 presented their long term follow-up

NOTE Confidence: 0.99015975

00:30:18.860 --> 00:30:19.760 of this randomized,

NOTE Confidence: 0.96660835

00:30:20.700 --> 00:30:22.480 trial comparing hepatectomy

NOTE Confidence: 0.960171

00:30:23.820 --> 00:30:26.220 followed by FOLFOX six with

NOTE Confidence: 0.960171

00:30:26.220 --> 00:30:26.720 hepatectomy

NOTE Confidence: 0.9996586

00:30:27.100 --> 00:30:27.600 alone.

NOTE Confidence: 0.9521357

00:30:28.395 --> 00:30:29.835 This study was designed a

NOTE Confidence: 0.9521357

00:30:29.835 --> 00:30:31.435 little bit differently in that,

NOTE Confidence: 0.96424896

00:30:31.835 --> 00:30:34.095 all patients had upfront hepatectomy,

NOTE Confidence: 0.99910426

00:30:35.275 --> 00:30:36.575 and then the investigational

NOTE Confidence: 0.9960326

00:30:36.955 --> 00:30:38.495 group received their chemotherapy

NOTE Confidence: 0.99986416

00:30:39.355 --> 00:30:40.255 after surgery.

NOTE Confidence: 0.99567896

00:30:42.020 --> 00:30:43.860 The primary endpoint was disease

NOTE Confidence: 0.99567896

00:30:43.860 --> 00:30:44.760 free survival

NOTE Confidence: 0.9864734

00:30:45.539 --> 00:30:47.780 with a planned secondary endpoint

NOTE Confidence: 0.9864734

00:30:47.780 --> 00:30:49.000 of overall survival.

NOTE Confidence: 0.9804619

00:30:49.860 --> 00:30:51.620 It enrolled three hundred patients

NOTE Confidence: 0.9804619

00:30:51.620 --> 00:30:52.659 in a one to one

NOTE Confidence: 0.9804619

00:30:52.659 --> 00:30:53.159 fashion.

NOTE Confidence: 0.9941182

00:30:54.445 --> 00:30:56.045 To be eligible, the patients

NOTE Confidence: 0.9941182

00:30:56.045 --> 00:30:57.165 had to have their primary

NOTE Confidence: 0.9941182

00:30:57.165 --> 00:30:58.925 tumor removed and could not

NOTE Confidence: 0.9941182

00:30:58.925 --> 00:31:00.785 have received prior oxaliplatin.

NOTE Confidence: 0.9992477

00:31:03.325 --> 00:31:04.625 But it is a similar

NOTE Confidence: 0.9992477

00:31:04.685 --> 00:31:06.365 theme to what we saw

NOTE Confidence: 0.9992477

00:31:06.365 --> 00:31:07.425 in EORTC

NOTE Confidence: 0.98975545

00:31:07.805 --> 00:31:08.305 study

NOTE Confidence: 0.97470504

00:31:08.870 --> 00:31:09.770 In the upper,

NOTE Confidence: 0.9923067

00:31:12.470 --> 00:31:14.310 tables, we see that, the

NOTE Confidence: 0.9923067

00:31:14.310 --> 00:31:16.410 overall survival was no different

NOTE Confidence: 0.9923067

00:31:16.470 --> 00:31:18.490 in those patients who received

NOTE Confidence: 0.9923067

00:31:18.550 --> 00:31:19.050 postoperative

NOTE Confidence: 0.9999279

00:31:19.350 --> 00:31:19.850 chemotherapy

NOTE Confidence: 0.8865838

00:31:21.110 --> 00:31:21.930 even though,

NOTE Confidence: 0.9996515

00:31:22.390 --> 00:31:23.690 disease free survival

NOTE Confidence: 0.9564702

00:31:24.565 --> 00:31:26.085 was in fact improved with

NOTE Confidence: 0.9564702

00:31:26.085 --> 00:31:27.225 the use of perioperative

NOTE Confidence: 0.8984871

00:31:27.525 --> 00:31:28.025 chemotherapy.

NOTE Confidence: 0.99885285

00:31:28.325 --> 00:31:29.785 So results that really

NOTE Confidence: 0.9986825

00:31:30.405 --> 00:31:30.905 corroborate,

NOTE Confidence: 0.99906856

00:31:31.605 --> 00:31:32.505 what we saw,

NOTE Confidence: 0.9997115

00:31:33.365 --> 00:31:34.985 from the European cohort.

NOTE Confidence: 0.9989481

00:31:39.120 --> 00:31:39.620 Lastly,

NOTE Confidence: 0.99501306

00:31:40.080 --> 00:31:41.620 I wanted to talk about,

NOTE Confidence: 0.8952207

00:31:42.320 --> 00:31:43.299 new epoch,

NOTE Confidence: 0.99962807

00:31:44.159 --> 00:31:44.980 which was

NOTE Confidence: 0.9440977

00:31:45.760 --> 00:31:47.940 because the original epoch study

NOTE Confidence: 0.95671314

00:31:48.240 --> 00:31:49.919 showed those benefits in disease

NOTE Confidence: 0.95671314

00:31:49.919 --> 00:31:51.679 free survival. This study was

NOTE Confidence: 0.95671314

00:31:51.679 --> 00:31:52.500 then designed,

NOTE Confidence: 0.98435473

00:31:53.895 --> 00:31:56.155 where all patients were received

NOTE Confidence: 0.98435473

00:31:56.215 --> 00:31:56.715 perioperative

NOTE Confidence: 0.8337319

00:31:57.095 --> 00:31:57.595 Fofox.

NOTE Confidence: 0.9938953

00:31:59.015 --> 00:32:00.295 Two hundred and fifty seven

NOTE Confidence: 0.9938953

00:32:00.295 --> 00:32:02.135 KRAS wild type patients were

NOTE Confidence: 0.9938953

00:32:02.135 --> 00:32:02.635 then

NOTE Confidence: 0.9993232

00:32:03.175 --> 00:32:05.115 randomized to receive Fofox

NOTE Confidence: 0.9861533

00:32:05.575 --> 00:32:06.635 with or without,

NOTE Confidence: 0.98221564

00:32:07.735 --> 00:32:08.235 cetuximab.

NOTE Confidence: 0.99969846

00:32:11.630 --> 00:32:13.010 And this study showed

NOTE Confidence: 0.99826103

00:32:13.310 --> 00:32:15.150 surprising results. It showed that

NOTE Confidence: 0.99826103

00:32:15.150 --> 00:32:17.010 the median overall survival

NOTE Confidence: 0.99439627

00:32:17.950 --> 00:32:19.710 was actually better in the

NOTE Confidence: 0.99439627

00:32:19.710 --> 00:32:20.990 group that did not get

NOTE Confidence: 0.99439627

00:32:20.990 --> 00:32:21.490 cetuximab,

NOTE Confidence: 0.998938

00:32:22.435 --> 00:32:24.275 eighty one months versus fifty

NOTE Confidence: 0.998938

00:32:24.275 --> 00:32:25.735 five point four months.

NOTE Confidence: 0.9728324

00:32:26.835 --> 00:32:27.795 As we know, in the

NOTE Confidence: 0.9728324

00:32:27.795 --> 00:32:30.535 metastatic setting, the addition of,

NOTE Confidence: 0.985492

00:32:31.555 --> 00:32:34.695 cetuximab or, anti EGFR therapy

NOTE Confidence: 0.985492

00:32:34.835 --> 00:32:36.695 in patients with metastatic disease

NOTE Confidence: 0.985492

00:32:36.835 --> 00:32:38.215 has been shown to improve

NOTE Confidence: 0.90342045

00:32:39.130 --> 00:32:39.610 survival,

NOTE Confidence: 0.9699583

00:32:40.090 --> 00:32:41.210 but we do not see

NOTE Confidence: 0.9699583

00:32:41.210 --> 00:32:42.030 that in,

NOTE Confidence: 0.935995

00:32:42.890 --> 00:32:44.970 in this resected population. We

NOTE Confidence: 0.935995

00:32:44.970 --> 00:32:45.950 did not see,

NOTE Confidence: 0.99815136

00:32:47.210 --> 00:32:49.210 a benefit in progression free

NOTE Confidence: 0.99815136

00:32:49.210 --> 00:32:50.490 survival as we had in

NOTE Confidence: 0.99815136

00:32:50.490 --> 00:32:51.390 the other studies.

NOTE Confidence: 0.99951667

00:32:52.355 --> 00:32:53.715 So this certainly gives us

NOTE Confidence: 0.99951667

00:32:53.715 --> 00:32:54.455 some pause

NOTE Confidence: 0.9841476

00:32:55.235 --> 00:32:56.055 about using,

NOTE Confidence: 0.9909457

00:32:56.675 --> 00:32:57.175 cetuximab

NOTE Confidence: 0.9481896

00:32:57.555 --> 00:32:58.595 in patients that we,

NOTE Confidence: 0.99660695

00:33:00.435 --> 00:33:02.375 think going into their treatment

NOTE Confidence: 0.99660695

00:33:02.515 --> 00:33:04.535 already have resectable disease.

NOTE Confidence: 0.98557407

00:33:08.580 --> 00:33:10.360 Trying to explain this unexpected,

NOTE Confidence: 0.9973205

00:33:11.220 --> 00:33:13.399 result is has been challenging.

NOTE Confidence: 0.9973205

00:33:13.620 --> 00:33:15.080 There are small differences

NOTE Confidence: 0.9886512

00:33:15.860 --> 00:33:17.320 in the resection rates,

NOTE Confidence: 0.99964356

00:33:17.860 --> 00:33:19.159 between the two groups.

NOTE Confidence: 0.998179

00:33:19.804 --> 00:33:21.345 There was similar toxicity.

NOTE Confidence: 0.9695267

00:33:23.085 --> 00:33:24.445 In the group that received

NOTE Confidence: 0.9695267

00:33:24.445 --> 00:33:24.945 cetuximab,

NOTE Confidence: 0.9705386

00:33:25.325 --> 00:33:26.605 there was a higher number

NOTE Confidence: 0.9705386

00:33:26.605 --> 00:33:28.225 who had presented with synchronous

NOTE Confidence: 0.9705386

00:33:28.285 --> 00:33:29.645 METs and a higher number

NOTE Confidence: 0.9705386

00:33:29.645 --> 00:33:31.085 that had presented with large

NOTE Confidence: 0.9705386

00:33:31.085 --> 00:33:31.585 metastases,

NOTE Confidence: 0.9986445

00:33:32.850 --> 00:33:34.050 both of which are risk

NOTE Confidence: 0.9986445

00:33:34.050 --> 00:33:35.510 factors for relapse

NOTE Confidence: 0.9764863

00:33:35.970 --> 00:33:37.110 of, metastatic

NOTE Confidence: 0.7645141

00:33:37.410 --> 00:33:37.910 disease.

NOTE Confidence: 0.99799216

00:33:38.850 --> 00:33:39.350 And

NOTE Confidence: 0.9857899

00:33:39.730 --> 00:33:41.430 a higher number, although relatively

NOTE Confidence: 0.9857899

00:33:41.730 --> 00:33:42.710 small, had,

NOTE Confidence: 0.8740389

00:33:43.250 --> 00:33:44.630 extra hepatic disease.

NOTE Confidence: 0.9860097

00:33:45.645 --> 00:33:46.305 But the

NOTE Confidence: 0.9955654

00:33:46.925 --> 00:33:48.225 when they did a

NOTE Confidence: 0.99182665

00:33:49.485 --> 00:33:49.985 analysis,

NOTE Confidence: 0.998864

00:33:50.285 --> 00:33:51.645 they saw that the detriment

NOTE Confidence: 0.998864

00:33:51.645 --> 00:33:53.425 was actually in the favorable

NOTE Confidence: 0.998864

00:33:53.565 --> 00:33:55.245 risk groups and not in

NOTE Confidence: 0.998864

00:33:55.245 --> 00:33:56.865 these higher risk groups.

NOTE Confidence: 0.9980472

00:34:00.250 --> 00:34:01.550 And so if

NOTE Confidence: 0.7821252

00:34:02.250 --> 00:34:02.750 chemotherapy

NOTE Confidence: 0.9530387

00:34:03.050 --> 00:34:03.550 alone,

NOTE Confidence: 0.9944058

00:34:05.050 --> 00:34:06.830 has not shown to improve

NOTE Confidence: 0.9944058

00:34:06.970 --> 00:34:07.950 overall survival,

NOTE Confidence: 0.95647895

00:34:09.130 --> 00:34:10.330 although I would argue that

NOTE Confidence: 0.95647895

00:34:10.330 --> 00:34:12.170 improvements in disease free survival

NOTE Confidence: 0.95647895

00:34:12.170 --> 00:34:13.390 is in fact a meaningful

NOTE Confidence: 0.95647895

00:34:13.450 --> 00:34:13.950 benefit.

NOTE Confidence: 0.99880373

00:34:14.594 --> 00:34:16.375 But if the chemotherapy

NOTE Confidence: 0.9597434

00:34:16.675 --> 00:34:18.455 hasn't improved overall survival,

NOTE Confidence: 0.99332017

00:34:19.715 --> 00:34:20.994 it raises the question of

NOTE Confidence: 0.99332017

00:34:20.994 --> 00:34:22.355 what else can we do

NOTE Confidence: 0.99332017

00:34:22.355 --> 00:34:24.535 that might improve those opportunities.

NOTE Confidence: 0.9967118

00:34:25.795 --> 00:34:27.094 And so that's where,

NOTE Confidence: 0.9675391

00:34:27.795 --> 00:34:29.474 the role of hepatic arterial

NOTE Confidence: 0.9675391

00:34:29.474 --> 00:34:29.974 infusion,

NOTE Confidence: 0.9814956

00:34:31.050 --> 00:34:33.070 really has its applications in

NOTE Confidence: 0.9814956

00:34:33.290 --> 00:34:34.570 in these this group of

NOTE Confidence: 0.9814956

00:34:34.570 --> 00:34:35.070 patients.

NOTE Confidence: 0.99899864

00:34:35.930 --> 00:34:37.870 For patients that have unresectable

NOTE Confidence: 0.9992529

00:34:38.250 --> 00:34:38.750 disease,

NOTE Confidence: 0.983892

00:34:39.450 --> 00:34:40.190 it can,

NOTE Confidence: 0.9987998

00:34:40.730 --> 00:34:42.030 reduce tumor burden

NOTE Confidence: 0.8945341

00:34:42.489 --> 00:34:42.989 and

NOTE Confidence: 0.8837127

00:34:43.475 --> 00:34:45.475 and potentially convert patients to

NOTE Confidence: 0.8837127

00:34:45.475 --> 00:34:46.695 a receptacle disease,

NOTE Confidence: 0.9647039

00:34:48.114 --> 00:34:49.555 and it could actually improve

NOTE Confidence: 0.9647039

00:34:49.555 --> 00:34:51.975 survival even independent of that

NOTE Confidence: 0.9647039

00:34:52.035 --> 00:34:52.535 receptibility.

NOTE Confidence: 0.99585265

00:34:53.875 --> 00:34:55.475 In the adjuvant setting, it

NOTE Confidence: 0.99585265

00:34:55.475 --> 00:34:55.975 can,

NOTE Confidence: 0.9789946

00:34:56.750 --> 00:34:58.270 it may reduce the likelihood

NOTE Confidence: 0.9789946

00:34:58.270 --> 00:34:59.890 of recurrence post resection,

NOTE Confidence: 0.9901259

00:35:01.550 --> 00:35:02.930 and it has shown,

NOTE Confidence: 0.97075427

00:35:03.469 --> 00:35:05.410 improvements in two year survival

NOTE Confidence: 0.9985204

00:35:05.710 --> 00:35:07.170 in a randomized trial.

NOTE Confidence: 0.99183863

00:35:08.905 --> 00:35:10.665 Admittedly, that study is an

NOTE Confidence: 0.99183863

00:35:10.665 --> 00:35:12.585 old study, and additional work

NOTE Confidence: 0.99183863

00:35:12.585 --> 00:35:13.645 needs to be done.

NOTE Confidence: 0.9664037

00:35:16.185 --> 00:35:17.805 As doctor Khan already,

NOTE Confidence: 0.9966182

00:35:18.905 --> 00:35:19.405 reviewed,

NOTE Confidence: 0.973877

00:35:20.505 --> 00:35:22.580 the the general premise of

NOTE Confidence: 0.973877

00:35:22.580 --> 00:35:24.900 hepatic arterial infusion therapy is

NOTE Confidence: 0.973877

00:35:24.900 --> 00:35:25.400 that,

NOTE Confidence: 0.97692174

00:35:26.420 --> 00:35:28.280 very high doses of floxiridine,

NOTE Confidence: 0.9847321

00:35:29.380 --> 00:35:30.920 which is the active metabolite

NOTE Confidence: 0.9847321

00:35:31.060 --> 00:35:32.120 of five f u,

NOTE Confidence: 0.9995406

00:35:32.820 --> 00:35:34.180 can be infused into the

NOTE Confidence: 0.9995406

00:35:34.180 --> 00:35:34.680 liver

NOTE Confidence: 0.9969623

00:35:36.575 --> 00:35:37.315 at concentrations

NOTE Confidence: 0.9997792

00:35:37.614 --> 00:35:39.134 that are four hundred times

NOTE Confidence: 0.9997792

00:35:39.134 --> 00:35:39.634 that

NOTE Confidence: 0.9201141

00:35:40.255 --> 00:35:41.714 of intravenous infusion,

NOTE Confidence: 0.9980696

00:35:42.654 --> 00:35:44.355 but because it gets metabolized

NOTE Confidence: 0.9980696

00:35:44.575 --> 00:35:45.315 so quickly,

NOTE Confidence: 0.9888409

00:35:46.174 --> 00:35:47.234 we don't see,

NOTE Confidence: 0.9990458

00:35:47.934 --> 00:35:49.315 the systemic toxicity.

NOTE Confidence: 0.9984226

00:35:53.039 --> 00:35:54.660 In the adjuvant setting,

NOTE Confidence: 0.9991399

00:35:55.279 --> 00:35:56.980 this was a study from

NOTE Confidence: 0.9991399

00:35:57.200 --> 00:35:58.500 nineteen ninety nine.

NOTE Confidence: 0.9971237

00:36:00.000 --> 00:36:01.279 It is now twenty seven

NOTE Confidence: 0.9971237

00:36:01.279 --> 00:36:02.400 years later, and this is

NOTE Confidence: 0.9971237

00:36:02.400 --> 00:36:04.559 still the best study that

NOTE Confidence: 0.9971237

00:36:04.559 --> 00:36:05.299 we have

NOTE Confidence: 0.9818572

00:36:05.945 --> 00:36:07.065 that showed in a hundred

NOTE Confidence: 0.9818572

00:36:07.065 --> 00:36:08.445 and fifty six patients,

NOTE Confidence: 0.9490572

00:36:10.344 --> 00:36:12.925 chemo overall survival was improved

NOTE Confidence: 0.9490572

00:36:13.145 --> 00:36:15.005 in patients who had surgery

NOTE Confidence: 0.99168426

00:36:15.305 --> 00:36:16.285 followed by

NOTE Confidence: 0.9733642

00:36:17.065 --> 00:36:19.305 HAI with systemic five f

NOTE Confidence: 0.9733642

00:36:19.305 --> 00:36:19.965 u alone

NOTE Confidence: 0.98029166

00:36:20.650 --> 00:36:22.350 versus five f u alone,

NOTE Confidence: 0.9890197

00:36:23.370 --> 00:36:25.390 and that this study improved,

NOTE Confidence: 0.9808997

00:36:28.170 --> 00:36:29.390 specifically liver,

NOTE Confidence: 0.90504384

00:36:30.489 --> 00:36:30.989 recurrence.

NOTE Confidence: 0.95778054

00:36:33.645 --> 00:36:34.545 Patients who,

NOTE Confidence: 0.987358

00:36:36.045 --> 00:36:38.125 could might still develop extra

NOTE Confidence: 0.987358

00:36:38.125 --> 00:36:39.965 hepatic disease, which was often

NOTE Confidence: 0.987358

00:36:39.965 --> 00:36:41.405 a cause of mortality in

NOTE Confidence: 0.987358

00:36:41.405 --> 00:36:42.145 this group.

NOTE Confidence: 0.90729713

00:36:46.750 --> 00:36:49.310 And looking at that to

NOTE Confidence: 0.90729713

00:36:49.310 --> 00:36:50.530 how this translated

NOTE Confidence: 0.99971944

00:36:50.830 --> 00:36:51.330 to

NOTE Confidence: 0.9720548

00:36:51.950 --> 00:36:53.170 potential cure,

NOTE Confidence: 0.9782777

00:36:54.750 --> 00:36:55.570 there was,

NOTE Confidence: 0.9973763

00:36:56.190 --> 00:36:57.650 the group from the Netherlands

NOTE Confidence: 0.9974971

00:36:59.445 --> 00:37:01.285 that reported out their single

NOTE Confidence: 0.9974971

00:37:01.285 --> 00:37:02.505 center experience,

NOTE Confidence: 0.96300226

00:37:04.245 --> 00:37:04.745 of,

NOTE Confidence: 0.9188901

00:37:05.285 --> 00:37:06.185 twenty three,

NOTE Confidence: 0.9989389

00:37:06.565 --> 00:37:08.185 over twenty three hundred patients,

NOTE Confidence: 0.99803424

00:37:09.525 --> 00:37:11.605 who got systemic chemo plus

NOTE Confidence: 0.99803424

00:37:11.605 --> 00:37:12.105 HAI

NOTE Confidence: 0.9995508

00:37:13.050 --> 00:37:14.510 versus systemic chemotherapy

NOTE Confidence: 0.99304795

00:37:14.890 --> 00:37:15.390 alone,

NOTE Confidence: 0.9970817

00:37:16.489 --> 00:37:18.430 and showed a marked improvement

NOTE Confidence: 0.9970817

00:37:18.650 --> 00:37:20.170 in the ten year survival

NOTE Confidence: 0.9970817

00:37:20.170 --> 00:37:21.790 rate from twenty three,

NOTE Confidence: 0.96625847

00:37:22.570 --> 00:37:23.870 to thirty eight percent.

NOTE Confidence: 0.9037266

00:37:25.895 --> 00:37:27.494 And this was both with

NOTE Confidence: 0.9037266

00:37:27.494 --> 00:37:29.094 five f u alone as

NOTE Confidence: 0.9037266

00:37:29.094 --> 00:37:30.375 their dataset went all the

NOTE Confidence: 0.9037266

00:37:30.375 --> 00:37:31.494 way back to nineteen ninety

NOTE Confidence: 0.9037266

00:37:31.494 --> 00:37:32.614 two as well as with

NOTE Confidence: 0.9037266

00:37:32.614 --> 00:37:34.055 the addition of arino t

NOTE Confidence: 0.9037266

00:37:34.055 --> 00:37:34.715 can and,

NOTE Confidence: 0.89889926

00:37:36.135 --> 00:37:36.635 oxaliplatin.

NOTE Confidence: 0.9767922

00:37:37.255 --> 00:37:37.994 And so,

NOTE Confidence: 0.99364114

00:37:38.730 --> 00:37:40.650 there remains interest in this

NOTE Confidence: 0.99364114

00:37:40.650 --> 00:37:41.150 approach,

NOTE Confidence: 0.95226955

00:37:41.610 --> 00:37:42.170 to help,

NOTE Confidence: 0.9714891

00:37:42.489 --> 00:37:44.270 reduce the risk of,

NOTE Confidence: 0.98108464

00:37:44.890 --> 00:37:46.650 recurrence and improve survival in

NOTE Confidence: 0.98108464

00:37:46.650 --> 00:37:47.390 this population.

NOTE Confidence: 0.9951418

00:37:50.650 --> 00:37:53.105 Many patients are not resectable

NOTE Confidence: 0.96480274

00:37:53.405 --> 00:37:54.705 at the time of,

NOTE Confidence: 0.9980967

00:37:56.925 --> 00:37:58.785 of their presentation with metastatic

NOTE Confidence: 0.9980967

00:37:59.005 --> 00:37:59.505 disease.

NOTE Confidence: 0.9845201

00:38:00.364 --> 00:38:02.205 We certainly have a number

NOTE Confidence: 0.9845201

00:38:02.205 --> 00:38:03.025 of chemotherapy,

NOTE Confidence: 0.97086024

00:38:04.285 --> 00:38:06.205 choices in the in those

NOTE Confidence: 0.97086024

00:38:06.205 --> 00:38:06.705 patients,

NOTE Confidence: 0.98436826

00:38:07.910 --> 00:38:09.050 especially if,

NOTE Confidence: 0.99927247

00:38:11.750 --> 00:38:13.290 we understand their molecular

NOTE Confidence: 0.91448563

00:38:13.590 --> 00:38:14.090 profile.

NOTE Confidence: 0.99220157

00:38:15.270 --> 00:38:16.710 But we have seen with

NOTE Confidence: 0.99220157

00:38:16.710 --> 00:38:18.250 the addition of,

NOTE Confidence: 0.93174595

00:38:18.710 --> 00:38:20.170 hepatic arterial infusion

NOTE Confidence: 0.77696764

00:38:20.630 --> 00:38:21.130 to,

NOTE Confidence: 0.99194586

00:38:22.235 --> 00:38:22.735 chemotherapy,

NOTE Confidence: 0.9921009

00:38:24.555 --> 00:38:25.614 that we can,

NOTE Confidence: 0.996962

00:38:26.155 --> 00:38:27.675 induce a response rate of

NOTE Confidence: 0.996962

00:38:27.675 --> 00:38:28.895 seventy three percent,

NOTE Confidence: 0.9653114

00:38:29.915 --> 00:38:31.594 up to eighty six percent

NOTE Confidence: 0.9653114

00:38:31.594 --> 00:38:33.114 if this is patient's first

NOTE Confidence: 0.9653114

00:38:33.114 --> 00:38:34.094 line of treatment,

NOTE Confidence: 0.9432408

00:38:34.795 --> 00:38:36.175 less if they've been previously

NOTE Confidence: 0.9432408

00:38:36.395 --> 00:38:36.895 treated.

NOTE Confidence: 0.99828166

00:38:37.610 --> 00:38:39.130 And about half of those

NOTE Confidence: 0.99828166

00:38:39.130 --> 00:38:39.630 patients,

NOTE Confidence: 0.9390544

00:38:40.170 --> 00:38:41.070 in this dataset,

NOTE Confidence: 0.9988589

00:38:42.090 --> 00:38:42.910 were converted

NOTE Confidence: 0.9995674

00:38:43.290 --> 00:38:44.350 to resection.

NOTE Confidence: 0.997163

00:38:45.930 --> 00:38:47.050 Looking at the curve on

NOTE Confidence: 0.997163

00:38:47.050 --> 00:38:48.010 the right, you can see

NOTE Confidence: 0.997163

00:38:48.010 --> 00:38:49.710 that those who underwent resection,

NOTE Confidence: 0.9914417

00:38:50.925 --> 00:38:52.445 have a better survival than

NOTE Confidence: 0.9914417

00:38:52.445 --> 00:38:52.844 those,

NOTE Confidence: 0.99922574

00:38:53.245 --> 00:38:53.985 who don't.

NOTE Confidence: 0.9579935

00:38:57.245 --> 00:38:57.745 These,

NOTE Confidence: 0.761338

00:38:58.445 --> 00:38:58.945 improvements,

NOTE Confidence: 0.99949586

00:39:01.005 --> 00:39:01.745 in survival

NOTE Confidence: 0.9600156

00:39:02.045 --> 00:39:03.105 have been seen,

NOTE Confidence: 0.9894531

00:39:03.690 --> 00:39:05.210 even in patients that don't

NOTE Confidence: 0.9894531

00:39:05.210 --> 00:39:06.349 go on to have,

NOTE Confidence: 0.930665

00:39:07.210 --> 00:39:08.270 surgical resection.

NOTE Confidence: 0.95031613

00:39:09.930 --> 00:39:11.150 Looking at both,

NOTE Confidence: 0.98947775

00:39:12.650 --> 00:39:14.750 the pump plus modern chemotherapy

NOTE Confidence: 0.9857603

00:39:15.130 --> 00:39:15.630 regimens,

NOTE Confidence: 0.9772962

00:39:16.055 --> 00:39:17.355 which includes oxaliplatin

NOTE Confidence: 0.9275478

00:39:17.815 --> 00:39:18.635 or arinotecan,

NOTE Confidence: 0.9571226

00:39:20.535 --> 00:39:22.535 with or without biologics. Although

NOTE Confidence: 0.9571226

00:39:22.535 --> 00:39:23.895 I will say for safety

NOTE Confidence: 0.9571226

00:39:23.895 --> 00:39:25.435 reasons, we don't combine

NOTE Confidence: 0.9910161

00:39:26.295 --> 00:39:26.795 bevacizumab,

NOTE Confidence: 0.94740695

00:39:28.055 --> 00:39:30.375 with hepatic arterial infusion therapy,

NOTE Confidence: 0.99300593

00:39:31.560 --> 00:39:33.260 because of the marked increase

NOTE Confidence: 0.99300593

00:39:33.480 --> 00:39:33.980 in,

NOTE Confidence: 0.9956194

00:39:34.600 --> 00:39:36.940 biliary sclerosis in these patients.

NOTE Confidence: 0.8808329

00:39:42.360 --> 00:39:43.100 And then,

NOTE Confidence: 0.99637264

00:39:43.775 --> 00:39:45.295 lastly, I just wanna present

NOTE Confidence: 0.99637264

00:39:45.295 --> 00:39:46.815 this group. So this is

NOTE Confidence: 0.99637264

00:39:46.815 --> 00:39:47.315 a,

NOTE Confidence: 0.93841994

00:39:48.655 --> 00:39:50.975 experience from Memorial of patients

NOTE Confidence: 0.93841994

00:39:50.975 --> 00:39:52.355 who were where

NOTE Confidence: 0.9959458

00:39:52.975 --> 00:39:54.114 systemic therapy

NOTE Confidence: 0.9866175

00:39:54.655 --> 00:39:56.915 and hepatic arterial infusion therapy

NOTE Confidence: 0.9866175

00:39:57.055 --> 00:39:58.460 was their first line of

NOTE Confidence: 0.9866175

00:39:58.460 --> 00:40:00.480 treatment. They presented with unresectable

NOTE Confidence: 0.9281303

00:40:00.859 --> 00:40:01.359 disease.

NOTE Confidence: 0.98658985

00:40:02.219 --> 00:40:03.760 And in this group, the

NOTE Confidence: 0.98658985

00:40:03.819 --> 00:40:05.920 conversion to resection rate,

NOTE Confidence: 0.9870199

00:40:06.619 --> 00:40:08.619 was sixty percent. And so

NOTE Confidence: 0.9870199

00:40:08.619 --> 00:40:10.140 this is, again, a small

NOTE Confidence: 0.9870199

00:40:10.140 --> 00:40:10.640 cohort,

NOTE Confidence: 0.9842288

00:40:11.864 --> 00:40:12.925 but does show,

NOTE Confidence: 0.96989864

00:40:13.945 --> 00:40:15.484 the potential to,

NOTE Confidence: 0.9772463

00:40:16.105 --> 00:40:16.605 convert,

NOTE Confidence: 0.9888265

00:40:17.065 --> 00:40:17.545 these,

NOTE Confidence: 0.96999604

00:40:17.945 --> 00:40:19.485 these patients to resection.

NOTE Confidence: 0.94679177

00:40:22.585 --> 00:40:23.945 And so it is a

NOTE Confidence: 0.94679177

00:40:23.945 --> 00:40:25.245 a reasonable consideration.

NOTE Confidence: 0.99695635

00:40:27.890 --> 00:40:29.670 For patients that have

NOTE Confidence: 0.99953216

00:40:30.050 --> 00:40:30.550 KRAS

NOTE Confidence: 0.98411626

00:40:31.330 --> 00:40:32.469 wild type disease,

NOTE Confidence: 0.9993482

00:40:34.370 --> 00:40:36.070 we have seen high conversion

NOTE Confidence: 0.9993482

00:40:36.130 --> 00:40:37.989 rates with modern chemotherapy

NOTE Confidence: 0.76892334

00:40:38.370 --> 00:40:39.590 regimens like FOLFOXURY

NOTE Confidence: 0.98249876

00:40:41.864 --> 00:40:43.645 as well. And so,

NOTE Confidence: 0.9995963

00:40:44.745 --> 00:40:45.645 one of the

NOTE Confidence: 0.99984336

00:40:45.945 --> 00:40:46.445 important

NOTE Confidence: 0.9894197

00:40:46.825 --> 00:40:48.585 points when I talk about

NOTE Confidence: 0.9894197

00:40:48.585 --> 00:40:49.725 this type of treatment,

NOTE Confidence: 0.89475024

00:40:51.625 --> 00:40:52.364 is that,

NOTE Confidence: 0.9361036

00:40:53.610 --> 00:40:55.450 there is still more knowledge

NOTE Confidence: 0.9361036

00:40:55.450 --> 00:40:56.430 that is needed.

NOTE Confidence: 0.97402036

00:40:58.330 --> 00:40:59.830 At Yale, we are part

NOTE Confidence: 0.97402036

00:40:59.830 --> 00:41:02.990 of the, a HAI consortium,

NOTE Confidence: 0.96993196

00:41:03.530 --> 00:41:04.750 which, represents

NOTE Confidence: 0.9202604

00:41:07.585 --> 00:41:08.645 multiple institutions.

NOTE Confidence: 0.98539376

00:41:09.105 --> 00:41:09.844 I think,

NOTE Confidence: 0.9277387

00:41:10.945 --> 00:41:11.445 over,

NOTE Confidence: 0.9989582

00:41:12.225 --> 00:41:13.285 sixty institutions

NOTE Confidence: 0.9808132

00:41:13.665 --> 00:41:14.645 around the country,

NOTE Confidence: 0.99965715

00:41:15.665 --> 00:41:17.525 that are really trying to

NOTE Confidence: 0.9843557

00:41:17.905 --> 00:41:19.905 take a more collaborative and

NOTE Confidence: 0.9843557

00:41:19.905 --> 00:41:21.765 prospective approach to this

NOTE Confidence: 0.9865243

00:41:22.469 --> 00:41:22.969 data,

NOTE Confidence: 0.9973604

00:41:23.670 --> 00:41:24.790 so that we are not

NOTE Confidence: 0.9973604

00:41:24.790 --> 00:41:25.670 left with,

NOTE Confidence: 0.99835175

00:41:26.070 --> 00:41:27.690 only single center experiences

NOTE Confidence: 0.99625814

00:41:27.989 --> 00:41:29.130 as we move forward.

NOTE Confidence: 0.9474361

00:41:32.790 --> 00:41:34.650 And so in summary, for

NOTE Confidence: 0.9474361

00:41:34.790 --> 00:41:35.290 HAI,

NOTE Confidence: 0.9996944

00:41:36.174 --> 00:41:36.994 for unresectable

NOTE Confidence: 0.95865595

00:41:37.454 --> 00:41:39.635 disease, it can contribute to,

NOTE Confidence: 0.8516054

00:41:41.295 --> 00:41:42.355 conversion there,

NOTE Confidence: 0.9841555

00:41:42.974 --> 00:41:44.994 of patients to resection,

NOTE Confidence: 0.9385289

00:41:46.815 --> 00:41:48.494 and improve overall survival in

NOTE Confidence: 0.9385289

00:41:48.494 --> 00:41:50.130 patient or median overall survival

NOTE Confidence: 0.9385289

00:41:50.130 --> 00:41:51.089 in patients who are not

NOTE Confidence: 0.9385289

00:41:51.089 --> 00:41:51.589 resectable,

NOTE Confidence: 0.9942355

00:41:52.769 --> 00:41:54.309 in the adjuvant setting,

NOTE Confidence: 0.9727189

00:41:55.009 --> 00:41:55.670 it can,

NOTE Confidence: 0.9759846

00:41:56.450 --> 00:41:57.589 potentially improve,

NOTE Confidence: 0.997473

00:41:58.369 --> 00:41:59.410 both two year and ten

NOTE Confidence: 0.997473

00:41:59.410 --> 00:42:00.869 year survival as well.

NOTE Confidence: 0.93216735

00:42:04.275 --> 00:42:06.035 And so in summary for

NOTE Confidence: 0.93216735

00:42:06.035 --> 00:42:06.775 this part,

NOTE Confidence: 0.99839956

00:42:07.474 --> 00:42:07.974 perioperative

NOTE Confidence: 0.9996057

00:42:08.515 --> 00:42:09.015 chemotherapy

NOTE Confidence: 0.99924576

00:42:09.555 --> 00:42:11.335 the role of perioperative chemotherapy

NOTE Confidence: 0.9752242

00:42:11.635 --> 00:42:13.815 remains unclear. Disease free survival

NOTE Confidence: 0.9752242

00:42:13.875 --> 00:42:14.614 is improved,

NOTE Confidence: 0.9986755

00:42:15.234 --> 00:42:16.755 but there's no impact on

NOTE Confidence: 0.9986755

00:42:16.755 --> 00:42:17.815 overall survival.

NOTE Confidence: 0.986469

00:42:19.130 --> 00:42:21.770 HAI can potentially improve overall

NOTE Confidence: 0.986469

00:42:21.770 --> 00:42:23.230 survival in some patients,

NOTE Confidence: 0.99922174

00:42:24.250 --> 00:42:25.690 but there remains more work

NOTE Confidence: 0.99922174

00:42:25.690 --> 00:42:26.430 to be done.

NOTE Confidence: 0.9801577

00:42:28.730 --> 00:42:29.690 And with that, I am

NOTE Confidence: 0.9801577

00:42:29.690 --> 00:42:31.469 going to pass the baton,

NOTE Confidence: 0.94727534

00:42:32.655 --> 00:42:34.495 to doctor Madoff who will,

NOTE Confidence: 0.9988699

00:42:34.895 --> 00:42:36.035 talk to us about,

NOTE Confidence: 0.97360307

00:42:37.055 --> 00:42:38.915 the role of interventional radiology

NOTE Confidence: 0.97360307

00:42:39.055 --> 00:42:40.495 in treating these this group

NOTE Confidence: 0.97360307

00:42:40.495 --> 00:42:41.155 of patients.

NOTE Confidence: 0.8589952

00:42:50.009 --> 00:42:51.230 Can you hear me?

NOTE Confidence: 0.8801608

00:42:55.690 --> 00:42:57.049 Thanks, Jeremy. You you you

NOTE Confidence: 0.8801608

00:42:57.049 --> 00:42:57.869 can hear me?

NOTE Confidence: 0.99664855

00:42:59.609 --> 00:43:00.589 Yes. We can.

NOTE Confidence: 0.97283965

00:43:04.155 --> 00:43:05.515 Okay. So I guess, we'll

NOTE Confidence: 0.97283965

00:43:05.515 --> 00:43:06.175 get started.

NOTE Confidence: 0.9781473

00:43:07.275 --> 00:43:08.795 I'd like to thank, Jeremy

NOTE Confidence: 0.9781473

00:43:08.795 --> 00:43:10.315 and, my colleagues here for

NOTE Confidence: 0.9781473

00:43:10.315 --> 00:43:11.675 inviting me to discuss the

NOTE Confidence: 0.9781473

00:43:11.675 --> 00:43:13.135 role of interventional oncology,

NOTE Confidence: 0.98572224

00:43:14.075 --> 00:43:15.375 in the setting of colorectal

NOTE Confidence: 0.98572224

00:43:15.435 --> 00:43:16.175 liver metastases.

NOTE Confidence: 0.89063394

00:43:17.310 --> 00:43:18.850 These are just, my disclosures.

NOTE Confidence: 0.9998154

00:43:20.430 --> 00:43:21.390 So we've already heard a

NOTE Confidence: 0.9998154

00:43:21.390 --> 00:43:21.890 lot

NOTE Confidence: 0.96056485

00:43:22.270 --> 00:43:22.750 about,

NOTE Confidence: 0.90964305

00:43:23.150 --> 00:43:24.770 the global burden of colorectal

NOTE Confidence: 0.90964305

00:43:24.910 --> 00:43:27.170 cancer and, and liver metastases.

NOTE Confidence: 0.9740065

00:43:28.190 --> 00:43:29.495 Not to get it to

NOTE Confidence: 0.9740065

00:43:29.495 --> 00:43:31.335 keep repeating ourselves, but, we

NOTE Confidence: 0.9740065

00:43:31.335 --> 00:43:32.295 all know that about fifty

NOTE Confidence: 0.9740065

00:43:32.295 --> 00:43:34.055 percent of colorectal cancer patients

NOTE Confidence: 0.9740065

00:43:34.055 --> 00:43:35.815 develop metastases during the course

NOTE Confidence: 0.9740065

00:43:35.815 --> 00:43:36.635 of their disease,

NOTE Confidence: 0.9857967

00:43:37.094 --> 00:43:37.594 and,

NOTE Confidence: 0.9992783

00:43:38.455 --> 00:43:39.275 liver metastases

NOTE Confidence: 0.9906335

00:43:40.055 --> 00:43:42.215 represents the major cause of,

NOTE Confidence: 0.9906335

00:43:42.535 --> 00:43:43.035 colorectal

NOTE Confidence: 0.9998907

00:43:43.900 --> 00:43:44.400 cancer

NOTE Confidence: 0.99952954

00:43:44.700 --> 00:43:45.200 mortality.

NOTE Confidence: 0.9948169

00:43:45.739 --> 00:43:47.500 We also heard that hepatic

NOTE Confidence: 0.9948169

00:43:47.500 --> 00:43:48.860 resection offers the best chance

NOTE Confidence: 0.9948169

00:43:48.860 --> 00:43:50.800 of cure, but most patients,

NOTE Confidence: 0.933355

00:43:51.260 --> 00:43:52.780 when they present are not

NOTE Confidence: 0.933355

00:43:52.780 --> 00:43:54.060 receptible at the time of

NOTE Confidence: 0.933355

00:43:54.060 --> 00:43:54.560 diagnosis.

NOTE Confidence: 0.97433853

00:43:55.260 --> 00:43:56.140 One thing I did wanna

NOTE Confidence: 0.97433853

00:43:56.140 --> 00:43:57.020 point out is that I

NOTE Confidence: 0.97433853

00:43:57.020 --> 00:43:58.300 did attend the colorectal liver

NOTE Confidence: 0.97433853

00:43:58.300 --> 00:44:00.114 metastases consensus conference down at

NOTE Confidence: 0.97433853

00:44:00.114 --> 00:44:01.155 MD Anderson a few weeks

NOTE Confidence: 0.97433853

00:44:01.155 --> 00:44:02.435 ago, and I can tell

NOTE Confidence: 0.97433853

00:44:02.435 --> 00:44:03.635 you that there is a

NOTE Confidence: 0.97433853

00:44:03.635 --> 00:44:04.535 lot of controversy.

NOTE Confidence: 0.9369912

00:44:05.155 --> 00:44:07.095 And whatever we discuss, tonight,

NOTE Confidence: 0.9782934

00:44:07.875 --> 00:44:09.635 there is, data to support,

NOTE Confidence: 0.9782934

00:44:09.635 --> 00:44:10.835 but there's also data to

NOTE Confidence: 0.9782934

00:44:10.835 --> 00:44:12.215 support other strategies

NOTE Confidence: 0.9992887

00:44:12.755 --> 00:44:13.495 as well.

NOTE Confidence: 0.95307773

00:44:14.340 --> 00:44:16.020 So what is interventional oncology?

NOTE Confidence: 0.95307773

00:44:16.020 --> 00:44:17.300 I mean, it's clearly different

NOTE Confidence: 0.95307773

00:44:17.300 --> 00:44:19.460 than radiation oncology, which, doctor

NOTE Confidence: 0.95307773

00:44:19.460 --> 00:44:20.580 Du will talk about. But,

NOTE Confidence: 0.95307773

00:44:20.900 --> 00:44:23.080 radiation oncology is a subspecialty

NOTE Confidence: 0.95307773

00:44:23.300 --> 00:44:23.540 of,

NOTE Confidence: 0.99989307

00:44:24.260 --> 00:44:25.400 interventional radiology

NOTE Confidence: 0.9962138

00:44:26.035 --> 00:44:28.035 that utilizes minimally invasive image

NOTE Confidence: 0.9962138

00:44:28.035 --> 00:44:29.955 guided procedures to diagnose and

NOTE Confidence: 0.9962138

00:44:29.955 --> 00:44:31.635 treat patients with various forms

NOTE Confidence: 0.9962138

00:44:31.635 --> 00:44:33.075 of cancer. I would say

NOTE Confidence: 0.9962138

00:44:33.075 --> 00:44:34.114 that most of you would

NOTE Confidence: 0.9962138

00:44:34.114 --> 00:44:36.355 know us from, doing your

NOTE Confidence: 0.9962138

00:44:36.355 --> 00:44:36.855 ports

NOTE Confidence: 0.97237295

00:44:37.155 --> 00:44:38.375 and doing your biopsies,

NOTE Confidence: 0.99836785

00:44:38.850 --> 00:44:40.290 but, there's definitely a lot

NOTE Confidence: 0.99836785

00:44:40.290 --> 00:44:42.450 more to interventional oncology than

NOTE Confidence: 0.99836785

00:44:42.450 --> 00:44:42.950 that.

NOTE Confidence: 0.9948985

00:44:43.730 --> 00:44:44.710 As we'll discuss,

NOTE Confidence: 0.98780197

00:44:45.090 --> 00:44:47.590 the benefits of, primary interventional

NOTE Confidence: 0.98780197

00:44:47.650 --> 00:44:48.710 oncology treatment

NOTE Confidence: 0.91803426

00:44:49.170 --> 00:44:51.750 include immediate tumor recital, effects.

NOTE Confidence: 0.97034854

00:44:52.645 --> 00:44:54.025 They are minimally invasive,

NOTE Confidence: 0.9067142

00:44:54.645 --> 00:44:56.905 and, they're also, have minimal

NOTE Confidence: 0.9067142

00:44:57.045 --> 00:44:58.825 systemic side effects, so ultimately

NOTE Confidence: 0.9067142

00:44:59.045 --> 00:44:59.785 can improve

NOTE Confidence: 0.9321436

00:45:00.165 --> 00:45:02.005 the quality of life. We're

NOTE Confidence: 0.9321436

00:45:02.005 --> 00:45:02.885 at this time making the

NOTE Confidence: 0.9321436

00:45:02.885 --> 00:45:04.085 case of becoming the fourth

NOTE Confidence: 0.9321436

00:45:04.085 --> 00:45:06.105 pillar of cancer care. Interventional

NOTE Confidence: 0.9321436

00:45:06.325 --> 00:45:06.825 oncologists,

NOTE Confidence: 0.89838356

00:45:07.790 --> 00:45:09.650 are, you know, very participate

NOTE Confidence: 0.89838356

00:45:09.790 --> 00:45:11.790 heavily in, tumor boards. We're

NOTE Confidence: 0.89838356

00:45:11.790 --> 00:45:13.790 part of multiple NCCN guidelines.

NOTE Confidence: 0.89838356

00:45:13.790 --> 00:45:14.989 I'm actually on the kidney

NOTE Confidence: 0.89838356

00:45:14.989 --> 00:45:16.350 cancer one for, the Yale

NOTE Confidence: 0.89838356

00:45:16.430 --> 00:45:17.489 as their Yale representative.

NOTE Confidence: 0.99779034

00:45:17.869 --> 00:45:18.670 And there are a number

NOTE Confidence: 0.99779034

00:45:18.670 --> 00:45:20.109 of clinical trials assessing the

NOTE Confidence: 0.99779034

00:45:20.109 --> 00:45:21.010 role of percutaneous

NOTE Confidence: 0.76851976

00:45:21.390 --> 00:45:21.890 management,

NOTE Confidence: 0.9672441

00:45:22.295 --> 00:45:23.015 and there are a number

NOTE Confidence: 0.9672441

00:45:23.015 --> 00:45:24.215 of trials here. And some

NOTE Confidence: 0.9672441

00:45:24.215 --> 00:45:25.675 of them, we will discuss,

NOTE Confidence: 0.9996893

00:45:26.215 --> 00:45:27.195 during this talk.

NOTE Confidence: 0.9695359

00:45:28.695 --> 00:45:29.735 What I wanted to focus

NOTE Confidence: 0.9695359

00:45:29.735 --> 00:45:31.435 on first is the core

NOTE Confidence: 0.9695359

00:45:31.495 --> 00:45:32.555 IO strategies.

NOTE Confidence: 0.99901056

00:45:33.015 --> 00:45:34.455 The goal is to enable

NOTE Confidence: 0.99901056

00:45:34.455 --> 00:45:35.355 curative therapy

NOTE Confidence: 0.9664116

00:45:35.980 --> 00:45:38.000 or improve local disease control.

NOTE Confidence: 0.9664116

00:45:38.060 --> 00:45:39.440 And as you've already heard,

NOTE Confidence: 0.9664116

00:45:39.739 --> 00:45:40.940 we have options such as

NOTE Confidence: 0.9664116

00:45:40.940 --> 00:45:41.840 tumor ablation,

NOTE Confidence: 0.99444366

00:45:42.380 --> 00:45:43.280 we have transarterial

NOTE Confidence: 0.99514323

00:45:43.580 --> 00:45:44.080 therapy,

NOTE Confidence: 0.9903448

00:45:44.540 --> 00:45:46.080 and we also have preoperative

NOTE Confidence: 0.9903448

00:45:46.219 --> 00:45:47.040 liver augmentation,

NOTE Confidence: 0.9665751

00:45:47.705 --> 00:45:49.785 which, doctor Khan has, briefly

NOTE Confidence: 0.9665751

00:45:49.785 --> 00:45:51.385 alluded to. Now a number

NOTE Confidence: 0.9665751

00:45:51.385 --> 00:45:51.965 of these,

NOTE Confidence: 0.9984481

00:45:53.385 --> 00:45:55.705 treatments will depend on tumor

NOTE Confidence: 0.9984481

00:45:55.705 --> 00:45:56.205 histology,

NOTE Confidence: 0.99606735

00:45:56.905 --> 00:45:58.344 the number of location the

NOTE Confidence: 0.99606735

00:45:58.344 --> 00:45:59.705 number and location of tumors

NOTE Confidence: 0.99606735

00:45:59.705 --> 00:46:00.660 within the liver,

NOTE Confidence: 0.99369776

00:46:01.059 --> 00:46:02.599 the extent of the patient's

NOTE Confidence: 0.99369776

00:46:02.660 --> 00:46:04.200 underlying liver disease,

NOTE Confidence: 0.97037923

00:46:04.660 --> 00:46:06.200 and the presence or absence

NOTE Confidence: 0.9949258

00:46:06.660 --> 00:46:07.319 of extrahepatic

NOTE Confidence: 0.99802136

00:46:07.619 --> 00:46:08.119 disease.

NOTE Confidence: 0.9945669

00:46:08.819 --> 00:46:09.940 Now the first strategy we'll

NOTE Confidence: 0.9945669

00:46:09.940 --> 00:46:11.640 discuss is tumor ablation.

NOTE Confidence: 0.9978653

00:46:12.020 --> 00:46:13.160 This is used to percutaneously

NOTE Confidence: 0.9989909

00:46:13.539 --> 00:46:16.039 eradicate all viable malignant cells

NOTE Confidence: 0.98763275

00:46:16.364 --> 00:46:18.545 and spare normal surrounding tissues.

NOTE Confidence: 0.9346683

00:46:19.085 --> 00:46:20.525 And we also treat tumors

NOTE Confidence: 0.9346683

00:46:20.525 --> 00:46:22.125 that have, that are,

NOTE Confidence: 0.9979706

00:46:22.445 --> 00:46:24.844 have unfavorable locations or patterns

NOTE Confidence: 0.9979706

00:46:24.844 --> 00:46:25.585 of distribution

NOTE Confidence: 0.9616041

00:46:26.364 --> 00:46:28.205 for resection and or whether

NOTE Confidence: 0.9616041

00:46:28.205 --> 00:46:29.665 patients have multiple comorbidities.

NOTE Confidence: 0.9815617

00:46:31.650 --> 00:46:32.770 Most often, these are used

NOTE Confidence: 0.9815617

00:46:32.770 --> 00:46:33.890 in patients what we would

NOTE Confidence: 0.9815617

00:46:33.890 --> 00:46:36.069 have considered low volume disease

NOTE Confidence: 0.9542351

00:46:36.450 --> 00:46:37.430 and debulking,

NOTE Confidence: 0.9800746

00:46:37.890 --> 00:46:39.750 and, typically, these are outpatient

NOTE Confidence: 0.9800746

00:46:39.810 --> 00:46:41.349 procedures and repeatable.

NOTE Confidence: 0.9970992

00:46:41.730 --> 00:46:42.609 Now there's a lot of

NOTE Confidence: 0.9970992

00:46:42.609 --> 00:46:43.349 different options.

NOTE Confidence: 0.9067589

00:46:43.935 --> 00:46:44.895 I would say that a

NOTE Confidence: 0.9067589

00:46:44.895 --> 00:46:46.275 lot of them have similar

NOTE Confidence: 0.9067589

00:46:46.415 --> 00:46:48.114 outcomes, whether it be radiofrequency

NOTE Confidence: 0.9755373

00:46:48.415 --> 00:46:50.035 ablation, microwave ablation,

NOTE Confidence: 0.98952264

00:46:50.735 --> 00:46:51.235 cryoablation.

NOTE Confidence: 0.96456826

00:46:52.255 --> 00:46:54.515 There's another, entity called irreversible

NOTE Confidence: 0.96456826

00:46:54.735 --> 00:46:56.515 electroporation, which kills cells,

NOTE Confidence: 0.8981249

00:46:57.210 --> 00:46:59.469 by, changing the electron maybe,

NOTE Confidence: 0.9861794

00:47:00.650 --> 00:47:02.670 ionic potentials across cell membranes.

NOTE Confidence: 0.9861794

00:47:02.810 --> 00:47:03.770 And there's actually a new

NOTE Confidence: 0.9861794

00:47:03.770 --> 00:47:05.230 one called radiation segmentectomy

NOTE Confidence: 0.9321427

00:47:05.530 --> 00:47:06.570 where you can deliver high

NOTE Confidence: 0.9321427

00:47:06.570 --> 00:47:07.390 dose of radiation

NOTE Confidence: 0.9665043

00:47:07.690 --> 00:47:08.190 transcatheter

NOTE Confidence: 0.9968459

00:47:08.570 --> 00:47:10.330 into a segment and kill

NOTE Confidence: 0.9968459

00:47:10.330 --> 00:47:11.950 tumors in that regard.

NOTE Confidence: 0.9538937

00:47:12.965 --> 00:47:14.005 You've already heard a little

NOTE Confidence: 0.9538937

00:47:14.005 --> 00:47:15.925 bit about transarterial therapy. This

NOTE Confidence: 0.9538937

00:47:15.925 --> 00:47:17.445 was initiated about fifty years

NOTE Confidence: 0.9538937

00:47:17.445 --> 00:47:18.885 ago, mostly in the studying

NOTE Confidence: 0.9538937

00:47:19.045 --> 00:47:20.165 early in the studying of,

NOTE Confidence: 0.9538937

00:47:20.485 --> 00:47:20.985 HCC.

NOTE Confidence: 0.97507143

00:47:21.925 --> 00:47:22.805 We do know that most

NOTE Confidence: 0.97507143

00:47:22.805 --> 00:47:24.085 liver tumors receive their blood

NOTE Confidence: 0.97507143

00:47:24.085 --> 00:47:25.765 supply largely from the hepatic

NOTE Confidence: 0.97507143

00:47:25.765 --> 00:47:27.545 artery, and most liver tumors,

NOTE Confidence: 0.97372586

00:47:27.980 --> 00:47:29.819 including those of colorectal liver

NOTE Confidence: 0.97372586

00:47:29.819 --> 00:47:30.319 metastases,

NOTE Confidence: 0.9998454

00:47:30.940 --> 00:47:32.400 are often highly vascular.

NOTE Confidence: 0.965375

00:47:32.780 --> 00:47:34.319 The goal is to selectively

NOTE Confidence: 0.965375

00:47:34.380 --> 00:47:36.239 and locally deliver intra arterial

NOTE Confidence: 0.965375

00:47:36.299 --> 00:47:38.000 therapeutics to the tumor bed.

NOTE Confidence: 0.965375

00:47:38.059 --> 00:47:39.099 And by doing so, we

NOTE Confidence: 0.965375

00:47:39.099 --> 00:47:40.960 can effectively target the tumor.

NOTE Confidence: 0.9757441

00:47:41.275 --> 00:47:42.795 We can spare surrounding hepatic

NOTE Confidence: 0.9757441

00:47:42.795 --> 00:47:44.494 parenchyma, and we can minimize

NOTE Confidence: 0.9757441

00:47:44.555 --> 00:47:46.335 systemic complications and toxicities.

NOTE Confidence: 0.9982357

00:47:46.875 --> 00:47:48.235 Now there's multiple different types

NOTE Confidence: 0.9982357

00:47:48.235 --> 00:47:49.675 of procedures that we can

NOTE Confidence: 0.9982357

00:47:49.675 --> 00:47:50.175 offer.

NOTE Confidence: 0.94870156

00:47:50.475 --> 00:47:52.235 Typically, they are done, through

NOTE Confidence: 0.94870156

00:47:52.235 --> 00:47:52.735 a

NOTE Confidence: 0.9763035

00:47:53.810 --> 00:47:54.869 a right sided,

NOTE Confidence: 0.9937985

00:47:55.489 --> 00:47:56.710 common femoral approach.

NOTE Confidence: 0.9956895

00:47:57.489 --> 00:47:58.930 It's just what we actually

NOTE Confidence: 0.9956895

00:47:58.930 --> 00:48:00.050 deliver. I don't have time

NOTE Confidence: 0.9956895

00:48:00.050 --> 00:48:01.010 to really go into all

NOTE Confidence: 0.9956895

00:48:01.010 --> 00:48:02.390 the details of the various,

NOTE Confidence: 0.99216545

00:48:02.850 --> 00:48:04.230 procedures that we can do,

NOTE Confidence: 0.99216545

00:48:04.290 --> 00:48:05.330 but we can say that

NOTE Confidence: 0.99216545

00:48:05.330 --> 00:48:06.550 we can do bland embolization,

NOTE Confidence: 0.99216545

00:48:06.690 --> 00:48:07.885 which is just a way

NOTE Confidence: 0.99216545

00:48:07.885 --> 00:48:08.864 of causing ischemia,

NOTE Confidence: 0.98456246

00:48:09.725 --> 00:48:11.085 and that just uses bland

NOTE Confidence: 0.98456246

00:48:11.085 --> 00:48:12.864 particles. We can do conventional

NOTE Confidence: 0.98456246

00:48:13.005 --> 00:48:14.465 taste where you mix chemotherapy

NOTE Confidence: 0.98118716

00:48:14.925 --> 00:48:17.085 with an oily substance called

NOTE Confidence: 0.98118716

00:48:17.085 --> 00:48:17.585 lapidol,

NOTE Confidence: 0.9758037

00:48:18.045 --> 00:48:19.645 which, can be infused into

NOTE Confidence: 0.9758037

00:48:19.645 --> 00:48:21.085 the tumor. We can do

NOTE Confidence: 0.9758037

00:48:21.085 --> 00:48:22.545 drug eluting b taste,

NOTE Confidence: 0.96744466

00:48:22.969 --> 00:48:23.469 which,

NOTE Confidence: 0.9994967

00:48:23.930 --> 00:48:24.829 is similar

NOTE Confidence: 0.9832649

00:48:25.130 --> 00:48:26.410 in in that, it's

NOTE Confidence: 0.67055064

00:48:26.969 --> 00:48:28.029 it's used to chemotherapy,

NOTE Confidence: 0.9957258

00:48:28.410 --> 00:48:29.690 but it's where,

NOTE Confidence: 0.9992773

00:48:30.170 --> 00:48:30.670 chemotherapy

NOTE Confidence: 0.98583037

00:48:30.969 --> 00:48:32.670 is infused into these beads,

NOTE Confidence: 0.98583037

00:48:32.730 --> 00:48:34.250 and then these beads will

NOTE Confidence: 0.98583037

00:48:34.250 --> 00:48:35.369 then be delivered to the

NOTE Confidence: 0.98583037

00:48:35.369 --> 00:48:36.645 tumor. And then, of course,

NOTE Confidence: 0.98583037

00:48:36.645 --> 00:48:38.105 we have, radioembolization

NOTE Confidence: 0.9541459

00:48:39.045 --> 00:48:40.344 where we can then deliver,

NOTE Confidence: 0.9922788

00:48:41.285 --> 00:48:43.045 specific amounts of radiation to

NOTE Confidence: 0.9922788

00:48:43.045 --> 00:48:44.825 either the tumor, locally

NOTE Confidence: 0.99314463

00:48:45.205 --> 00:48:46.585 or to a region.

NOTE Confidence: 0.99632996

00:48:47.844 --> 00:48:49.145 We also can do preoperative

NOTE Confidence: 0.99632996

00:48:49.205 --> 00:48:50.025 liver augmentation.

NOTE Confidence: 0.9730253

00:48:50.510 --> 00:48:51.309 You kind of heard about

NOTE Confidence: 0.9730253

00:48:51.309 --> 00:48:52.349 this a little bit. We

NOTE Confidence: 0.9730253

00:48:52.349 --> 00:48:54.050 can do portal and,

NOTE Confidence: 0.9807245

00:48:54.510 --> 00:48:56.450 hepatic vein embolization as well.

NOTE Confidence: 0.9807245

00:48:56.670 --> 00:48:57.869 The goal here is to

NOTE Confidence: 0.9807245

00:48:57.869 --> 00:48:59.390 redirect portal blood flow to

NOTE Confidence: 0.9807245

00:48:59.390 --> 00:49:00.989 the future liver remnant, and

NOTE Confidence: 0.9807245

00:49:00.989 --> 00:49:02.770 by doing so, initiate hypertrophy

NOTE Confidence: 0.9807245

00:49:02.829 --> 00:49:03.569 of the nonembolized

NOTE Confidence: 0.8791286

00:49:03.869 --> 00:49:04.369 segment.

NOTE Confidence: 0.99866706

00:49:04.695 --> 00:49:05.975 And by doing this, we

NOTE Confidence: 0.99866706

00:49:05.975 --> 00:49:07.335 can reduce the overall number

NOTE Confidence: 0.99866706

00:49:07.335 --> 00:49:09.195 of, perioperative complications.

NOTE Confidence: 0.96611357

00:49:10.855 --> 00:49:12.215 This would then lead to

NOTE Confidence: 0.96611357

00:49:12.215 --> 00:49:13.735 increasing the number of potential

NOTE Confidence: 0.96611357

00:49:13.735 --> 00:49:15.255 surgical candidates who have what

NOTE Confidence: 0.96611357

00:49:15.255 --> 00:49:17.735 we call marginal anticipated future

NOTE Confidence: 0.96611357

00:49:17.735 --> 00:49:18.875 liver remnant volumes,

NOTE Confidence: 0.9993057

00:49:19.299 --> 00:49:21.079 And previous studies have suggested

NOTE Confidence: 0.9757976

00:49:21.380 --> 00:49:22.660 that in order to reduce

NOTE Confidence: 0.9757976

00:49:22.660 --> 00:49:24.260 the morbidity of hepatic resection,

NOTE Confidence: 0.9757976

00:49:24.260 --> 00:49:25.619 about twenty percent of the

NOTE Confidence: 0.9757976

00:49:25.619 --> 00:49:27.140 liver must remain in patients

NOTE Confidence: 0.9757976

00:49:27.140 --> 00:49:28.500 with normal liver. That's patients

NOTE Confidence: 0.9757976

00:49:28.500 --> 00:49:29.960 that have never been pretreated

NOTE Confidence: 0.9757976

00:49:30.019 --> 00:49:31.400 with any kind of chemotherapy

NOTE Confidence: 0.9757976

00:49:31.460 --> 00:49:32.599 or radiation or anything.

NOTE Confidence: 0.9737179

00:49:33.045 --> 00:49:35.204 Thirty percent in injured liver,

NOTE Confidence: 0.9737179

00:49:35.204 --> 00:49:36.165 and we would say maybe

NOTE Confidence: 0.9737179

00:49:36.165 --> 00:49:37.605 patients that have high, high

NOTE Confidence: 0.9737179

00:49:37.605 --> 00:49:39.385 dose chemotherapy or steatohepatitis,

NOTE Confidence: 0.9981297

00:49:40.325 --> 00:49:41.684 and then forty percent in

NOTE Confidence: 0.9981297

00:49:41.684 --> 00:49:43.704 patients with, maybe cirrhosis

NOTE Confidence: 0.93200785

00:49:44.165 --> 00:49:45.385 with the goal of achieving

NOTE Confidence: 0.93200785

00:49:45.525 --> 00:49:46.645 what we would say is

NOTE Confidence: 0.93200785

00:49:46.645 --> 00:49:47.145 similar

NOTE Confidence: 0.9600346

00:49:47.525 --> 00:49:49.320 survival rates to cert to

NOTE Confidence: 0.9600346

00:49:49.320 --> 00:49:50.600 patients that did not actually

NOTE Confidence: 0.9600346

00:49:50.600 --> 00:49:51.100 require

NOTE Confidence: 0.83972406

00:49:51.480 --> 00:49:51.980 PVE

NOTE Confidence: 0.9977722

00:49:52.280 --> 00:49:53.580 prior to surgery.

NOTE Confidence: 0.9826193

00:49:54.520 --> 00:49:55.320 And just to give you

NOTE Confidence: 0.9826193

00:49:55.320 --> 00:49:56.460 some basic examples,

NOTE Confidence: 0.9280483

00:49:57.320 --> 00:49:58.600 this is a patient that,

NOTE Confidence: 0.9280483

00:49:58.840 --> 00:50:00.700 has a isolated liver metastases.

NOTE Confidence: 0.98098576

00:50:01.205 --> 00:50:02.425 We placed a needle,

NOTE Confidence: 0.90643996

00:50:03.125 --> 00:50:04.485 for ablation. I think in

NOTE Confidence: 0.90643996

00:50:04.485 --> 00:50:05.844 this case, we used a

NOTE Confidence: 0.90643996

00:50:05.844 --> 00:50:06.344 microwave,

NOTE Confidence: 0.9747118

00:50:06.645 --> 00:50:07.605 and you can see at

NOTE Confidence: 0.9747118

00:50:07.605 --> 00:50:08.585 one year follow-up,

NOTE Confidence: 0.988789

00:50:09.045 --> 00:50:10.165 there is no tumor. So

NOTE Confidence: 0.988789

00:50:10.165 --> 00:50:11.605 we can use high levels

NOTE Confidence: 0.988789

00:50:11.605 --> 00:50:11.844 of,

NOTE Confidence: 0.95753956

00:50:12.725 --> 00:50:14.330 of, of of heat. In

NOTE Confidence: 0.95753956

00:50:14.330 --> 00:50:15.530 this case, usually, we use

NOTE Confidence: 0.95753956

00:50:15.530 --> 00:50:17.310 about a hundred degrees, Celsius.

NOTE Confidence: 0.96815425

00:50:18.170 --> 00:50:19.530 Here we see an example

NOTE Confidence: 0.96815425

00:50:19.530 --> 00:50:20.969 of, what's called the radiation

NOTE Confidence: 0.96815425

00:50:20.969 --> 00:50:22.170 segmentectomy, and we can see

NOTE Confidence: 0.96815425

00:50:22.170 --> 00:50:23.530 a small tumor in segment

NOTE Confidence: 0.96815425

00:50:23.530 --> 00:50:24.030 two

NOTE Confidence: 0.9539431

00:50:24.330 --> 00:50:26.110 just abutting near the heart.

NOTE Confidence: 0.97418165

00:50:27.045 --> 00:50:28.165 In this case, we felt

NOTE Confidence: 0.97418165

00:50:28.165 --> 00:50:28.484 that,

NOTE Confidence: 0.9453207

00:50:29.204 --> 00:50:31.364 that that, tumor ablation with

NOTE Confidence: 0.9453207

00:50:31.364 --> 00:50:32.505 a mic with a needle

NOTE Confidence: 0.9453207

00:50:32.565 --> 00:50:34.005 would be very risky. So

NOTE Confidence: 0.9453207

00:50:34.005 --> 00:50:36.165 we gave, radiation directly to

NOTE Confidence: 0.9453207

00:50:36.165 --> 00:50:37.125 that area, and you can

NOTE Confidence: 0.9453207

00:50:37.125 --> 00:50:38.405 see on the six month

NOTE Confidence: 0.9453207

00:50:38.405 --> 00:50:38.905 post,

NOTE Confidence: 0.7720086

00:50:39.444 --> 00:50:39.944 treatment,

NOTE Confidence: 0.9652364

00:50:40.469 --> 00:50:41.989 excellent, results. And now you

NOTE Confidence: 0.9652364

00:50:41.989 --> 00:50:42.950 see a one point four

NOTE Confidence: 0.9652364

00:50:42.950 --> 00:50:44.489 centimeter necrotic tumor

NOTE Confidence: 0.9776551

00:50:44.790 --> 00:50:46.310 that, previously might not have

NOTE Confidence: 0.9776551

00:50:46.310 --> 00:50:47.450 been easily treated.

NOTE Confidence: 0.9384414

00:50:48.310 --> 00:50:50.070 This is, an example of

NOTE Confidence: 0.9384414

00:50:50.070 --> 00:50:52.150 drug eluting bead TACE in

NOTE Confidence: 0.9384414

00:50:52.150 --> 00:50:53.430 a patient with you see

NOTE Confidence: 0.9384414

00:50:53.430 --> 00:50:54.890 this large right,

NOTE Confidence: 0.96944237

00:50:55.305 --> 00:50:56.285 hepatic lesion.

NOTE Confidence: 0.9983665

00:50:56.665 --> 00:50:57.964 And after two sessions,

NOTE Confidence: 0.946076

00:50:58.265 --> 00:50:59.224 you can see after two

NOTE Confidence: 0.946076

00:50:59.224 --> 00:51:01.065 month after four months that

NOTE Confidence: 0.946076

00:51:01.065 --> 00:51:02.025 most of the tumor,

NOTE Confidence: 0.9995773

00:51:02.344 --> 00:51:03.165 is necrotic.

NOTE Confidence: 0.9948097

00:51:04.505 --> 00:51:05.385 And then this is a

NOTE Confidence: 0.9948097

00:51:05.385 --> 00:51:07.625 standard case of transarterial therapy

NOTE Confidence: 0.9948097

00:51:07.625 --> 00:51:08.765 using y ninety

NOTE Confidence: 0.9016942

00:51:09.065 --> 00:51:10.780 where we have innumerable,

NOTE Confidence: 0.93571305

00:51:11.080 --> 00:51:11.900 liver metastases.

NOTE Confidence: 0.92357063

00:51:12.440 --> 00:51:13.880 And then after radiation, we

NOTE Confidence: 0.92357063

00:51:13.880 --> 00:51:15.160 can see, that that are

NOTE Confidence: 0.92357063

00:51:15.160 --> 00:51:15.660 hypermetabolic

NOTE Confidence: 0.9880864

00:51:16.040 --> 00:51:17.719 on PET. And after six

NOTE Confidence: 0.9880864

00:51:17.719 --> 00:51:18.859 months, we can see

NOTE Confidence: 0.79626435

00:51:19.160 --> 00:51:20.219 a major reduction

NOTE Confidence: 0.97396207

00:51:20.839 --> 00:51:22.540 of, of these hypermetabolic

NOTE Confidence: 0.99273163

00:51:22.920 --> 00:51:23.420 metastases

NOTE Confidence: 0.99171424

00:51:24.125 --> 00:51:25.984 relative to, the pretreatment,

NOTE Confidence: 0.9262526

00:51:26.525 --> 00:51:27.905 you know, SPECT CT.

NOTE Confidence: 0.9420888

00:51:29.565 --> 00:51:31.005 This is a case, similar

NOTE Confidence: 0.9420888

00:51:31.005 --> 00:51:32.224 to what Saj

NOTE Confidence: 0.97313744

00:51:32.525 --> 00:51:34.525 Khan had shown, however, probably

NOTE Confidence: 0.97313744

00:51:34.525 --> 00:51:36.285 much worse. We would probably

NOTE Confidence: 0.97313744

00:51:36.285 --> 00:51:37.724 all say that the image

NOTE Confidence: 0.97313744

00:51:37.805 --> 00:51:39.090 the images on the left

NOTE Confidence: 0.97313744

00:51:39.170 --> 00:51:39.989 upper quadrant,

NOTE Confidence: 0.9718159

00:51:40.690 --> 00:51:41.810 would show that this patient

NOTE Confidence: 0.9718159

00:51:41.810 --> 00:51:42.950 is completely unresectable.

NOTE Confidence: 0.942498

00:51:43.410 --> 00:51:45.110 K? And this patient ultimately

NOTE Confidence: 0.942498

00:51:45.170 --> 00:51:45.650 underwent,

NOTE Confidence: 0.9840217

00:51:46.050 --> 00:51:47.110 preoperative chemotherapy.

NOTE Confidence: 0.9820929

00:51:47.890 --> 00:51:49.010 We found that his liver

NOTE Confidence: 0.9820929

00:51:49.010 --> 00:51:50.370 remnant, if had if they

NOTE Confidence: 0.9820929

00:51:50.370 --> 00:51:51.969 had surgery, is only sixteen

NOTE Confidence: 0.9820929

00:51:51.969 --> 00:51:53.170 percent. And as we said,

NOTE Confidence: 0.9820929

00:51:53.170 --> 00:51:54.370 this patient would need at

NOTE Confidence: 0.9820929

00:51:54.370 --> 00:51:56.415 least twenty percent. So we

NOTE Confidence: 0.9820929

00:51:56.415 --> 00:51:57.795 did a portal vein embolization

NOTE Confidence: 0.8591907

00:51:58.415 --> 00:51:59.395 through the liver,

NOTE Confidence: 0.9630854

00:51:59.855 --> 00:52:01.695 and then ultimately, the patient

NOTE Confidence: 0.9630854

00:52:01.695 --> 00:52:03.075 underwent their second stage

NOTE Confidence: 0.9633504

00:52:03.455 --> 00:52:05.135 and then ultimately had, I

NOTE Confidence: 0.9633504

00:52:05.135 --> 00:52:06.255 guess, what you would consider,

NOTE Confidence: 0.9633504

00:52:06.495 --> 00:52:07.935 a cure, in this in

NOTE Confidence: 0.9633504

00:52:07.935 --> 00:52:09.039 this case. So we were

NOTE Confidence: 0.9633504

00:52:09.039 --> 00:52:10.079 able to take a patient

NOTE Confidence: 0.9633504

00:52:10.079 --> 00:52:10.559 using,

NOTE Confidence: 0.9992749

00:52:11.039 --> 00:52:11.539 chemotherapy

NOTE Confidence: 0.97552526

00:52:12.239 --> 00:52:13.140 and neoadjuvant

NOTE Confidence: 0.91270554

00:52:13.440 --> 00:52:15.039 portal vein embolization and get

NOTE Confidence: 0.91270554

00:52:15.039 --> 00:52:16.339 a patient that was completely

NOTE Confidence: 0.9977343

00:52:16.640 --> 00:52:17.140 unresectable

NOTE Confidence: 0.9809953

00:52:17.839 --> 00:52:19.920 to successful resection. So this

NOTE Confidence: 0.9809953

00:52:19.920 --> 00:52:21.039 is something that I think,

NOTE Confidence: 0.9964142

00:52:21.760 --> 00:52:22.960 has really changed as a

NOTE Confidence: 0.9964142

00:52:22.960 --> 00:52:23.460 paradigm.

NOTE Confidence: 0.97027904

00:52:24.695 --> 00:52:26.055 Now just to show you

NOTE Confidence: 0.97027904

00:52:26.055 --> 00:52:27.335 all the data, I have

NOTE Confidence: 0.97027904

00:52:27.335 --> 00:52:28.455 a lot of data coming

NOTE Confidence: 0.97027904

00:52:28.455 --> 00:52:29.895 up. This is the results

NOTE Confidence: 0.97027904

00:52:29.895 --> 00:52:31.255 of portal vein embolization and

NOTE Confidence: 0.97027904

00:52:31.255 --> 00:52:32.614 its impact on major liver

NOTE Confidence: 0.97027904

00:52:32.614 --> 00:52:33.114 resection.

NOTE Confidence: 0.9960392

00:52:33.575 --> 00:52:34.955 This was a meta analysis,

NOTE Confidence: 0.9640647

00:52:35.494 --> 00:52:37.275 which included thirty seven publications,

NOTE Confidence: 0.9456444

00:52:37.655 --> 00:52:39.355 over one thousand patients,

NOTE Confidence: 0.9710786

00:52:39.739 --> 00:52:40.780 And you can see in

NOTE Confidence: 0.9710786

00:52:40.780 --> 00:52:42.619 terms of key data that

NOTE Confidence: 0.9710786

00:52:42.619 --> 00:52:43.980 PVE has been found to

NOTE Confidence: 0.9710786

00:52:43.980 --> 00:52:45.200 be safe and effective,

NOTE Confidence: 0.95902795

00:52:45.739 --> 00:52:48.079 k, with very low morbidity,

NOTE Confidence: 0.9262986

00:52:48.700 --> 00:52:49.980 and, there was actually no

NOTE Confidence: 0.9262986

00:52:49.980 --> 00:52:50.480 mortality

NOTE Confidence: 0.9752747

00:52:50.780 --> 00:52:51.980 in looking at those patients

NOTE Confidence: 0.9752747

00:52:51.980 --> 00:52:53.520 that underwent portal vein embolization.

NOTE Confidence: 0.94386435

00:52:54.335 --> 00:52:55.535 The patients did have an

NOTE Confidence: 0.94386435

00:52:55.535 --> 00:52:57.454 eighty five percent conversion rate

NOTE Confidence: 0.94386435

00:52:57.454 --> 00:52:58.895 surgery and there was no

NOTE Confidence: 0.94386435

00:52:58.974 --> 00:53:00.275 and there's very small,

NOTE Confidence: 0.9479042

00:53:01.375 --> 00:53:03.795 evidence of, post hepatectomy,

NOTE Confidence: 0.99978787

00:53:04.255 --> 00:53:05.075 liver failure.

NOTE Confidence: 0.9964217

00:53:05.694 --> 00:53:06.734 These were just some key

NOTE Confidence: 0.9964217

00:53:06.734 --> 00:53:08.194 studies I wanted to highlight.

NOTE Confidence: 0.9926489

00:53:08.910 --> 00:53:10.130 The first ones,

NOTE Confidence: 0.9816567

00:53:10.589 --> 00:53:12.210 from the early two thousands

NOTE Confidence: 0.9816567

00:53:12.349 --> 00:53:13.650 were just the early experience,

NOTE Confidence: 0.9816567

00:53:13.710 --> 00:53:14.510 and we were able to

NOTE Confidence: 0.9816567

00:53:14.510 --> 00:53:16.450 get five year overall survival

NOTE Confidence: 0.9823477

00:53:16.829 --> 00:53:18.109 of thirty seven to forty

NOTE Confidence: 0.9823477

00:53:18.109 --> 00:53:19.390 percent after resection. Now you

NOTE Confidence: 0.9823477

00:53:19.390 --> 00:53:20.349 have to remember that these

NOTE Confidence: 0.9823477

00:53:20.349 --> 00:53:21.549 patients would not have gotten

NOTE Confidence: 0.9823477

00:53:21.549 --> 00:53:23.010 resection without the PVE,

NOTE Confidence: 0.9844226

00:53:23.475 --> 00:53:24.915 so their five year overall

NOTE Confidence: 0.9844226

00:53:24.915 --> 00:53:25.955 survival would have been much

NOTE Confidence: 0.9844226

00:53:25.955 --> 00:53:26.455 worse.

NOTE Confidence: 0.9864292

00:53:26.995 --> 00:53:28.035 The second study that was

NOTE Confidence: 0.9864292

00:53:28.035 --> 00:53:29.575 published in, JCO,

NOTE Confidence: 0.98086846

00:53:30.275 --> 00:53:31.795 that showed that, in the

NOTE Confidence: 0.98086846

00:53:31.795 --> 00:53:33.635 use of, a two stage

NOTE Confidence: 0.98086846

00:53:33.635 --> 00:53:35.395 hepatectomy, which included portal vein

NOTE Confidence: 0.98086846

00:53:35.395 --> 00:53:35.895 embolization,

NOTE Confidence: 0.9985068

00:53:36.469 --> 00:53:37.750 it was very important to

NOTE Confidence: 0.9985068

00:53:37.750 --> 00:53:39.029 complete the second stage. And

NOTE Confidence: 0.9985068

00:53:39.029 --> 00:53:40.150 when the second stage was

NOTE Confidence: 0.9985068

00:53:40.150 --> 00:53:40.650 completed,

NOTE Confidence: 0.98485935

00:53:41.109 --> 00:53:42.230 we were able to achieve

NOTE Confidence: 0.98485935

00:53:42.230 --> 00:53:43.430 a fifty percent five year

NOTE Confidence: 0.98485935

00:53:43.430 --> 00:53:45.269 overall survival, which at that

NOTE Confidence: 0.98485935

00:53:45.269 --> 00:53:47.289 time was considered pretty amazing.

NOTE Confidence: 0.9847715

00:53:48.630 --> 00:53:50.390 We also looked at, those

NOTE Confidence: 0.9847715

00:53:50.390 --> 00:53:51.750 patients that did have high

NOTE Confidence: 0.9847715

00:53:51.750 --> 00:53:53.405 dose chemotherapy and the number

NOTE Confidence: 0.9847715

00:53:53.405 --> 00:53:54.925 of cycles. It was found

NOTE Confidence: 0.9847715

00:53:54.925 --> 00:53:56.125 that in those patients that

NOTE Confidence: 0.9847715

00:53:56.125 --> 00:53:57.325 had at least twelve weeks

NOTE Confidence: 0.9847715

00:53:57.325 --> 00:53:58.785 of chemotherapy preoperatively,

NOTE Confidence: 0.9326147

00:53:59.485 --> 00:54:01.085 that thirty percent that thirty

NOTE Confidence: 0.9326147

00:54:01.085 --> 00:54:02.285 percent of the liver remnant

NOTE Confidence: 0.9326147

00:54:02.285 --> 00:54:03.805 would be required to get

NOTE Confidence: 0.9326147

00:54:03.805 --> 00:54:05.425 patients through their resection.

NOTE Confidence: 0.97885764

00:54:05.885 --> 00:54:07.560 And then we're looking now

NOTE Confidence: 0.97885764

00:54:07.560 --> 00:54:09.660 at portal vein embolization versus,

NOTE Confidence: 0.9892995

00:54:10.840 --> 00:54:12.520 liver venous deprivation, which is

NOTE Confidence: 0.9892995

00:54:12.520 --> 00:54:13.980 adding hepatic vein embolization

NOTE Confidence: 0.98934644

00:54:14.280 --> 00:54:15.480 to it. And in this

NOTE Confidence: 0.98934644

00:54:15.480 --> 00:54:16.940 case, we can see that

NOTE Confidence: 0.98934644

00:54:17.080 --> 00:54:18.760 we were able to, increase

NOTE Confidence: 0.98934644

00:54:18.760 --> 00:54:19.420 the hypertrophy

NOTE Confidence: 0.98320293

00:54:19.800 --> 00:54:21.820 and get patients to surgery

NOTE Confidence: 0.98320293

00:54:21.880 --> 00:54:22.380 faster

NOTE Confidence: 0.99759233

00:54:22.734 --> 00:54:24.195 using this combined technique.

NOTE Confidence: 0.9774085

00:54:24.575 --> 00:54:25.614 Now we don't know if

NOTE Confidence: 0.9774085

00:54:25.614 --> 00:54:27.454 this is clinically relevant, but

NOTE Confidence: 0.9774085

00:54:27.454 --> 00:54:29.055 at this time, we're considering

NOTE Confidence: 0.9774085

00:54:29.055 --> 00:54:30.575 that it is. And most

NOTE Confidence: 0.9774085

00:54:30.575 --> 00:54:31.075 patients,

NOTE Confidence: 0.9457267

00:54:32.415 --> 00:54:33.474 get both procedures.

NOTE Confidence: 0.9617066

00:54:33.935 --> 00:54:34.815 They're all done at the

NOTE Confidence: 0.9617066

00:54:34.815 --> 00:54:36.690 same time. And, we're now

NOTE Confidence: 0.9617066

00:54:36.690 --> 00:54:37.890 gonna be doing a Dragon

NOTE Confidence: 0.9617066

00:54:37.890 --> 00:54:39.650 study that, we're part of

NOTE Confidence: 0.9617066

00:54:39.650 --> 00:54:41.430 the Dragon Consortium as well.

NOTE Confidence: 0.9617066

00:54:41.570 --> 00:54:42.770 And that will show that,

NOTE Confidence: 0.9617066

00:54:43.090 --> 00:54:44.850 hopefully, that this does work

NOTE Confidence: 0.9617066

00:54:44.850 --> 00:54:46.290 and does have benefit for,

NOTE Confidence: 0.9617066

00:54:46.530 --> 00:54:48.530 patients with bilateral colorectal living

NOTE Confidence: 0.9617066

00:54:48.530 --> 00:54:49.030 metastases.

NOTE Confidence: 0.96811867

00:54:50.165 --> 00:54:51.925 Now looking at local therapy,

NOTE Confidence: 0.96811867

00:54:51.925 --> 00:54:53.385 which in this case includes,

NOTE Confidence: 0.9406682

00:54:54.965 --> 00:54:55.465 ablation

NOTE Confidence: 0.9115394

00:54:56.165 --> 00:54:57.625 and, limited resection,

NOTE Confidence: 0.9358662

00:54:58.005 --> 00:54:59.364 we see that in this

NOTE Confidence: 0.9358662

00:54:59.364 --> 00:55:01.305 study that was the CLOCK,

NOTE Confidence: 0.82742715

00:55:01.685 --> 00:55:02.185 trial,

NOTE Confidence: 0.997536

00:55:02.724 --> 00:55:04.505 it was systemic therapy alone

NOTE Confidence: 0.93574226

00:55:04.950 --> 00:55:07.450 versus systemic therapy plus aggressive

NOTE Confidence: 0.93574226

00:55:07.510 --> 00:55:09.270 local treatment. You can see

NOTE Confidence: 0.93574226

00:55:09.270 --> 00:55:10.390 that, this was,

NOTE Confidence: 0.89234614

00:55:10.950 --> 00:55:12.630 there was actually overall survival

NOTE Confidence: 0.89234614

00:55:12.630 --> 00:55:13.130 benefit,

NOTE Confidence: 0.95730233

00:55:13.830 --> 00:55:15.430 thirty six percent to nine

NOTE Confidence: 0.95730233

00:55:15.430 --> 00:55:16.550 percent in eight years. And

NOTE Confidence: 0.95730233

00:55:16.550 --> 00:55:17.830 I think, doctor Khan had

NOTE Confidence: 0.95730233

00:55:17.830 --> 00:55:19.094 shown that to us a

NOTE Confidence: 0.95730233

00:55:19.094 --> 00:55:20.215 little earlier. And that was,

NOTE Confidence: 0.95730233

00:55:20.215 --> 00:55:21.655 like, the first randomized study

NOTE Confidence: 0.95730233

00:55:21.655 --> 00:55:22.555 to show that.

NOTE Confidence: 0.9650668

00:55:23.415 --> 00:55:25.494 More recently, the collision trial

NOTE Confidence: 0.9650668

00:55:25.494 --> 00:55:26.235 was published.

NOTE Confidence: 0.97515035

00:55:27.175 --> 00:55:28.775 Doctor Khan briefly alluded to

NOTE Confidence: 0.97515035

00:55:28.775 --> 00:55:29.655 that too. This was a

NOTE Confidence: 0.97515035

00:55:29.655 --> 00:55:30.155 multicenter

NOTE Confidence: 0.9037225

00:55:30.614 --> 00:55:32.155 randomized clinical trial,

NOTE Confidence: 0.94583714

00:55:32.455 --> 00:55:33.255 which was,

NOTE Confidence: 0.9995023

00:55:33.575 --> 00:55:34.075 done

NOTE Confidence: 0.9666109

00:55:34.630 --> 00:55:36.790 in three hundred patients, looking

NOTE Confidence: 0.9666109

00:55:36.790 --> 00:55:38.250 at those patients that had,

NOTE Confidence: 0.9715008

00:55:38.630 --> 00:55:40.150 less than ten colorectal liver

NOTE Confidence: 0.9715008

00:55:40.150 --> 00:55:40.650 metastases,

NOTE Confidence: 0.9612231

00:55:41.270 --> 00:55:42.410 less than three centimeters.

NOTE Confidence: 0.9759624

00:55:42.869 --> 00:55:43.190 And,

NOTE Confidence: 0.9599867

00:55:43.830 --> 00:55:44.950 they were randomized one to

NOTE Confidence: 0.9599867

00:55:44.950 --> 00:55:46.310 one to ablation or resection,

NOTE Confidence: 0.9599867

00:55:46.310 --> 00:55:47.109 and you can see the

NOTE Confidence: 0.9599867

00:55:47.109 --> 00:55:47.609 data

NOTE Confidence: 0.9823691

00:55:48.025 --> 00:55:49.945 is, pretty impressive. Now this

NOTE Confidence: 0.9823691

00:55:49.945 --> 00:55:51.405 was done as a non

NOTE Confidence: 0.9823691

00:55:51.465 --> 00:55:53.485 inferior trial, not a superiority

NOTE Confidence: 0.9953438

00:55:53.864 --> 00:55:54.364 trial.

NOTE Confidence: 0.9762776

00:55:54.665 --> 00:55:55.945 So when we look at

NOTE Confidence: 0.9762776

00:55:55.945 --> 00:55:56.744 the data, you can see

NOTE Confidence: 0.9762776

00:55:56.744 --> 00:55:57.545 that the in terms of

NOTE Confidence: 0.9762776

00:55:57.545 --> 00:56:00.105 adverse events, serious adverse events,

NOTE Confidence: 0.9762776

00:56:00.105 --> 00:56:00.844 and mortality

NOTE Confidence: 0.9484114

00:56:01.610 --> 00:56:03.370 that there is a role

NOTE Confidence: 0.9484114

00:56:03.370 --> 00:56:04.730 for thermal ablation. And in

NOTE Confidence: 0.9484114

00:56:04.730 --> 00:56:05.230 fact,

NOTE Confidence: 0.9589516

00:56:05.690 --> 00:56:06.890 the trial was stopped at

NOTE Confidence: 0.9589516

00:56:06.890 --> 00:56:08.730 the halfway point for meeting

NOTE Confidence: 0.9589516

00:56:08.730 --> 00:56:09.930 all the stopping rules. And

NOTE Confidence: 0.9589516

00:56:09.930 --> 00:56:10.430 therefore,

NOTE Confidence: 0.9925225

00:56:11.210 --> 00:56:11.690 while,

NOTE Confidence: 0.9911742

00:56:12.010 --> 00:56:13.290 doctor Khan did say that

NOTE Confidence: 0.9911742

00:56:13.290 --> 00:56:13.790 surgery

NOTE Confidence: 0.884603

00:56:14.170 --> 00:56:16.270 may be the preferred approach,

NOTE Confidence: 0.9976924

00:56:17.265 --> 00:56:18.484 We really need to individualize

NOTE Confidence: 0.9976924

00:56:18.704 --> 00:56:20.065 these patients to see if,

NOTE Confidence: 0.9804358

00:56:21.025 --> 00:56:22.944 colorectal cancer liver metastases may

NOTE Confidence: 0.9804358

00:56:22.944 --> 00:56:24.224 be better in certain patients

NOTE Confidence: 0.9804358

00:56:24.224 --> 00:56:25.545 being treated with ablation. And

NOTE Confidence: 0.9804358

00:56:25.545 --> 00:56:26.785 I can tell you that

NOTE Confidence: 0.9804358

00:56:26.785 --> 00:56:28.005 based on this trial,

NOTE Confidence: 0.99670917

00:56:28.305 --> 00:56:29.444 I have seen an uptick

NOTE Confidence: 0.99670917

00:56:29.700 --> 00:56:30.980 in our number of patients

NOTE Confidence: 0.99670917

00:56:30.980 --> 00:56:32.020 that are being treated with

NOTE Confidence: 0.99670917

00:56:32.020 --> 00:56:32.520 ablation

NOTE Confidence: 0.99527824

00:56:32.980 --> 00:56:33.480 for,

NOTE Confidence: 0.99327487

00:56:34.020 --> 00:56:35.400 colorectal liver metastases.

NOTE Confidence: 0.9760632

00:56:37.300 --> 00:56:38.820 Now getting on to conventional

NOTE Confidence: 0.9760632

00:56:38.820 --> 00:56:39.859 taste, there's only a couple

NOTE Confidence: 0.9760632

00:56:39.859 --> 00:56:41.400 of studies that show this.

NOTE Confidence: 0.9760632

00:56:41.460 --> 00:56:42.900 The idea here is that,

NOTE Confidence: 0.9760632

00:56:43.219 --> 00:56:44.599 these patients were refractory

NOTE Confidence: 0.9156864

00:56:45.155 --> 00:56:46.135 to systemic therapy,

NOTE Confidence: 0.9961649

00:56:46.435 --> 00:56:47.714 and they really had no

NOTE Confidence: 0.9961649

00:56:47.714 --> 00:56:48.535 other option.

NOTE Confidence: 0.9981891

00:56:48.994 --> 00:56:50.035 I would say that,

NOTE Confidence: 0.9250936

00:56:50.355 --> 00:56:52.375 in this, particular prospective,

NOTE Confidence: 0.97067523

00:56:52.835 --> 00:56:54.855 single center, single arm trial,

NOTE Confidence: 0.97067523

00:56:54.994 --> 00:56:56.994 the conventional taste did achieve

NOTE Confidence: 0.97067523

00:56:56.994 --> 00:56:59.090 meaningful disease control. And what

NOTE Confidence: 0.97067523

00:56:59.090 --> 00:56:59.890 I mean by that is

NOTE Confidence: 0.97067523

00:56:59.890 --> 00:57:01.810 in sixty three percent, patients

NOTE Confidence: 0.97067523

00:57:01.810 --> 00:57:03.750 did have a response.

NOTE Confidence: 0.99114037

00:57:04.050 --> 00:57:05.250 So this is a palliative

NOTE Confidence: 0.99114037

00:57:05.250 --> 00:57:05.750 strategy

NOTE Confidence: 0.94557977

00:57:06.450 --> 00:57:08.050 and, has, as you can

NOTE Confidence: 0.94557977

00:57:08.050 --> 00:57:09.890 see, has, been involved in

NOTE Confidence: 0.94557977

00:57:09.890 --> 00:57:10.950 prolonging life.

NOTE Confidence: 0.98887676

00:57:11.489 --> 00:57:12.770 The one year survival in

NOTE Confidence: 0.98887676

00:57:12.770 --> 00:57:13.670 these patients

NOTE Confidence: 0.99554276

00:57:14.555 --> 00:57:15.055 after,

NOTE Confidence: 0.99726003

00:57:15.435 --> 00:57:15.935 embolization

NOTE Confidence: 0.94019794

00:57:16.315 --> 00:57:17.915 was sixty two percent and

NOTE Confidence: 0.94019794

00:57:17.915 --> 00:57:18.895 two year survival

NOTE Confidence: 0.97745985

00:57:19.195 --> 00:57:20.875 was twenty eight percent. And

NOTE Confidence: 0.97745985

00:57:20.875 --> 00:57:22.095 this was just a retrospective

NOTE Confidence: 0.97745985

00:57:22.315 --> 00:57:23.835 study looking at a similar

NOTE Confidence: 0.97745985

00:57:23.835 --> 00:57:24.735 patient cohort

NOTE Confidence: 0.9813456

00:57:25.275 --> 00:57:26.315 in a hundred and twenty

NOTE Confidence: 0.9813456

00:57:26.315 --> 00:57:27.675 one patients with two hundred

NOTE Confidence: 0.9813456

00:57:27.675 --> 00:57:28.655 and forty five,

NOTE Confidence: 0.8931001

00:57:29.140 --> 00:57:30.900 treatments, and they also found

NOTE Confidence: 0.8931001

00:57:30.900 --> 00:57:32.180 that they got in conventional

NOTE Confidence: 0.8931001

00:57:32.180 --> 00:57:34.100 taste, moderate disease control. And

NOTE Confidence: 0.8931001

00:57:34.100 --> 00:57:35.140 they're this is done at

NOTE Confidence: 0.8931001

00:57:35.140 --> 00:57:36.200 University of Pennsylvania.

NOTE Confidence: 0.95216125

00:57:36.900 --> 00:57:38.340 And, in about forty percent

NOTE Confidence: 0.95216125

00:57:38.340 --> 00:57:39.940 of patients, they did have

NOTE Confidence: 0.95216125

00:57:39.940 --> 00:57:40.920 the this disease,

NOTE Confidence: 0.99954605

00:57:41.380 --> 00:57:41.880 control.

NOTE Confidence: 0.9706908

00:57:43.185 --> 00:57:44.705 Now in terms of, drug

NOTE Confidence: 0.9706908

00:57:44.705 --> 00:57:45.605 eluting beads,

NOTE Confidence: 0.997177

00:57:45.905 --> 00:57:46.705 these are just some of

NOTE Confidence: 0.997177

00:57:46.705 --> 00:57:47.605 the key studies.

NOTE Confidence: 0.964577

00:57:49.025 --> 00:57:50.565 We, it does have a

NOTE Confidence: 0.964577

00:57:50.625 --> 00:57:52.165 very different toxicity

NOTE Confidence: 0.9752572

00:57:52.465 --> 00:57:52.965 profile,

NOTE Confidence: 0.9947839

00:57:53.745 --> 00:57:55.045 because you're not using,

NOTE Confidence: 0.81768745

00:57:55.425 --> 00:57:56.865 systemic you're not getting a

NOTE Confidence: 0.81768745

00:57:56.865 --> 00:57:57.845 systemic toxicity,

NOTE Confidence: 0.93430775

00:57:58.560 --> 00:58:00.240 and there will be, shown

NOTE Confidence: 0.93430775

00:58:00.240 --> 00:58:01.540 quality of life advantages,

NOTE Confidence: 0.9739188

00:58:02.400 --> 00:58:03.920 favoring Dabirri. Now the two

NOTE Confidence: 0.9739188

00:58:03.920 --> 00:58:05.120 that I bolded, we're gonna

NOTE Confidence: 0.9739188

00:58:05.120 --> 00:58:06.160 discuss in a little more

NOTE Confidence: 0.9739188

00:58:06.160 --> 00:58:07.760 detail because those are the

NOTE Confidence: 0.9739188

00:58:07.760 --> 00:58:09.780 only two phase three prospective

NOTE Confidence: 0.9739188

00:58:09.840 --> 00:58:10.740 clinical trials

NOTE Confidence: 0.9998188

00:58:11.120 --> 00:58:12.100 that are available.

NOTE Confidence: 0.9877623

00:58:12.885 --> 00:58:14.645 Now this was the first

NOTE Confidence: 0.9877623

00:58:14.645 --> 00:58:15.125 one,

NOTE Confidence: 0.9624109

00:58:15.445 --> 00:58:16.985 published from, Italy,

NOTE Confidence: 0.88447946

00:58:17.605 --> 00:58:19.145 which compared Dabiri

NOTE Confidence: 0.9962574

00:58:19.525 --> 00:58:20.025 versus

NOTE Confidence: 0.999408

00:58:20.325 --> 00:58:21.385 systemic therapy

NOTE Confidence: 0.9482854

00:58:22.005 --> 00:58:23.365 in patients who failed at

NOTE Confidence: 0.9482854

00:58:23.365 --> 00:58:25.145 least two lines of systemic

NOTE Confidence: 0.9482854

00:58:25.205 --> 00:58:26.585 therapy, including FOLFIRI.

NOTE Confidence: 0.9964525

00:58:26.970 --> 00:58:28.010 And we can see that

NOTE Confidence: 0.9964525

00:58:28.010 --> 00:58:29.310 in terms of the outcomes

NOTE Confidence: 0.9418845

00:58:30.010 --> 00:58:30.330 that,

NOTE Confidence: 0.97598976

00:58:30.810 --> 00:58:32.650 patients had overall survival of

NOTE Confidence: 0.97598976

00:58:32.650 --> 00:58:33.950 twenty two months versus,

NOTE Confidence: 0.99158895

00:58:34.810 --> 00:58:36.270 fifteen months for FOLFIRI.

NOTE Confidence: 0.97880834

00:58:36.650 --> 00:58:38.330 And in terms of, progression

NOTE Confidence: 0.97880834

00:58:38.330 --> 00:58:38.990 free survival,

NOTE Confidence: 0.94982475

00:58:39.450 --> 00:58:40.985 seven months to four months,

NOTE Confidence: 0.94982475

00:58:40.985 --> 00:58:42.425 which, as you can see,

NOTE Confidence: 0.94982475

00:58:42.425 --> 00:58:43.485 was, statistically,

NOTE Confidence: 0.9969816

00:58:44.105 --> 00:58:44.605 significant.

NOTE Confidence: 0.9957696

00:58:45.385 --> 00:58:46.345 And then the second,

NOTE Confidence: 0.9897035

00:58:46.665 --> 00:58:47.865 clinical trial I wanted to

NOTE Confidence: 0.9897035

00:58:47.865 --> 00:58:49.805 highlight is this one here,

NOTE Confidence: 0.9889779

00:58:50.345 --> 00:58:50.825 which was,

NOTE Confidence: 0.93234813

00:58:51.465 --> 00:58:52.825 the main, site was, I

NOTE Confidence: 0.93234813

00:58:52.825 --> 00:58:54.605 guess, University of of Louisville.

NOTE Confidence: 0.9668522

00:58:55.070 --> 00:58:55.950 And they found that the

NOTE Confidence: 0.9668522

00:58:55.950 --> 00:58:56.930 addition of Deburi

NOTE Confidence: 0.99945253

00:58:57.230 --> 00:58:57.730 significantly

NOTE Confidence: 0.9743611

00:58:58.110 --> 00:58:58.610 improved,

NOTE Confidence: 0.9956877

00:58:59.070 --> 00:59:00.910 response rate and progression free

NOTE Confidence: 0.9956877

00:59:00.910 --> 00:59:01.410 survival

NOTE Confidence: 0.9796947

00:59:01.790 --> 00:59:02.990 and did have a higher

NOTE Confidence: 0.9796947

00:59:02.990 --> 00:59:03.890 rate of conversion,

NOTE Confidence: 0.9783607

00:59:04.590 --> 00:59:05.250 to resection.

NOTE Confidence: 0.9987762

00:59:05.630 --> 00:59:07.150 So these patients had,

NOTE Confidence: 0.99981064

00:59:07.550 --> 00:59:08.050 despite

NOTE Confidence: 0.9294968

00:59:08.525 --> 00:59:10.605 worse baseline characteristics in the

NOTE Confidence: 0.9294968

00:59:10.605 --> 00:59:12.285 deveri arm, actually,

NOTE Confidence: 0.97934246

00:59:12.765 --> 00:59:14.525 had really good outcomes relative

NOTE Confidence: 0.97934246

00:59:14.525 --> 00:59:16.065 to, systemic therapy.

NOTE Confidence: 0.9788654

00:59:16.925 --> 00:59:17.905 And then lastly,

NOTE Confidence: 0.9970256

00:59:18.285 --> 00:59:19.805 these are the two main

NOTE Confidence: 0.9970256

00:59:19.805 --> 00:59:20.785 clinical trials,

NOTE Confidence: 0.98361474

00:59:21.645 --> 00:59:22.705 for y ninety.

NOTE Confidence: 0.88079786

00:59:23.085 --> 00:59:23.985 We have Servlox

NOTE Confidence: 0.95082605

00:59:24.500 --> 00:59:26.359 and EPoC. Now Servlox,

NOTE Confidence: 0.8944513

00:59:27.059 --> 00:59:28.980 also its sister, our companion

NOTE Confidence: 0.8944513

00:59:28.980 --> 00:59:29.480 study,

NOTE Confidence: 0.93558955

00:59:30.020 --> 00:59:30.520 FOXFIRE,

NOTE Confidence: 0.876521

00:59:32.020 --> 00:59:33.800 were both, phase three,

NOTE Confidence: 0.99830604

00:59:34.180 --> 00:59:35.160 clinical trials.

NOTE Confidence: 0.9891048

00:59:36.420 --> 00:59:36.920 Servlox

NOTE Confidence: 0.9918148

00:59:37.380 --> 00:59:37.880 was

NOTE Confidence: 0.7691414

00:59:38.415 --> 00:59:38.915 with

NOTE Confidence: 0.9398947

00:59:39.535 --> 00:59:40.675 Siroflox and Foxfire

NOTE Confidence: 0.9471812

00:59:41.295 --> 00:59:41.615 are,

NOTE Confidence: 0.9282852

00:59:42.255 --> 00:59:44.415 first line treatments. We're we're,

NOTE Confidence: 0.9282852

00:59:44.655 --> 00:59:45.935 looking at first line treatments,

NOTE Confidence: 0.9282852

00:59:45.935 --> 00:59:47.535 and they used the product

NOTE Confidence: 0.9282852

00:59:47.535 --> 00:59:48.035 SIRSPHERE,

NOTE Confidence: 0.9040388

00:59:48.495 --> 00:59:49.395 whereas EPOC

NOTE Confidence: 0.9479028

00:59:49.935 --> 00:59:50.435 was,

NOTE Confidence: 0.99922

00:59:51.055 --> 00:59:51.555 done

NOTE Confidence: 0.9260692

00:59:51.855 --> 00:59:52.255 as,

NOTE Confidence: 0.92118764

00:59:52.975 --> 00:59:54.035 second line therapy.

NOTE Confidence: 0.96515673

00:59:54.570 --> 00:59:55.930 And they use a completely

NOTE Confidence: 0.96515673

00:59:55.930 --> 00:59:57.870 different product which is TheraSPHERE.

NOTE Confidence: 0.96515673

00:59:58.090 --> 00:59:59.210 So although a lot of

NOTE Confidence: 0.96515673

00:59:59.210 --> 01:00:00.650 people will will just think

NOTE Confidence: 0.96515673

01:00:00.650 --> 01:00:02.030 that these two are interchangeable,

NOTE Confidence: 0.957922

01:00:02.570 --> 01:00:04.570 they're actually really not. But,

NOTE Confidence: 0.957922

01:00:04.810 --> 01:00:06.250 this is actually the, the

NOTE Confidence: 0.957922

01:00:06.250 --> 01:00:06.750 baseline,

NOTE Confidence: 0.94171774

01:00:07.210 --> 01:00:08.330 I say we say clinical

NOTE Confidence: 0.94171774

01:00:08.330 --> 01:00:09.870 trials that show the benefits

NOTE Confidence: 0.9954465

01:00:10.275 --> 01:00:11.255 of y ninety.

NOTE Confidence: 0.8378461

01:00:12.115 --> 01:00:12.994 So here, I just want

NOTE Confidence: 0.8378461

01:00:12.994 --> 01:00:15.095 to isolate surfolox and FOXFRIO

NOTE Confidence: 0.7260345

01:00:15.395 --> 01:00:15.895 global.

NOTE Confidence: 0.9832082

01:00:16.275 --> 01:00:17.635 We can see that, the

NOTE Confidence: 0.9832082

01:00:17.635 --> 01:00:19.315 median overall survival and the

NOTE Confidence: 0.9832082

01:00:19.315 --> 01:00:21.075 progression free survival really didn't

NOTE Confidence: 0.9832082

01:00:21.075 --> 01:00:22.440 change, but we did see,

NOTE Confidence: 0.9764154

01:00:22.920 --> 01:00:24.359 in terms of liver specific

NOTE Confidence: 0.9764154

01:00:24.359 --> 01:00:25.500 progression free survival,

NOTE Confidence: 0.98841065

01:00:25.960 --> 01:00:27.339 improvement in both.

NOTE Confidence: 0.9912891

01:00:27.960 --> 01:00:29.079 It is important that a

NOTE Confidence: 0.9912891

01:00:29.079 --> 01:00:29.579 subgroup,

NOTE Confidence: 0.98690486

01:00:30.359 --> 01:00:32.359 analysis was done, which found

NOTE Confidence: 0.98690486

01:00:32.359 --> 01:00:34.780 that, there was improved survival

NOTE Confidence: 0.98690486

01:00:34.839 --> 01:00:36.755 benefit with y ninety in

NOTE Confidence: 0.98690486

01:00:36.755 --> 01:00:37.875 the setting of those patients

NOTE Confidence: 0.98690486

01:00:37.875 --> 01:00:39.315 that had right sided primary

NOTE Confidence: 0.98690486

01:00:39.315 --> 01:00:39.815 tumors.

NOTE Confidence: 0.9029824

01:00:40.115 --> 01:00:42.035 And, doctor Kormansky earlier had

NOTE Confidence: 0.9029824

01:00:42.035 --> 01:00:44.355 mentioned, why those patients actually

NOTE Confidence: 0.9029824

01:00:44.355 --> 01:00:45.575 have poor prognosis,

NOTE Confidence: 0.9227757

01:00:46.835 --> 01:00:48.215 with systemic therapy.

NOTE Confidence: 0.90749806

01:00:49.635 --> 01:00:51.415 This is the EPOC trial,

NOTE Confidence: 0.988603

01:00:52.130 --> 01:00:54.050 again, which was, four hundred

NOTE Confidence: 0.988603

01:00:54.050 --> 01:00:55.410 and twenty eight patients who

NOTE Confidence: 0.988603

01:00:55.410 --> 01:00:57.190 had already progressed on oxaliplatin

NOTE Confidence: 0.95887077

01:00:57.730 --> 01:00:59.410 or arinoTPM based first line

NOTE Confidence: 0.95887077

01:00:59.410 --> 01:01:01.590 therapy. They were randomly assigned

NOTE Confidence: 0.99116975

01:01:01.890 --> 01:01:03.830 to either, second line chemotherapy

NOTE Confidence: 0.98882943

01:01:04.815 --> 01:01:06.515 with or without, radioembolization.

NOTE Confidence: 0.9758591

01:01:07.375 --> 01:01:08.895 And, again, we can see

NOTE Confidence: 0.9758591

01:01:08.895 --> 01:01:10.415 that in terms of, median

NOTE Confidence: 0.9758591

01:01:10.415 --> 01:01:12.095 progression free survival as well

NOTE Confidence: 0.9758591

01:01:12.095 --> 01:01:14.035 as hepatic progression free survival

NOTE Confidence: 0.9758591

01:01:14.095 --> 01:01:15.315 and response rate

NOTE Confidence: 0.94246787

01:01:15.615 --> 01:01:17.615 that, it was actually better

NOTE Confidence: 0.94246787

01:01:17.615 --> 01:01:19.234 with the the y ninety

NOTE Confidence: 0.763623

01:01:19.535 --> 01:01:20.035 edition.

NOTE Confidence: 0.99594855

01:01:21.110 --> 01:01:22.070 And then they did a

NOTE Confidence: 0.99594855

01:01:22.070 --> 01:01:23.210 post hoc analysis

NOTE Confidence: 0.9694106

01:01:23.510 --> 01:01:24.390 where they looked at a

NOTE Confidence: 0.9694106

01:01:24.390 --> 01:01:26.250 subgroup of patients that excluded

NOTE Confidence: 0.9694106

01:01:26.310 --> 01:01:27.750 those patients that were ECOG

NOTE Confidence: 0.9694106

01:01:27.750 --> 01:01:29.370 one or who had worse,

NOTE Confidence: 0.99961126

01:01:29.750 --> 01:01:30.650 tumor burden

NOTE Confidence: 0.95444316

01:01:31.190 --> 01:01:32.950 and subgroup two, which they

NOTE Confidence: 0.95444316

01:01:32.950 --> 01:01:34.005 then looked at those patients

NOTE Confidence: 0.95444316

01:01:34.085 --> 01:01:35.845 that had KRAS mutations in

NOTE Confidence: 0.95444316

01:01:35.845 --> 01:01:37.384 addition to those in subgroup,

NOTE Confidence: 0.95074713

01:01:37.684 --> 01:01:38.984 in in the first subgroup.

NOTE Confidence: 0.95074713

01:01:39.204 --> 01:01:41.384 And they found that, ultimately,

NOTE Confidence: 0.9712244

01:01:41.765 --> 01:01:43.204 the benefit of y ninety

NOTE Confidence: 0.9712244

01:01:43.204 --> 01:01:44.805 is not uniform and that

NOTE Confidence: 0.9712244

01:01:44.805 --> 01:01:46.244 the greatest benefit is in

NOTE Confidence: 0.9712244

01:01:46.244 --> 01:01:47.845 patients with who already have

NOTE Confidence: 0.9712244

01:01:47.845 --> 01:01:50.549 good performance status of, primarily

NOTE Confidence: 0.9712244

01:01:50.690 --> 01:01:52.950 ECOG zero, lower tumor burden,

NOTE Confidence: 0.9712244

01:01:53.010 --> 01:01:54.289 and those that are KRAS

NOTE Confidence: 0.9712244

01:01:54.289 --> 01:01:55.109 wild type.

NOTE Confidence: 0.9891818

01:01:55.490 --> 01:01:56.390 And then lastly,

NOTE Confidence: 0.9761025

01:01:56.930 --> 01:01:58.369 when should these various envelope

NOTE Confidence: 0.9761025

01:01:58.369 --> 01:01:59.730 therapies be used? Now I

NOTE Confidence: 0.9761025

01:01:59.730 --> 01:02:01.089 put, based on a lot

NOTE Confidence: 0.9761025

01:02:01.089 --> 01:02:02.775 of the literature, a methodology

NOTE Confidence: 0.9533625

01:02:03.235 --> 01:02:04.755 of or rationale of how

NOTE Confidence: 0.9533625

01:02:04.755 --> 01:02:06.035 you would do this. The

NOTE Confidence: 0.9533625

01:02:06.035 --> 01:02:07.875 treatment selection is driven by,

NOTE Confidence: 0.9745514

01:02:08.755 --> 01:02:09.255 intent,

NOTE Confidence: 0.97153795

01:02:09.555 --> 01:02:11.715 tumor burden, and biology, and

NOTE Confidence: 0.97153795

01:02:11.715 --> 01:02:12.915 I you know, what I

NOTE Confidence: 0.97153795

01:02:12.915 --> 01:02:13.955 would say is that,

NOTE Confidence: 0.99623966

01:02:14.515 --> 01:02:15.395 a lot of this is

NOTE Confidence: 0.99623966

01:02:15.395 --> 01:02:16.775 also due to,

NOTE Confidence: 0.92525446

01:02:18.090 --> 01:02:19.770 I guess, ex expertise at

NOTE Confidence: 0.92525446

01:02:19.770 --> 01:02:20.750 various locations.

NOTE Confidence: 0.97400975

01:02:21.370 --> 01:02:22.810 So, I don't think there's

NOTE Confidence: 0.97400975

01:02:22.810 --> 01:02:24.170 really a great way to

NOTE Confidence: 0.97400975

01:02:24.170 --> 01:02:25.290 say this patient should get

NOTE Confidence: 0.97400975

01:02:25.290 --> 01:02:26.650 Deburi, this patient should get

NOTE Confidence: 0.97400975

01:02:26.650 --> 01:02:27.690 y ninety, or this patient

NOTE Confidence: 0.97400975

01:02:27.690 --> 01:02:29.210 should get conventional taste, but

NOTE Confidence: 0.97400975

01:02:29.210 --> 01:02:30.090 I can tell you that

NOTE Confidence: 0.97400975

01:02:30.090 --> 01:02:31.710 y ninety at this time

NOTE Confidence: 0.97400975

01:02:31.895 --> 01:02:33.655 is, is, is the treatment

NOTE Confidence: 0.97400975

01:02:33.655 --> 01:02:34.474 that's favored.

NOTE Confidence: 0.9942886

01:02:35.175 --> 01:02:36.795 So with that, I'll conclude,

NOTE Confidence: 0.99771774

01:02:37.575 --> 01:02:39.015 with stating that we all

NOTE Confidence: 0.99771774

01:02:39.015 --> 01:02:39.575 know that,

NOTE Confidence: 0.98978394

01:02:40.055 --> 01:02:41.734 colorectal liver metastases is a

NOTE Confidence: 0.98978394

01:02:41.734 --> 01:02:42.555 major problem.

NOTE Confidence: 0.9204853

01:02:43.494 --> 01:02:43.994 Multiple,

NOTE Confidence: 0.98245084

01:02:44.375 --> 01:02:46.430 patients ultimately are not resectable

NOTE Confidence: 0.98245084

01:02:46.430 --> 01:02:47.490 at the time of presentation.

NOTE Confidence: 0.9424408

01:02:48.109 --> 01:02:49.569 We know that liver metastases

NOTE Confidence: 0.9424408

01:02:49.710 --> 01:02:51.150 does represent the major cause

NOTE Confidence: 0.9424408

01:02:51.150 --> 01:02:51.890 of colorectal,

NOTE Confidence: 0.7201111

01:02:52.349 --> 01:02:52.849 mortality,

NOTE Confidence: 0.98582166

01:02:54.030 --> 01:02:55.069 and that using some of

NOTE Confidence: 0.98582166

01:02:55.069 --> 01:02:57.329 these inter interventional oncology strategies

NOTE Confidence: 0.98582166

01:02:57.470 --> 01:02:59.595 does expand the treatment options

NOTE Confidence: 0.98582166

01:02:59.595 --> 01:03:00.955 across the disease spectrum. And

NOTE Confidence: 0.98582166

01:03:00.955 --> 01:03:02.075 we can use, you know,

NOTE Confidence: 0.98582166

01:03:02.075 --> 01:03:03.135 preoperative augmentation

NOTE Confidence: 0.9568679

01:03:03.435 --> 01:03:04.875 for surgery. We can use

NOTE Confidence: 0.9568679

01:03:04.875 --> 01:03:05.375 ablation,

NOTE Confidence: 0.9634651

01:03:05.675 --> 01:03:06.875 and we can also use

NOTE Confidence: 0.9634651

01:03:06.875 --> 01:03:08.815 a transarterial therapy to control,

NOTE Confidence: 0.9634651

01:03:09.035 --> 01:03:10.415 liver dominant disease.

NOTE Confidence: 0.9360891

01:03:10.850 --> 01:03:12.370 And, hopefully, I've kind of

NOTE Confidence: 0.9360891

01:03:12.370 --> 01:03:13.010 relayed that,

NOTE Confidence: 0.9880832

01:03:13.570 --> 01:03:14.850 there is strong evidence to

NOTE Confidence: 0.9880832

01:03:14.850 --> 01:03:15.990 support these techniques,

NOTE Confidence: 0.96822363

01:03:16.370 --> 01:03:17.890 but we, again, have to

NOTE Confidence: 0.96822363

01:03:17.890 --> 01:03:19.110 use these, multidisciplinary,

NOTE Confidence: 0.99655205

01:03:20.690 --> 01:03:22.930 systems to best, handle our

NOTE Confidence: 0.99655205

01:03:22.930 --> 01:03:23.430 patients.

NOTE Confidence: 0.9748918

01:03:23.744 --> 01:03:24.625 So with that, I think

NOTE Confidence: 0.9748918

01:03:24.625 --> 01:03:25.904 I'll stop there and, thank

NOTE Confidence: 0.9748918

01:03:25.904 --> 01:03:26.884 you for your attention.

NOTE Confidence: 0.95771426

01:03:30.384 --> 01:03:32.644 Alright. Thank you, doctor Adolf.

NOTE Confidence: 0.95771426

01:03:32.704 --> 01:03:34.805 I think anything that's named

NOTE Confidence: 0.96808046

01:03:35.184 --> 01:03:35.684 Firefox

NOTE Confidence: 0.97755444

01:03:36.065 --> 01:03:38.060 sounds like an exciting therapy.

NOTE Confidence: 0.97755444

01:03:38.060 --> 01:03:39.280 Yeah. Sounds pretty cool.

NOTE Confidence: 0.9793354

01:03:41.100 --> 01:03:43.120 Alright. So, again, if anybody,

NOTE Confidence: 0.9398542

01:03:43.740 --> 01:03:44.240 has,

NOTE Confidence: 0.99841523

01:03:44.700 --> 01:03:45.920 questions for,

NOTE Confidence: 0.9877425

01:03:46.380 --> 01:03:48.220 any of the panelists, feel

NOTE Confidence: 0.9877425

01:03:48.220 --> 01:03:49.740 free to either enter them

NOTE Confidence: 0.9877425

01:03:49.740 --> 01:03:50.560 in the chat,

NOTE Confidence: 0.9126723

01:03:51.365 --> 01:03:52.724 or in the q and

NOTE Confidence: 0.9126723

01:03:52.724 --> 01:03:53.204 a,

NOTE Confidence: 0.9798097

01:03:53.525 --> 01:03:54.425 and we will,

NOTE Confidence: 0.9885729

01:03:55.125 --> 01:03:56.325 try to answer them as

NOTE Confidence: 0.9885729

01:03:56.325 --> 01:03:57.385 we go or,

NOTE Confidence: 0.9635747

01:03:58.724 --> 01:03:59.684 you know, at the end

NOTE Confidence: 0.9635747

01:03:59.684 --> 01:04:00.905 of the the session.

NOTE Confidence: 0.9859272

01:04:01.765 --> 01:04:03.464 We have one more,

NOTE Confidence: 0.87962353

01:04:04.005 --> 01:04:04.470 talk,

NOTE Confidence: 0.9571587

01:04:05.190 --> 01:04:06.810 on the role of radiation

NOTE Confidence: 0.9571587

01:04:06.950 --> 01:04:08.650 oncology in the treatment of,

NOTE Confidence: 0.98663074

01:04:09.270 --> 01:04:10.250 liver metastases,

NOTE Confidence: 0.98556757

01:04:11.270 --> 01:04:12.890 presented by doctor Du.

NOTE Confidence: 0.9628866

01:04:33.170 --> 01:04:34.390 Doctor Du, you're muted.

NOTE Confidence: 0.9713009

01:04:39.570 --> 01:04:41.250 Thank you. I coulda you

NOTE Confidence: 0.9713009

01:04:41.250 --> 01:04:42.130 coulda just let me go

NOTE Confidence: 0.9713009

01:04:42.130 --> 01:04:43.010 on for the rest of

NOTE Confidence: 0.9713009

01:04:43.010 --> 01:04:43.670 the talk.

NOTE Confidence: 0.7842965

01:04:44.290 --> 01:04:45.410 That would have been probably

NOTE Confidence: 0.7842965

01:04:45.410 --> 01:04:45.910 better.

NOTE Confidence: 0.89785004

01:04:46.610 --> 01:04:47.730 So I was saying, I

NOTE Confidence: 0.89785004

01:04:47.730 --> 01:04:49.164 think that this Thank you,

NOTE Confidence: 0.89785004

01:04:49.164 --> 01:04:50.845 Doctor. Karmansky. Thank you, everyone.

NOTE Confidence: 0.89785004

01:04:50.845 --> 01:04:52.145 This is really

NOTE Confidence: 0.96096355

01:04:52.845 --> 01:04:53.964 what I take home from

NOTE Confidence: 0.96096355

01:04:53.964 --> 01:04:55.964 this session is really this

NOTE Confidence: 0.96096355

01:04:55.964 --> 01:04:57.085 idea that we have a

NOTE Confidence: 0.96096355

01:04:57.085 --> 01:04:59.585 wealth of treatment options for

NOTE Confidence: 0.96353126

01:04:59.885 --> 01:05:00.385 colorectal

NOTE Confidence: 0.8815328

01:05:00.765 --> 01:05:01.585 liver metastases.

NOTE Confidence: 0.9855714

01:05:01.885 --> 01:05:02.385 And

NOTE Confidence: 0.9932808

01:05:02.829 --> 01:05:03.950 this is really a whirlwind

NOTE Confidence: 0.9932808

01:05:03.950 --> 01:05:05.230 tour tonight. So I'll talk

NOTE Confidence: 0.9932808

01:05:05.230 --> 01:05:06.849 to you about, the radiation

NOTE Confidence: 0.9932808

01:05:06.910 --> 01:05:07.730 part of it.

NOTE Confidence: 0.9608869

01:05:08.190 --> 01:05:09.150 Again, my name is Kevin

NOTE Confidence: 0.9608869

01:05:09.150 --> 01:05:10.430 Du. I'm associate professor in

NOTE Confidence: 0.9608869

01:05:10.430 --> 01:05:11.410 radiation oncology,

NOTE Confidence: 0.96034646

01:05:11.950 --> 01:05:12.829 at the Yale School of

NOTE Confidence: 0.96034646

01:05:12.829 --> 01:05:13.329 Medicine.

NOTE Confidence: 0.8744476

01:05:13.869 --> 01:05:14.190 And,

NOTE Confidence: 0.9982861

01:05:14.835 --> 01:05:16.115 I'll talk a little bit

NOTE Confidence: 0.9982861

01:05:16.115 --> 01:05:17.494 about radiation oncology,

NOTE Confidence: 0.965078

01:05:18.595 --> 01:05:20.835 just because, radiation does tend

NOTE Confidence: 0.965078

01:05:20.835 --> 01:05:21.714 to be a black box

NOTE Confidence: 0.965078

01:05:21.714 --> 01:05:23.395 for many people, and then,

NOTE Confidence: 0.965078

01:05:23.714 --> 01:05:24.214 specifically,

NOTE Confidence: 0.9695256

01:05:24.755 --> 01:05:25.955 what we can do with

NOTE Confidence: 0.9695256

01:05:25.955 --> 01:05:27.494 SBRT and liver metastases

NOTE Confidence: 0.9516771

01:05:27.875 --> 01:05:29.255 and then future opportunities

NOTE Confidence: 0.99984246

01:05:29.555 --> 01:05:30.435 that we have here at

NOTE Confidence: 0.99984246

01:05:30.435 --> 01:05:30.810 Yale.

NOTE Confidence: 0.98197174

01:05:31.530 --> 01:05:33.530 So, again, I'll just echo

NOTE Confidence: 0.98197174

01:05:33.530 --> 01:05:34.570 what everyone's been saying, which

NOTE Confidence: 0.98197174

01:05:34.570 --> 01:05:35.610 is this is an amazing

NOTE Confidence: 0.98197174

01:05:35.610 --> 01:05:37.790 group at Yale. GI oncology

NOTE Confidence: 0.98197174

01:05:38.010 --> 01:05:39.770 is inherently collaborative. It's a

NOTE Confidence: 0.98197174

01:05:39.770 --> 01:05:41.850 team effort, and, we have

NOTE Confidence: 0.98197174

01:05:41.850 --> 01:05:43.450 really a really amazing team

NOTE Confidence: 0.98197174

01:05:43.450 --> 01:05:45.070 here as tonight has demonstrated.

NOTE Confidence: 0.99204373

01:05:46.185 --> 01:05:47.785 Modern radiation therapy, I would

NOTE Confidence: 0.99204373

01:05:47.785 --> 01:05:49.385 say, is all about, the

NOTE Confidence: 0.99204373

01:05:49.385 --> 01:05:49.885 combining

NOTE Confidence: 0.97761416

01:05:50.265 --> 01:05:51.785 of all the advances in

NOTE Confidence: 0.97761416

01:05:51.785 --> 01:05:53.465 physics and biology that we've

NOTE Confidence: 0.97761416

01:05:53.465 --> 01:05:55.165 accumulated in the past century

NOTE Confidence: 0.8867781

01:05:55.545 --> 01:05:57.405 and really, using technology

NOTE Confidence: 0.99554443

01:05:57.705 --> 01:05:59.625 and advanced computing power to

NOTE Confidence: 0.99554443

01:05:59.625 --> 01:06:01.740 separate out the therapeutic index

NOTE Confidence: 0.99554443

01:06:01.740 --> 01:06:03.660 of, trying to control tumors

NOTE Confidence: 0.99554443

01:06:03.660 --> 01:06:04.940 while trying to spare normal

NOTE Confidence: 0.99554443

01:06:04.940 --> 01:06:05.440 tissues.

NOTE Confidence: 0.9542908

01:06:05.740 --> 01:06:07.340 And really, the overarching theme

NOTE Confidence: 0.9542908

01:06:07.340 --> 01:06:08.860 of radiation oncology is really

NOTE Confidence: 0.9542908

01:06:08.860 --> 01:06:10.960 this idea of, functional preservation,

NOTE Confidence: 0.9482186

01:06:11.260 --> 01:06:12.160 organ preservation,

NOTE Confidence: 0.9702873

01:06:13.580 --> 01:06:15.260 instead of the paradigm to

NOTE Confidence: 0.9702873

01:06:15.260 --> 01:06:16.320 cut is to cure.

NOTE Confidence: 0.9422294

01:06:16.775 --> 01:06:18.155 No offense, doctor Khan.

NOTE Confidence: 0.9720688

01:06:18.775 --> 01:06:20.315 Really, using radiation,

NOTE Confidence: 0.95779043

01:06:20.935 --> 01:06:21.835 to try to,

NOTE Confidence: 0.824133

01:06:23.815 --> 01:06:24.315 save,

NOTE Confidence: 0.9410911

01:06:25.815 --> 01:06:27.735 organs. And, and then the

NOTE Confidence: 0.9410911

01:06:27.735 --> 01:06:29.335 idea of, how do we,

NOTE Confidence: 0.9410911

01:06:29.735 --> 01:06:31.640 maximize tumor response, get,

NOTE Confidence: 0.93148524

01:06:32.280 --> 01:06:33.960 real, meaningful, and deep,

NOTE Confidence: 0.93106675

01:06:35.160 --> 01:06:36.380 control of cancers.

NOTE Confidence: 0.9532342

01:06:37.640 --> 01:06:39.020 So this is our workhorse

NOTE Confidence: 0.9532342

01:06:39.240 --> 01:06:39.740 machine.

NOTE Confidence: 0.9568728

01:06:40.040 --> 01:06:41.820 We call them linear accelerators

NOTE Confidence: 0.9568728

01:06:42.040 --> 01:06:42.700 or LINACs.

NOTE Confidence: 0.9642721

01:06:43.135 --> 01:06:44.575 They're all we do is

NOTE Confidence: 0.9642721

01:06:44.575 --> 01:06:46.015 we aim and focus and

NOTE Confidence: 0.9642721

01:06:46.015 --> 01:06:46.515 shape

NOTE Confidence: 0.8793226

01:06:47.055 --> 01:06:48.515 radiation, using x rays

NOTE Confidence: 0.95547

01:06:48.895 --> 01:06:50.255 and, aiming the x rays

NOTE Confidence: 0.95547

01:06:50.255 --> 01:06:51.535 at the tumor. This is

NOTE Confidence: 0.95547

01:06:51.535 --> 01:06:52.355 a noninvasive

NOTE Confidence: 0.695649

01:06:52.735 --> 01:06:53.235 treatment.

NOTE Confidence: 0.9294561

01:06:54.175 --> 01:06:55.155 No anesthesia,

NOTE Confidence: 0.8384228

01:06:55.775 --> 01:06:56.255 no,

NOTE Confidence: 0.8934951

01:06:56.575 --> 01:06:57.075 sedation.

NOTE Confidence: 0.9283477

01:06:58.480 --> 01:07:00.320 This entirely outpatient. You come

NOTE Confidence: 0.9283477

01:07:00.320 --> 01:07:01.520 in, you get the treatment,

NOTE Confidence: 0.9283477

01:07:01.520 --> 01:07:02.640 you go home, you can

NOTE Confidence: 0.9283477

01:07:02.640 --> 01:07:03.380 drive yourself,

NOTE Confidence: 0.9920988

01:07:03.680 --> 01:07:05.120 and it's a painless treatment,

NOTE Confidence: 0.9812896

01:07:05.440 --> 01:07:06.880 laying there on the treatment

NOTE Confidence: 0.9812896

01:07:06.880 --> 01:07:08.480 machine just like any other

NOTE Confidence: 0.9812896

01:07:08.480 --> 01:07:08.980 x-ray.

NOTE Confidence: 0.99709636

01:07:09.920 --> 01:07:10.660 We have

NOTE Confidence: 0.86052084

01:07:11.815 --> 01:07:12.855 striven to,

NOTE Confidence: 0.83673704

01:07:13.975 --> 01:07:14.475 to,

NOTE Confidence: 0.98542756

01:07:14.855 --> 01:07:16.055 to try to make radiation

NOTE Confidence: 0.98542756

01:07:16.055 --> 01:07:17.995 more convenient and effective. And,

NOTE Confidence: 0.9819706

01:07:18.375 --> 01:07:20.055 this is really where, for

NOTE Confidence: 0.9819706

01:07:20.055 --> 01:07:22.295 liver, we've gone from very

NOTE Confidence: 0.9819706

01:07:22.295 --> 01:07:24.315 long extended multi week courses,

NOTE Confidence: 0.9819706

01:07:24.375 --> 01:07:26.190 many times five, six, seven,

NOTE Confidence: 0.9819706

01:07:26.190 --> 01:07:27.330 eight weeks of radiation

NOTE Confidence: 0.8422634

01:07:27.790 --> 01:07:29.330 daily to really,

NOTE Confidence: 0.9236538

01:07:30.109 --> 01:07:31.790 high doses of radiation to

NOTE Confidence: 0.9236538

01:07:31.790 --> 01:07:32.290 small,

NOTE Confidence: 0.89828664

01:07:33.630 --> 01:07:35.010 to small areas,

NOTE Confidence: 0.9925713

01:07:35.950 --> 01:07:37.410 a technique called stereotactic

NOTE Confidence: 0.96770835

01:07:37.790 --> 01:07:39.490 radiation therapy or SBRT

NOTE Confidence: 0.97677153

01:07:39.790 --> 01:07:40.530 for short.

NOTE Confidence: 0.9925093

01:07:41.355 --> 01:07:42.875 And, this is the idea

NOTE Confidence: 0.9925093

01:07:42.875 --> 01:07:44.315 that instead of treating a

NOTE Confidence: 0.9925093

01:07:44.315 --> 01:07:45.055 whole organ,

NOTE Confidence: 0.96753436

01:07:45.435 --> 01:07:46.955 here we see, like, for

NOTE Confidence: 0.96753436

01:07:46.955 --> 01:07:48.075 example, an example of whole

NOTE Confidence: 0.96753436

01:07:48.075 --> 01:07:48.895 brain radiation,

NOTE Confidence: 0.97607386

01:07:49.755 --> 01:07:50.235 really,

NOTE Confidence: 0.9930135

01:07:51.355 --> 01:07:53.115 treating very focused areas. You

NOTE Confidence: 0.9930135

01:07:53.115 --> 01:07:54.420 can see these little colored

NOTE Confidence: 0.9930135

01:07:54.500 --> 01:07:56.119 spots where we're really focusing

NOTE Confidence: 0.9930135

01:07:56.180 --> 01:07:56.839 the radiations,

NOTE Confidence: 0.9347943

01:07:57.700 --> 01:07:58.020 and,

NOTE Confidence: 0.9902685

01:07:58.660 --> 01:08:00.020 and really, trying to get

NOTE Confidence: 0.9902685

01:08:00.020 --> 01:08:01.940 very high ablative doses to

NOTE Confidence: 0.9902685

01:08:01.940 --> 01:08:03.319 provide long term control.

NOTE Confidence: 0.9604141

01:08:03.859 --> 01:08:05.460 So, this is start this

NOTE Confidence: 0.9604141

01:08:05.460 --> 01:08:06.900 paradigm started off in the

NOTE Confidence: 0.9604141

01:08:06.900 --> 01:08:08.440 brain as I'm showing you

NOTE Confidence: 0.9604141

01:08:08.645 --> 01:08:10.484 and has expanded across multiple

NOTE Confidence: 0.9604141

01:08:10.484 --> 01:08:12.585 body sites, including the spine,

NOTE Confidence: 0.9690272

01:08:13.444 --> 01:08:13.925 lung

NOTE Confidence: 0.96407664

01:08:14.405 --> 01:08:15.785 early stage lung cancers,

NOTE Confidence: 0.97914773

01:08:16.245 --> 01:08:18.245 and, even getting into GI,

NOTE Confidence: 0.9633277

01:08:18.805 --> 01:08:19.305 oncology,

NOTE Confidence: 0.90101486

01:08:20.245 --> 01:08:21.925 the GI oncology space such

NOTE Confidence: 0.90101486

01:08:21.925 --> 01:08:23.225 as in pancreas cancers.

NOTE Confidence: 0.9898963

01:08:23.780 --> 01:08:25.160 And, in all of these,

NOTE Confidence: 0.9898963

01:08:25.460 --> 01:08:26.739 the idea is really to

NOTE Confidence: 0.9898963

01:08:26.739 --> 01:08:27.560 try to,

NOTE Confidence: 0.88110065

01:08:29.300 --> 01:08:31.080 provide a treatment,

NOTE Confidence: 0.97913885

01:08:31.700 --> 01:08:32.600 that's effective,

NOTE Confidence: 0.9458699

01:08:33.700 --> 01:08:36.040 for and, that's well tolerated,

NOTE Confidence: 0.9458699

01:08:36.100 --> 01:08:37.515 and and that in in

NOTE Confidence: 0.9458699

01:08:37.515 --> 01:08:39.275 many cases may be better

NOTE Confidence: 0.9458699

01:08:39.275 --> 01:08:41.775 tolerated than, surgical interventions.

NOTE Confidence: 0.99817246

01:08:43.035 --> 01:08:43.535 So,

NOTE Confidence: 0.99962604

01:08:43.915 --> 01:08:44.655 for liver,

NOTE Confidence: 0.9477195

01:08:45.275 --> 01:08:46.835 we this is a a

NOTE Confidence: 0.9477195

01:08:46.835 --> 01:08:48.235 a newer approach. And by

NOTE Confidence: 0.9477195

01:08:48.235 --> 01:08:49.500 new, I mean that we've

NOTE Confidence: 0.9477195

01:08:49.580 --> 01:08:50.460 really been doing it for

NOTE Confidence: 0.9477195

01:08:50.460 --> 01:08:51.820 twenty years, but in medicine,

NOTE Confidence: 0.9477195

01:08:51.820 --> 01:08:53.040 that's considered new.

NOTE Confidence: 0.9759472

01:08:54.140 --> 01:08:54.880 This is,

NOTE Confidence: 0.9945839

01:08:55.420 --> 01:08:57.260 where we focus radiation at

NOTE Confidence: 0.9945839

01:08:57.260 --> 01:08:58.780 liver tumors. So this is,

NOTE Confidence: 0.9643351

01:08:59.500 --> 01:09:01.100 where we're defining our target

NOTE Confidence: 0.9643351

01:09:01.100 --> 01:09:02.700 area in the red, and,

NOTE Confidence: 0.9386144

01:09:03.100 --> 01:09:04.000 the red,

NOTE Confidence: 0.98278123

01:09:04.804 --> 01:09:07.525 blue, green color wash is

NOTE Confidence: 0.98278123

01:09:07.525 --> 01:09:08.165 really this,

NOTE Confidence: 0.9937101

01:09:08.804 --> 01:09:10.405 is this, this kind of

NOTE Confidence: 0.9937101

01:09:10.405 --> 01:09:12.425 dose distribution of a highly

NOTE Confidence: 0.9937101

01:09:12.485 --> 01:09:13.465 focused radiation

NOTE Confidence: 0.9534834

01:09:13.925 --> 01:09:15.525 dose at the tumor, but

NOTE Confidence: 0.9534834

01:09:15.525 --> 01:09:16.800 then lower dose,

NOTE Confidence: 0.96127814

01:09:17.760 --> 01:09:19.520 around where we're focusing the

NOTE Confidence: 0.96127814

01:09:19.520 --> 01:09:21.280 radiation. And the analogy is

NOTE Confidence: 0.96127814

01:09:21.280 --> 01:09:22.559 like spotlights on a stage

NOTE Confidence: 0.96127814

01:09:22.559 --> 01:09:23.760 where there's a focused hot

NOTE Confidence: 0.96127814

01:09:23.760 --> 01:09:24.800 spot, but there's kind of

NOTE Confidence: 0.96127814

01:09:24.800 --> 01:09:26.639 this low dose bath of

NOTE Confidence: 0.96127814

01:09:26.639 --> 01:09:27.540 lights across,

NOTE Confidence: 0.9980172

01:09:28.000 --> 01:09:28.659 the stage.

NOTE Confidence: 0.9683263

01:09:29.375 --> 01:09:30.975 And, we can really treat

NOTE Confidence: 0.9683263

01:09:30.975 --> 01:09:32.735 rate, very effectively with this

NOTE Confidence: 0.9683263

01:09:32.735 --> 01:09:34.655 high dose radiation. And, you

NOTE Confidence: 0.9683263

01:09:34.655 --> 01:09:35.775 can see here the treatment

NOTE Confidence: 0.9683263

01:09:35.775 --> 01:09:37.635 effect where you have, hemorrhage,

NOTE Confidence: 0.40233955

01:09:41.737 --> 01:09:42.189 vascular

NOTE Confidence: 0.7538292

01:09:42.750 --> 01:09:43.250 fibrosis,

NOTE Confidence: 0.95985645

01:09:43.790 --> 01:09:45.090 and, tumor death.

NOTE Confidence: 0.98696107

01:09:45.790 --> 01:09:48.130 And, it's nice because, with

NOTE Confidence: 0.98696107

01:09:48.189 --> 01:09:48.689 three-dimensional

NOTE Confidence: 0.9986816

01:09:49.470 --> 01:09:50.670 imaging, we can see the

NOTE Confidence: 0.9986816

01:09:50.670 --> 01:09:51.170 anatomy

NOTE Confidence: 0.98721284

01:09:51.630 --> 01:09:52.830 in real time, and we

NOTE Confidence: 0.98721284

01:09:52.830 --> 01:09:54.510 can actually modulate the dose

NOTE Confidence: 0.98721284

01:09:54.510 --> 01:09:55.064 to affect

NOTE Confidence: 0.953535

01:09:56.185 --> 01:09:57.785 critical organs at risk like

NOTE Confidence: 0.953535

01:09:57.785 --> 01:09:59.064 the bowel, which in this

NOTE Confidence: 0.953535

01:09:59.064 --> 01:10:00.585 case is right next to

NOTE Confidence: 0.953535

01:10:00.585 --> 01:10:02.505 our target, and modulate it

NOTE Confidence: 0.953535

01:10:02.505 --> 01:10:03.705 and and really aim very

NOTE Confidence: 0.953535

01:10:03.705 --> 01:10:05.145 carefully so that we're safe

NOTE Confidence: 0.953535

01:10:05.145 --> 01:10:06.125 about this treatment.

NOTE Confidence: 0.9504963

01:10:07.064 --> 01:10:07.564 And,

NOTE Confidence: 0.738984

01:10:08.025 --> 01:10:08.505 and,

NOTE Confidence: 0.98996

01:10:09.250 --> 01:10:11.110 and and this has been,

NOTE Confidence: 0.98903656

01:10:12.210 --> 01:10:13.989 you know, over the years,

NOTE Confidence: 0.9977454

01:10:14.610 --> 01:10:15.969 becoming more and more,

NOTE Confidence: 0.8600563

01:10:17.170 --> 01:10:18.530 I I would say safe

NOTE Confidence: 0.8600563

01:10:18.530 --> 01:10:19.409 as we learn,

NOTE Confidence: 0.9966356

01:10:20.050 --> 01:10:21.510 more and get more experience

NOTE Confidence: 0.9966356

01:10:21.570 --> 01:10:22.389 in our field.

NOTE Confidence: 0.9821676

01:10:23.205 --> 01:10:24.885 And so, these days, we're

NOTE Confidence: 0.9821676

01:10:24.885 --> 01:10:26.085 very careful about it in

NOTE Confidence: 0.9821676

01:10:26.085 --> 01:10:27.945 terms of trying to, maximize

NOTE Confidence: 0.9821676

01:10:28.085 --> 01:10:29.364 the tumor coverage, but then

NOTE Confidence: 0.9821676

01:10:29.364 --> 01:10:30.965 avoiding the normal tissue risks.

NOTE Confidence: 0.9821676

01:10:30.965 --> 01:10:32.645 And, this is an example

NOTE Confidence: 0.9821676

01:10:32.645 --> 01:10:34.505 of, some of the schematics

NOTE Confidence: 0.9821676

01:10:34.645 --> 01:10:36.185 that show our dose distribution

NOTE Confidence: 0.9622498

01:10:36.645 --> 01:10:37.625 to the tumor,

NOTE Confidence: 0.9642366

01:10:38.300 --> 01:10:40.060 compared to normal tissue. And,

NOTE Confidence: 0.9642366

01:10:40.380 --> 01:10:42.300 you know, basically, farther over

NOTE Confidence: 0.9642366

01:10:42.300 --> 01:10:44.460 to the right is, better

NOTE Confidence: 0.9642366

01:10:44.460 --> 01:10:46.140 coverage, and farther over to

NOTE Confidence: 0.9642366

01:10:46.140 --> 01:10:47.500 left is better normal tissue

NOTE Confidence: 0.9642366

01:10:47.500 --> 01:10:48.540 sparing. And you can see

NOTE Confidence: 0.9642366

01:10:48.540 --> 01:10:50.220 the really wide separation in

NOTE Confidence: 0.9642366

01:10:50.220 --> 01:10:51.280 the curves there.

NOTE Confidence: 0.9369778

01:10:52.175 --> 01:10:53.055 So this is an example.

NOTE Confidence: 0.9369778

01:10:53.055 --> 01:10:54.495 One of my patients situated

NOTE Confidence: 0.9369778

01:10:54.495 --> 01:10:55.555 a few years ago,

NOTE Confidence: 0.9074554

01:10:56.895 --> 01:10:58.354 did a dose of SBRT

NOTE Confidence: 0.9074554

01:10:58.655 --> 01:11:00.655 here, relatively low dose, forty

NOTE Confidence: 0.9074554

01:11:00.655 --> 01:11:01.795 gram and five fractions.

NOTE Confidence: 0.8752163

01:11:02.655 --> 01:11:04.255 Maybe not low dose, modest

NOTE Confidence: 0.8752163

01:11:04.255 --> 01:11:04.755 dose.

NOTE Confidence: 0.9823235

01:11:05.375 --> 01:11:06.600 This is a tumor that's

NOTE Confidence: 0.9823235

01:11:06.840 --> 01:11:08.439 really at the inferior liver

NOTE Confidence: 0.9823235

01:11:08.439 --> 01:11:10.300 surrounded by bowel, the kidney.

NOTE Confidence: 0.9823235

01:11:10.600 --> 01:11:11.560 And you can see right

NOTE Confidence: 0.9823235

01:11:11.560 --> 01:11:13.000 after treatment of this liver

NOTE Confidence: 0.9823235

01:11:13.000 --> 01:11:13.500 lesion,

NOTE Confidence: 0.9713257

01:11:14.600 --> 01:11:16.360 shrinkage over the course of

NOTE Confidence: 0.9713257

01:11:16.360 --> 01:11:17.880 the following ten months, and

NOTE Confidence: 0.9713257

01:11:17.880 --> 01:11:19.320 this has since been very

NOTE Confidence: 0.9713257

01:11:19.320 --> 01:11:20.060 well controlled.

NOTE Confidence: 0.9749339

01:11:21.125 --> 01:11:22.645 This is a fifty five

NOTE Confidence: 0.9749339

01:11:22.645 --> 01:11:23.604 year old woman with a

NOTE Confidence: 0.9749339

01:11:23.604 --> 01:11:25.945 single, solitary liver metastases.

NOTE Confidence: 0.9674121

01:11:26.885 --> 01:11:28.885 Very small favorable, not anywhere

NOTE Confidence: 0.9674121

01:11:28.885 --> 01:11:29.925 near bowel. We're able to

NOTE Confidence: 0.9674121

01:11:29.925 --> 01:11:31.205 go to a full ablative

NOTE Confidence: 0.9674121

01:11:31.205 --> 01:11:32.564 dose of fifty gram five

NOTE Confidence: 0.9674121

01:11:32.564 --> 01:11:33.064 fractions

NOTE Confidence: 0.9170764

01:11:33.800 --> 01:11:35.560 and really, very well controlled

NOTE Confidence: 0.9170764

01:11:35.560 --> 01:11:36.520 here as seen in this

NOTE Confidence: 0.9170764

01:11:36.520 --> 01:11:37.580 PET scan response.

NOTE Confidence: 0.9696644

01:11:39.000 --> 01:11:39.500 And,

NOTE Confidence: 0.97076946

01:11:39.960 --> 01:11:41.640 going past, sort of case

NOTE Confidence: 0.97076946

01:11:41.640 --> 01:11:42.140 reports,

NOTE Confidence: 0.94092363

01:11:42.680 --> 01:11:43.500 we have,

NOTE Confidence: 0.9756214

01:11:45.479 --> 01:11:47.580 some, I would say, emerging

NOTE Confidence: 0.9756214

01:11:47.640 --> 01:11:49.515 data, to support the use

NOTE Confidence: 0.9756214

01:11:49.515 --> 01:11:51.775 of SBRT for liver metastases.

NOTE Confidence: 0.99558085

01:11:52.155 --> 01:11:53.375 This is out of,

NOTE Confidence: 0.9506359

01:11:54.554 --> 01:11:56.175 the, the Netherlands

NOTE Confidence: 0.86836684

01:11:56.635 --> 01:11:57.114 and,

NOTE Confidence: 0.9564101

01:11:57.675 --> 01:11:58.554 you know, kind of a

NOTE Confidence: 0.9564101

01:11:58.554 --> 01:11:59.995 little bit outdated at this

NOTE Confidence: 0.9564101

01:11:59.995 --> 01:12:01.995 point, twenty thirteen to twenty

NOTE Confidence: 0.9564101

01:12:01.995 --> 01:12:02.975 nineteen era,

NOTE Confidence: 0.94079953

01:12:03.590 --> 01:12:05.350 about five hundred patients over

NOTE Confidence: 0.94079953

01:12:05.350 --> 01:12:07.270 thirteen centers, eighty percent of

NOTE Confidence: 0.94079953

01:12:07.270 --> 01:12:09.130 these were actually colorectal metastases.

NOTE Confidence: 0.9421878

01:12:09.750 --> 01:12:11.530 Overall, local control about

NOTE Confidence: 0.9248611

01:12:11.910 --> 01:12:13.270 one year about eighty seven

NOTE Confidence: 0.9248611

01:12:13.270 --> 01:12:14.550 percent, and then this went

NOTE Confidence: 0.9248611

01:12:14.550 --> 01:12:15.830 down to seventy five percent

NOTE Confidence: 0.9248611

01:12:15.830 --> 01:12:16.810 over two years.

NOTE Confidence: 0.8990851

01:12:17.175 --> 01:12:18.715 Very encouragingly, phase,

NOTE Confidence: 0.9346505

01:12:19.015 --> 01:12:21.095 grade three four toxicities, only

NOTE Confidence: 0.9346505

01:12:21.095 --> 01:12:22.535 about four percent. So very

NOTE Confidence: 0.9346505

01:12:22.535 --> 01:12:23.035 low,

NOTE Confidence: 0.9895993

01:12:23.655 --> 01:12:25.195 grade three four toxicities.

NOTE Confidence: 0.97722155

01:12:26.455 --> 01:12:28.055 Phase two trial out of,

NOTE Confidence: 0.97722155

01:12:28.455 --> 01:12:28.955 Milan,

NOTE Confidence: 0.93694687

01:12:29.735 --> 01:12:31.755 sixty one patients, small small

NOTE Confidence: 0.9561703

01:12:32.140 --> 01:12:33.420 small trial, but,

NOTE Confidence: 0.9696258

01:12:35.100 --> 01:12:36.540 over one, three, and five

NOTE Confidence: 0.9696258

01:12:36.540 --> 01:12:38.060 years local control rates of

NOTE Confidence: 0.9696258

01:12:38.060 --> 01:12:40.080 ninety five percent and then

NOTE Confidence: 0.9696258

01:12:40.300 --> 01:12:42.700 really stabilizing and plateauing around

NOTE Confidence: 0.9696258

01:12:42.700 --> 01:12:44.460 eighty percent local control up

NOTE Confidence: 0.9696258

01:12:44.460 --> 01:12:45.435 to five years.

NOTE Confidence: 0.9640039

01:12:46.235 --> 01:12:47.354 Only one patient with a

NOTE Confidence: 0.9640039

01:12:47.354 --> 01:12:49.595 grade three adverse events, which

NOTE Confidence: 0.9640039

01:12:49.595 --> 01:12:49.995 was,

NOTE Confidence: 0.9705475

01:12:50.795 --> 01:12:52.314 chest wall pain, which can

NOTE Confidence: 0.9705475

01:12:52.314 --> 01:12:53.595 happen when the lesion is

NOTE Confidence: 0.9705475

01:12:53.595 --> 01:12:54.715 too close to the chest

NOTE Confidence: 0.9705475

01:12:54.715 --> 01:12:55.995 wall and causes some,

NOTE Confidence: 0.99904436

01:12:56.955 --> 01:12:57.455 inflammation

NOTE Confidence: 0.9494115

01:12:57.835 --> 01:12:58.895 or fibrosis.

NOTE Confidence: 0.9641326

01:12:59.880 --> 01:13:01.479 However, this chest wall pain

NOTE Confidence: 0.9641326

01:13:01.479 --> 01:13:03.320 resolved within a year, which

NOTE Confidence: 0.9641326

01:13:03.320 --> 01:13:05.080 we might expect actually to

NOTE Confidence: 0.9641326

01:13:05.080 --> 01:13:06.760 see with with patients after

NOTE Confidence: 0.9641326

01:13:06.760 --> 01:13:07.260 radiation,

NOTE Confidence: 0.98207283

01:13:08.600 --> 01:13:08.920 and,

NOTE Confidence: 0.91715145

01:13:09.560 --> 01:13:09.960 no,

NOTE Confidence: 0.9880686

01:13:10.600 --> 01:13:12.040 inflammation of the liver, which

NOTE Confidence: 0.9880686

01:13:12.040 --> 01:13:13.485 is, nice to see.

NOTE Confidence: 0.997519

01:13:14.045 --> 01:13:14.604 And then,

NOTE Confidence: 0.85945916

01:13:15.324 --> 01:13:15.824 SBRT

NOTE Confidence: 0.9435729

01:13:16.205 --> 01:13:17.965 s g zero one rolls

NOTE Confidence: 0.9435729

01:13:17.965 --> 01:13:19.165 off the tongue. This is

NOTE Confidence: 0.9435729

01:13:19.165 --> 01:13:21.085 a prospective study. Again, kind

NOTE Confidence: 0.9435729

01:13:21.085 --> 01:13:22.604 of a little outdated, just

NOTE Confidence: 0.9435729

01:13:22.604 --> 01:13:23.885 starting over a decade ago

NOTE Confidence: 0.9435729

01:13:23.885 --> 01:13:25.344 now, but fifty patients,

NOTE Confidence: 0.94245183

01:13:26.420 --> 01:13:27.939 medium follow-up about two years.

NOTE Confidence: 0.94245183

01:13:27.939 --> 01:13:28.740 And the two to four

NOTE Confidence: 0.94245183

01:13:28.740 --> 01:13:30.100 year local control is about

NOTE Confidence: 0.94245183

01:13:30.100 --> 01:13:31.540 eighty five percent, and then,

NOTE Confidence: 0.94245183

01:13:31.540 --> 01:13:33.380 again, kind of plateauing around

NOTE Confidence: 0.94245183

01:13:33.380 --> 01:13:34.120 eighty percent.

NOTE Confidence: 0.82513356

01:13:35.380 --> 01:13:35.700 And,

NOTE Confidence: 0.99689907

01:13:36.340 --> 01:13:36.840 interestingly,

NOTE Confidence: 0.9792408

01:13:37.300 --> 01:13:38.439 as you can see here,

NOTE Confidence: 0.9433364

01:13:39.015 --> 01:13:40.535 on the left sorry, on

NOTE Confidence: 0.9433364

01:13:40.535 --> 01:13:42.055 the right, is that patients

NOTE Confidence: 0.9433364

01:13:42.055 --> 01:13:43.415 with smaller tumors, less than

NOTE Confidence: 0.9433364

01:13:43.415 --> 01:13:45.255 five centimeter tumors, had much

NOTE Confidence: 0.9433364

01:13:45.255 --> 01:13:46.715 better progression free survival.

NOTE Confidence: 0.96963096

01:13:47.255 --> 01:13:48.775 And so this does go

NOTE Confidence: 0.96963096

01:13:48.775 --> 01:13:50.295 to sort of the point

NOTE Confidence: 0.96963096

01:13:50.295 --> 01:13:51.835 that, many times,

NOTE Confidence: 0.936056

01:13:53.979 --> 01:13:55.180 you know, when patients have

NOTE Confidence: 0.936056

01:13:55.180 --> 01:13:56.800 favorable small tumors

NOTE Confidence: 0.91437805

01:13:57.340 --> 01:13:57.840 that,

NOTE Confidence: 0.99526554

01:13:58.300 --> 01:13:59.979 really, those are the ones

NOTE Confidence: 0.99526554

01:13:59.979 --> 01:14:01.100 we have the most success

NOTE Confidence: 0.99526554

01:14:01.100 --> 01:14:01.600 with.

NOTE Confidence: 0.98483354

01:14:02.140 --> 01:14:04.620 So over overall, you know,

NOTE Confidence: 0.98483354

01:14:04.620 --> 01:14:05.120 combining

NOTE Confidence: 0.9953556

01:14:05.740 --> 01:14:07.680 many studies, thirty three studies,

NOTE Confidence: 0.9272048

01:14:08.155 --> 01:14:09.995 three thousand patients from the

NOTE Confidence: 0.9272048

01:14:09.995 --> 01:14:11.615 nineties to twenty twenties,

NOTE Confidence: 0.944032

01:14:12.715 --> 01:14:14.715 most of these retrospective series,

NOTE Confidence: 0.944032

01:14:14.715 --> 01:14:16.314 five perspective series in this

NOTE Confidence: 0.944032

01:14:16.314 --> 01:14:17.135 meta analysis,

NOTE Confidence: 0.6665058

01:14:18.235 --> 01:14:18.635 that,

NOTE Confidence: 0.966022

01:14:19.354 --> 01:14:21.115 with about fifty percent of

NOTE Confidence: 0.966022

01:14:21.115 --> 01:14:21.615 patients,

NOTE Confidence: 0.828479

01:14:23.000 --> 01:14:23.500 who've

NOTE Confidence: 0.86803585

01:14:23.800 --> 01:14:25.000 in this series who have

NOTE Confidence: 0.86803585

01:14:25.000 --> 01:14:26.220 colorectal cancer,

NOTE Confidence: 0.9266816

01:14:28.360 --> 01:14:29.880 maybe sounding starting to sound

NOTE Confidence: 0.9266816

01:14:29.880 --> 01:14:30.840 like a broken record, but,

NOTE Confidence: 0.9266816

01:14:31.080 --> 01:14:32.360 local control at one year

NOTE Confidence: 0.9266816

01:14:32.360 --> 01:14:33.720 about eighty five percent and

NOTE Confidence: 0.9266816

01:14:33.720 --> 01:14:34.620 then kind of,

NOTE Confidence: 0.9538022

01:14:35.479 --> 01:14:36.840 two, three year going down

NOTE Confidence: 0.9538022

01:14:36.840 --> 01:14:37.575 a little bit.

NOTE Confidence: 0.7691593

01:14:38.535 --> 01:14:39.035 Encouraging,

NOTE Confidence: 0.9116395

01:14:39.575 --> 01:14:40.955 again, very safe treatment,

NOTE Confidence: 0.99317634

01:14:41.815 --> 01:14:43.735 greater than grade three side

NOTE Confidence: 0.99317634

01:14:43.735 --> 01:14:45.975 effects, only three percent in

NOTE Confidence: 0.99317634

01:14:45.975 --> 01:14:47.835 over thirty thousand patients.

NOTE Confidence: 0.97719765

01:14:49.575 --> 01:14:50.775 And, you know, just a

NOTE Confidence: 0.97719765

01:14:50.775 --> 01:14:51.990 nod to doctor Madoff,

NOTE Confidence: 0.9846074

01:14:52.470 --> 01:14:54.070 that, you know, we are,

NOTE Confidence: 0.9011089

01:14:54.950 --> 01:14:55.430 we are,

NOTE Confidence: 0.95345646

01:14:56.870 --> 01:14:58.150 just like I'm following doctor

NOTE Confidence: 0.95345646

01:14:58.150 --> 01:15:00.230 Madoff, maybe SBRT is following

NOTE Confidence: 0.95345646

01:15:00.230 --> 01:15:00.730 ablation.

NOTE Confidence: 0.8877783

01:15:01.590 --> 01:15:03.290 The Amsterdam core registry,

NOTE Confidence: 0.999493

01:15:04.470 --> 01:15:04.970 compared

NOTE Confidence: 0.98791206

01:15:05.885 --> 01:15:07.564 patients that had ablation to

NOTE Confidence: 0.98791206

01:15:07.564 --> 01:15:09.405 patients that had SBRT, small

NOTE Confidence: 0.98791206

01:15:09.405 --> 01:15:10.365 series, only one hundred and

NOTE Confidence: 0.98791206

01:15:10.365 --> 01:15:11.725 forty four patients who had

NOTE Confidence: 0.98791206

01:15:11.725 --> 01:15:12.225 ablation,

NOTE Confidence: 0.96371436

01:15:12.845 --> 01:15:14.604 and versus fifty five patients,

NOTE Confidence: 0.96371436

01:15:14.604 --> 01:15:16.285 very small series, who had

NOTE Confidence: 0.96371436

01:15:16.285 --> 01:15:17.725 SBRT. And again, this is

NOTE Confidence: 0.96371436

01:15:17.725 --> 01:15:18.845 not a clinical trial, this

NOTE Confidence: 0.96371436

01:15:18.845 --> 01:15:19.755 is a registry.

NOTE Confidence: 0.9766427

01:15:20.560 --> 01:15:22.320 Patients who had SBRT were

NOTE Confidence: 0.9766427

01:15:22.320 --> 01:15:24.080 older, had more extra hepatic

NOTE Confidence: 0.9766427

01:15:24.080 --> 01:15:25.840 disease, larger tumors compared to

NOTE Confidence: 0.9766427

01:15:25.840 --> 01:15:26.900 the ablation patients.

NOTE Confidence: 0.9745629

01:15:27.679 --> 01:15:28.080 But,

NOTE Confidence: 0.9039531

01:15:28.640 --> 01:15:30.800 overall, the local progratitor free

NOTE Confidence: 0.9039531

01:15:30.800 --> 01:15:31.300 survival

NOTE Confidence: 0.98083854

01:15:31.920 --> 01:15:32.420 favored

NOTE Confidence: 0.90800583

01:15:32.800 --> 01:15:34.160 it was in favor of

NOTE Confidence: 0.90800583

01:15:34.160 --> 01:15:36.375 a better control with, ablation

NOTE Confidence: 0.90800583

01:15:36.435 --> 01:15:37.875 hazard ratio one point two

NOTE Confidence: 0.90800583

01:15:37.875 --> 01:15:38.375 four.

NOTE Confidence: 0.996511

01:15:39.715 --> 01:15:40.215 Interestingly,

NOTE Confidence: 0.924352

01:15:40.835 --> 01:15:41.955 in these patients, again, a

NOTE Confidence: 0.924352

01:15:41.955 --> 01:15:42.775 small cohort,

NOTE Confidence: 0.9144344

01:15:43.395 --> 01:15:45.475 no SAEs with SBRT and

NOTE Confidence: 0.9144344

01:15:45.475 --> 01:15:47.395 about six percent to greater

NOTE Confidence: 0.9144344

01:15:47.395 --> 01:15:48.835 than, grade three,

NOTE Confidence: 0.9992588

01:15:49.475 --> 01:15:50.854 SAEs with ablation.

NOTE Confidence: 0.8665976

01:15:52.750 --> 01:15:53.250 So,

NOTE Confidence: 0.99904585

01:15:53.710 --> 01:15:54.210 overall,

NOTE Confidence: 0.98677427

01:15:54.510 --> 01:15:56.270 you know, the data is

NOTE Confidence: 0.98677427

01:15:56.270 --> 01:15:56.770 intriguing,

NOTE Confidence: 0.94874823

01:15:57.150 --> 01:15:58.770 but, at the same time,

NOTE Confidence: 0.94874823

01:15:58.990 --> 01:16:00.590 I, you know, I I

NOTE Confidence: 0.94874823

01:16:00.590 --> 01:16:01.650 I I would,

NOTE Confidence: 0.83632326

01:16:03.070 --> 01:16:03.570 always,

NOTE Confidence: 0.98928833

01:16:04.555 --> 01:16:05.275 say that,

NOTE Confidence: 0.9870976

01:16:05.915 --> 01:16:07.435 SBRT is an option, but

NOTE Confidence: 0.9870976

01:16:07.435 --> 01:16:08.495 it's, unclear,

NOTE Confidence: 0.96772677

01:16:09.035 --> 01:16:10.875 you know, especially for patients

NOTE Confidence: 0.96772677

01:16:10.875 --> 01:16:11.935 with small favorable,

NOTE Confidence: 0.9207831

01:16:13.435 --> 01:16:14.975 tumors. You know, surgery,

NOTE Confidence: 0.97105175

01:16:15.595 --> 01:16:16.955 is is still the gold

NOTE Confidence: 0.97105175

01:16:16.955 --> 01:16:18.735 standard. Ablation is still,

NOTE Confidence: 0.9249649

01:16:19.239 --> 01:16:19.739 more,

NOTE Confidence: 0.9957977

01:16:20.199 --> 01:16:22.360 commonly done. And so, this

NOTE Confidence: 0.9957977

01:16:22.360 --> 01:16:23.020 is the

NOTE Confidence: 0.94926107

01:16:23.639 --> 01:16:26.460 American Radium Society consensus guidelines

NOTE Confidence: 0.94926107

01:16:26.520 --> 01:16:28.139 for selection of local therapies,

NOTE Confidence: 0.9348966

01:16:29.080 --> 01:16:29.560 for,

NOTE Confidence: 0.958003

01:16:30.199 --> 01:16:32.280 for liver metastases published a

NOTE Confidence: 0.958003

01:16:32.280 --> 01:16:33.719 few years ago. And this

NOTE Confidence: 0.958003

01:16:33.719 --> 01:16:35.455 is actually the the author

NOTE Confidence: 0.958003

01:16:35.455 --> 01:16:36.975 line was was mostly all

NOTE Confidence: 0.958003

01:16:36.975 --> 01:16:38.975 radoncs. And even then, you

NOTE Confidence: 0.958003

01:16:38.975 --> 01:16:40.415 know, I think, even with

NOTE Confidence: 0.958003

01:16:40.415 --> 01:16:41.775 that bias that these are

NOTE Confidence: 0.958003

01:16:41.775 --> 01:16:43.695 actually radiation oncologists putting this

NOTE Confidence: 0.958003

01:16:43.695 --> 01:16:44.195 together,

NOTE Confidence: 0.9426948

01:16:45.055 --> 01:16:46.114 they deferred,

NOTE Confidence: 0.96052736

01:16:47.200 --> 01:16:47.700 SBRT,

NOTE Confidence: 0.9155152

01:16:48.880 --> 01:16:49.280 for,

NOTE Confidence: 0.9568705

01:16:49.680 --> 01:16:51.200 and and kind of subset

NOTE Confidence: 0.9568705

01:16:51.200 --> 01:16:52.640 it out most patients, I

NOTE Confidence: 0.9568705

01:16:52.640 --> 01:16:54.000 think, that would be favorable

NOTE Confidence: 0.9568705

01:16:54.000 --> 01:16:54.660 for ablation.

NOTE Confidence: 0.9960455

01:16:55.200 --> 01:16:56.000 However, if,

NOTE Confidence: 0.98689824

01:16:56.720 --> 01:16:58.240 if the tumor was larger,

NOTE Confidence: 0.98689824

01:16:58.240 --> 01:16:58.740 probably,

NOTE Confidence: 0.9597505

01:16:59.200 --> 01:17:00.979 maybe leaning more toward SBRT.

NOTE Confidence: 0.81620795

01:17:02.695 --> 01:17:03.195 And,

NOTE Confidence: 0.97618026

01:17:03.895 --> 01:17:05.675 you know, but but, certainly,

NOTE Confidence: 0.9369707

01:17:06.655 --> 01:17:07.435 a multidisciplinary

NOTE Confidence: 0.9401005

01:17:07.895 --> 01:17:08.935 discussion in this,

NOTE Confidence: 0.9888596

01:17:09.415 --> 01:17:11.335 this this workflow kinda gives

NOTE Confidence: 0.9888596

01:17:11.335 --> 01:17:12.635 me a headache here.

NOTE Confidence: 0.99310046

01:17:13.895 --> 01:17:15.655 I think we, of course,

NOTE Confidence: 0.99310046

01:17:15.655 --> 01:17:16.555 then need

NOTE Confidence: 0.99338275

01:17:17.580 --> 01:17:19.740 stronger data to really try

NOTE Confidence: 0.99338275

01:17:19.740 --> 01:17:21.180 to figure out, the role

NOTE Confidence: 0.99338275

01:17:21.180 --> 01:17:22.620 of SBRT with all the

NOTE Confidence: 0.99338275

01:17:22.620 --> 01:17:24.380 other local regional therapies we

NOTE Confidence: 0.99338275

01:17:24.380 --> 01:17:24.880 use.

NOTE Confidence: 0.8273506

01:17:26.140 --> 01:17:27.660 The collision trial was,

NOTE Confidence: 0.9490788

01:17:28.460 --> 01:17:29.360 was discussed,

NOTE Confidence: 0.98276955

01:17:30.140 --> 01:17:30.860 looking at,

NOTE Confidence: 0.9911106

01:17:31.260 --> 01:17:32.800 ablation versus surgery.

NOTE Confidence: 0.95389074

01:17:33.315 --> 01:17:34.535 The collision group,

NOTE Confidence: 0.89208245

01:17:35.075 --> 01:17:37.395 started this collision XL trial

NOTE Confidence: 0.89208245

01:17:37.395 --> 01:17:39.235 phase two, three randomized controlled

NOTE Confidence: 0.89208245

01:17:39.235 --> 01:17:39.735 trial,

NOTE Confidence: 0.91531724

01:17:40.115 --> 01:17:42.275 patients with colorectal cancer liver

NOTE Confidence: 0.91531724

01:17:42.275 --> 01:17:42.775 metastases,

NOTE Confidence: 0.96113026

01:17:43.395 --> 01:17:45.655 looking at, microwave ablation versus

NOTE Confidence: 0.96113026

01:17:45.820 --> 01:17:48.220 SBRT, still enrolling, and I'm

NOTE Confidence: 0.96113026

01:17:48.220 --> 01:17:49.660 not entirely sure if it

NOTE Confidence: 0.96113026

01:17:49.660 --> 01:17:51.420 will complete, but,

NOTE Confidence: 0.9908064

01:17:52.380 --> 01:17:53.580 difficult trial to,

NOTE Confidence: 0.9713459

01:17:54.060 --> 01:17:56.220 to randomize to, but certainly

NOTE Confidence: 0.9713459

01:17:56.220 --> 01:17:58.080 something which, we need.

NOTE Confidence: 0.95942056

01:17:59.314 --> 01:17:59.554 So,

NOTE Confidence: 0.9081876

01:18:00.195 --> 01:18:00.695 so,

NOTE Confidence: 0.90898037

01:18:01.554 --> 01:18:03.335 so I think, you know,

NOTE Confidence: 0.90898037

01:18:03.475 --> 01:18:04.935 here at Yale then,

NOTE Confidence: 0.97346807

01:18:05.314 --> 01:18:06.915 just to kind of, say

NOTE Confidence: 0.97346807

01:18:06.915 --> 01:18:07.735 what we have,

NOTE Confidence: 0.97862965

01:18:08.195 --> 01:18:09.155 you know, we are moving

NOTE Confidence: 0.97862965

01:18:09.155 --> 01:18:10.835 toward MR guided radiation for

NOTE Confidence: 0.97862965

01:18:10.835 --> 01:18:11.655 liver SBRT.

NOTE Confidence: 0.9903471

01:18:12.275 --> 01:18:14.750 MRI imaging is just, so

NOTE Confidence: 0.9903471

01:18:14.750 --> 01:18:16.670 much better than CT based

NOTE Confidence: 0.9903471

01:18:16.670 --> 01:18:17.810 imaging for,

NOTE Confidence: 0.9228264

01:18:18.189 --> 01:18:20.350 targeting. And in this, trial

NOTE Confidence: 0.9228264

01:18:20.350 --> 01:18:22.130 looking at MR guided radiation,

NOTE Confidence: 0.9490252

01:18:23.070 --> 01:18:24.270 one year local control with

NOTE Confidence: 0.9490252

01:18:24.270 --> 01:18:25.950 ninety five percent and then

NOTE Confidence: 0.9490252

01:18:25.950 --> 01:18:27.390 two year kind of eighty

NOTE Confidence: 0.9490252

01:18:27.390 --> 01:18:28.370 percent range,

NOTE Confidence: 0.99830246

01:18:28.750 --> 01:18:29.570 very little

NOTE Confidence: 0.99504495

01:18:30.645 --> 01:18:31.125 toxicity.

NOTE Confidence: 0.9719211

01:18:31.604 --> 01:18:32.885 And here at Yale, we

NOTE Confidence: 0.9719211

01:18:32.885 --> 01:18:34.885 have two programs which are,

NOTE Confidence: 0.9719211

01:18:35.205 --> 01:18:36.025 up and coming.

NOTE Confidence: 0.98715544

01:18:36.405 --> 01:18:38.165 One is, this idea of

NOTE Confidence: 0.98715544

01:18:38.165 --> 01:18:38.985 pet guided

NOTE Confidence: 0.69589883

01:18:39.365 --> 01:18:39.865 biologic,

NOTE Confidence: 0.8679786

01:18:40.564 --> 01:18:41.705 radiation therapy.

NOTE Confidence: 0.9959055

01:18:42.510 --> 01:18:43.010 And,

NOTE Confidence: 0.9445215

01:18:43.470 --> 01:18:44.750 really, this idea of using

NOTE Confidence: 0.9445215

01:18:44.750 --> 01:18:46.850 PET guidance to target multiple

NOTE Confidence: 0.9445215

01:18:46.990 --> 01:18:47.490 spots,

NOTE Confidence: 0.999843

01:18:48.110 --> 01:18:48.610 simultaneously

NOTE Confidence: 0.8441534

01:18:49.150 --> 01:18:51.090 with s an SBRT approach.

NOTE Confidence: 0.96687645

01:18:52.590 --> 01:18:54.910 This is, FDA approved for

NOTE Confidence: 0.96687645

01:18:54.910 --> 01:18:55.970 lung and bone,

NOTE Confidence: 0.8956734

01:18:56.590 --> 01:18:57.090 lesions,

NOTE Confidence: 0.9754506

01:18:58.455 --> 01:19:00.055 and, not yet for liver,

NOTE Confidence: 0.9754506

01:19:00.055 --> 01:19:01.255 but, I think would be

NOTE Confidence: 0.9754506

01:19:01.255 --> 01:19:03.435 an attractive approach and certainly,

NOTE Confidence: 0.97974414

01:19:03.975 --> 01:19:05.755 something we're interested in developing.

NOTE Confidence: 0.9789261

01:19:06.375 --> 01:19:08.135 And then, very importantly for

NOTE Confidence: 0.9789261

01:19:08.135 --> 01:19:09.415 the state of Connecticut, we

NOTE Confidence: 0.9789261

01:19:09.415 --> 01:19:09.895 have,

NOTE Confidence: 0.9370557

01:19:10.215 --> 01:19:12.750 the Connecticut Proton Sent Therapy

NOTE Confidence: 0.9370557

01:19:12.750 --> 01:19:14.610 Center opening up in Wallingford

NOTE Confidence: 0.9882496

01:19:14.990 --> 01:19:16.370 this coming October,

NOTE Confidence: 0.9958021

01:19:17.630 --> 01:19:19.330 ahead of schedule for opening,

NOTE Confidence: 0.99959904

01:19:20.270 --> 01:19:20.770 where

NOTE Confidence: 0.88144773

01:19:21.790 --> 01:19:23.710 proton therapy is a very

NOTE Confidence: 0.88144773

01:19:23.710 --> 01:19:24.210 valuable,

NOTE Confidence: 0.99273807

01:19:25.550 --> 01:19:26.050 and

NOTE Confidence: 0.9879082

01:19:27.364 --> 01:19:28.425 form of radiation

NOTE Confidence: 0.9534294

01:19:28.804 --> 01:19:29.304 where,

NOTE Confidence: 0.9507273

01:19:30.245 --> 01:19:31.604 that can potentially lead to,

NOTE Confidence: 0.9507273

01:19:31.925 --> 01:19:33.225 better organ sparing,

NOTE Confidence: 0.97425467

01:19:33.604 --> 01:19:35.045 normal tissue sparing, I should

NOTE Confidence: 0.97425467

01:19:35.045 --> 01:19:37.045 say, for radiation, reducing the

NOTE Confidence: 0.97425467

01:19:37.045 --> 01:19:37.545 toxicities,

NOTE Confidence: 0.9646526

01:19:38.405 --> 01:19:40.344 making radiation safer, and potentially

NOTE Confidence: 0.9646526

01:19:40.405 --> 01:19:41.385 allowing the

NOTE Confidence: 0.9565021

01:19:42.550 --> 01:19:43.350 ability to,

NOTE Confidence: 0.9950569

01:19:44.070 --> 01:19:45.830 to increase radiation dose and

NOTE Confidence: 0.9950569

01:19:45.830 --> 01:19:47.530 get a better therapeutic effect.

NOTE Confidence: 0.9947507

01:19:48.070 --> 01:19:50.330 So, this is something where,

NOTE Confidence: 0.93451226

01:19:50.630 --> 01:19:51.670 this is will be the

NOTE Confidence: 0.93451226

01:19:51.670 --> 01:19:53.270 first and and only,

NOTE Confidence: 0.90447825

01:19:53.670 --> 01:19:56.070 proton center in Connecticut and,

NOTE Confidence: 0.987154

01:19:57.055 --> 01:19:59.135 something where, for liver directed

NOTE Confidence: 0.987154

01:19:59.135 --> 01:20:00.495 therapy, this has been looked

NOTE Confidence: 0.987154

01:20:00.495 --> 01:20:00.975 at,

NOTE Confidence: 0.91648185

01:20:01.535 --> 01:20:03.375 really in terms of, very

NOTE Confidence: 0.91648185

01:20:03.375 --> 01:20:05.695 great, very, very, much,

NOTE Confidence: 0.95507103

01:20:06.175 --> 01:20:08.255 much more effectively sparing normal

NOTE Confidence: 0.95507103

01:20:08.255 --> 01:20:10.575 liver from radiation exposure. And

NOTE Confidence: 0.95507103

01:20:10.575 --> 01:20:11.695 you can see that here

NOTE Confidence: 0.95507103

01:20:11.695 --> 01:20:13.020 with this kind of even

NOTE Confidence: 0.95507103

01:20:13.020 --> 01:20:15.260 though the the the red

NOTE Confidence: 0.95507103

01:20:15.260 --> 01:20:17.179 hot spot is is, very

NOTE Confidence: 0.95507103

01:20:17.179 --> 01:20:18.619 well shaped in both plans

NOTE Confidence: 0.95507103

01:20:18.619 --> 01:20:19.739 here on the left and

NOTE Confidence: 0.95507103

01:20:19.739 --> 01:20:21.020 a proton plan and here

NOTE Confidence: 0.95507103

01:20:21.020 --> 01:20:21.579 on the right,

NOTE Confidence: 0.8685416

01:20:22.219 --> 01:20:23.280 x-ray plan,

NOTE Confidence: 0.9774908

01:20:23.739 --> 01:20:24.860 that the low dose bath

NOTE Confidence: 0.9774908

01:20:24.860 --> 01:20:26.000 is greatly reduced,

NOTE Confidence: 0.9899332

01:20:26.564 --> 01:20:28.025 with, with protons,

NOTE Confidence: 0.9751005

01:20:28.485 --> 01:20:30.485 which can, really, help to

NOTE Confidence: 0.9751005

01:20:30.485 --> 01:20:31.525 reduce some of those,

NOTE Confidence: 0.9995022

01:20:32.645 --> 01:20:34.425 potential side effects of radiation.

NOTE Confidence: 0.9949445

01:20:35.445 --> 01:20:35.945 So

NOTE Confidence: 0.8890059

01:20:37.205 --> 01:20:38.725 ultimately, this is a non

NOTE Confidence: 0.8890059

01:20:38.725 --> 01:20:39.225 invasive

NOTE Confidence: 0.82074845

01:20:39.660 --> 01:20:41.280 technique. No an anesthesia,

NOTE Confidence: 0.9796343

01:20:41.900 --> 01:20:42.800 you know, probably,

NOTE Confidence: 0.9877672

01:20:43.580 --> 01:20:45.120 in the current paradigm,

NOTE Confidence: 0.98686206

01:20:46.140 --> 01:20:47.739 best for patients who,

NOTE Confidence: 0.98141867

01:20:48.140 --> 01:20:50.460 are not, really up for

NOTE Confidence: 0.98141867

01:20:50.460 --> 01:20:50.960 surgery

NOTE Confidence: 0.99691

01:20:51.340 --> 01:20:52.699 or and may want to

NOTE Confidence: 0.99691

01:20:52.699 --> 01:20:53.679 avoid procedures.

NOTE Confidence: 0.66776854

01:20:55.335 --> 01:20:55.575 The,

NOTE Confidence: 0.9716105

01:20:56.375 --> 01:20:57.814 one year local control rate

NOTE Confidence: 0.9716105

01:20:57.814 --> 01:20:59.015 is somewhere from eighty five

NOTE Confidence: 0.9716105

01:20:59.015 --> 01:21:00.375 to ninety five percent and

NOTE Confidence: 0.9716105

01:21:00.375 --> 01:21:01.575 then kind of levels off

NOTE Confidence: 0.9716105

01:21:01.575 --> 01:21:02.935 around eighty percent after that.

NOTE Confidence: 0.9716105

01:21:02.935 --> 01:21:04.215 So, you know, not as

NOTE Confidence: 0.9716105

01:21:04.215 --> 01:21:05.575 good as surgery, but,

NOTE Confidence: 0.99125105

01:21:05.975 --> 01:21:07.115 also less invasive.

NOTE Confidence: 0.98619986

01:21:07.750 --> 01:21:09.510 So, you know, patients may,

NOTE Confidence: 0.98619986

01:21:09.750 --> 01:21:10.950 think that maybe they wanna

NOTE Confidence: 0.98619986

01:21:10.950 --> 01:21:11.910 give it a try since

NOTE Confidence: 0.98619986

01:21:11.910 --> 01:21:13.030 there is a good control

NOTE Confidence: 0.98619986

01:21:13.030 --> 01:21:14.570 rate, if it avoids,

NOTE Confidence: 0.9294958

01:21:15.590 --> 01:21:16.650 a stay in the hospital.

NOTE Confidence: 0.98606175

01:21:17.990 --> 01:21:19.110 Low rates of,

NOTE Confidence: 0.9774235

01:21:19.670 --> 01:21:21.770 of, grade three adverse events.

NOTE Confidence: 0.9353571

01:21:22.445 --> 01:21:22.945 However,

NOTE Confidence: 0.9824308

01:21:23.644 --> 01:21:24.844 all the data is really

NOTE Confidence: 0.9824308

01:21:24.844 --> 01:21:26.764 kind of early and, or

NOTE Confidence: 0.9824308

01:21:26.764 --> 01:21:27.264 retrospective

NOTE Confidence: 0.9989895

01:21:27.564 --> 01:21:28.064 series

NOTE Confidence: 0.96061444

01:21:28.445 --> 01:21:30.204 and randomized clinical trials are

NOTE Confidence: 0.96061444

01:21:30.204 --> 01:21:31.885 really needed to compare what,

NOTE Confidence: 0.96061444

01:21:32.125 --> 01:21:33.644 what we're doing with radiation.

NOTE Confidence: 0.96061444

01:21:33.644 --> 01:21:35.085 And is it, better or

NOTE Confidence: 0.96061444

01:21:35.085 --> 01:21:36.710 worse than and and to

NOTE Confidence: 0.96061444

01:21:36.710 --> 01:21:38.010 what degree to other,

NOTE Confidence: 0.90299976

01:21:39.590 --> 01:21:41.830 available liver directed therapies of

NOTE Confidence: 0.90299976

01:21:41.830 --> 01:21:43.030 which there are many in

NOTE Confidence: 0.90299976

01:21:43.030 --> 01:21:44.410 which they are effective.

NOTE Confidence: 0.98491347

01:21:45.590 --> 01:21:46.950 And then there's the opportunity

NOTE Confidence: 0.98491347

01:21:46.950 --> 01:21:49.110 for programmatic developments and novel

NOTE Confidence: 0.98491347

01:21:49.110 --> 01:21:50.490 technologies at Yale,

NOTE Confidence: 0.9699618

01:21:50.824 --> 01:21:51.965 MR guided SBRT,

NOTE Confidence: 0.92285347

01:21:52.665 --> 01:21:54.425 PET guided SBRT, and very

NOTE Confidence: 0.92285347

01:21:54.425 --> 01:21:54.925 importantly,

NOTE Confidence: 0.98297846

01:21:55.304 --> 01:21:56.284 proton therapies.

NOTE Confidence: 0.98921096

01:21:57.064 --> 01:21:58.344 So, thank you very much

NOTE Confidence: 0.98921096

01:21:58.344 --> 01:21:59.245 for all your attention,

NOTE Confidence: 0.9803629

01:21:59.784 --> 01:22:01.784 and for the platform to,

NOTE Confidence: 0.9803629

01:22:02.185 --> 01:22:02.685 discuss

NOTE Confidence: 0.9288775

01:22:03.000 --> 01:22:04.039 radiation and the role of

NOTE Confidence: 0.9288775

01:22:04.039 --> 01:22:06.780 SBRT and liver colorectal metastases.

NOTE Confidence: 0.9835255

01:22:07.639 --> 01:22:09.400 I'll, turn it back over

NOTE Confidence: 0.9835255

01:22:09.400 --> 01:22:10.539 to doctor Kormansky.

NOTE Confidence: 0.9879142

01:22:13.000 --> 01:22:15.260 Alright. Well, we have reached

NOTE Confidence: 0.9879142

01:22:15.479 --> 01:22:16.920 the end of our talks.

NOTE Confidence: 0.9879142

01:22:16.920 --> 01:22:17.979 I wanna thank,

NOTE Confidence: 0.99291015

01:22:19.395 --> 01:22:20.915 my colleagues for their,

NOTE Confidence: 0.99854267

01:22:21.555 --> 01:22:22.055 excellent

NOTE Confidence: 0.999646

01:22:22.515 --> 01:22:23.795 overviews. I know each of

NOTE Confidence: 0.999646

01:22:23.795 --> 01:22:25.495 them could probably go on

NOTE Confidence: 0.9893174

01:22:26.195 --> 01:22:27.895 for hours on their individual

NOTE Confidence: 0.9893174

01:22:28.115 --> 01:22:28.615 topics.

NOTE Confidence: 0.9929622

01:22:29.395 --> 01:22:30.215 And so

NOTE Confidence: 0.99891424

01:22:30.710 --> 01:22:31.610 I also wanna

NOTE Confidence: 0.9988996

01:22:31.989 --> 01:22:33.350 point out that, you know,

NOTE Confidence: 0.9988996

01:22:33.350 --> 01:22:34.330 what is clear

NOTE Confidence: 0.9940054

01:22:34.790 --> 01:22:37.449 is that management of colorectal

NOTE Confidence: 0.9940054

01:22:37.510 --> 01:22:39.370 liver metastases in an aggressive

NOTE Confidence: 0.9940054

01:22:39.590 --> 01:22:40.090 fashion

NOTE Confidence: 0.9781464

01:22:40.710 --> 01:22:42.969 matters and can improve survival,

NOTE Confidence: 0.9638479

01:22:43.995 --> 01:22:45.275 and that doing that in

NOTE Confidence: 0.9638479

01:22:45.275 --> 01:22:46.235 a way that is,

NOTE Confidence: 0.99976164

01:22:46.635 --> 01:22:47.455 through a collaborative

NOTE Confidence: 0.9522641

01:22:47.755 --> 01:22:48.255 team,

NOTE Confidence: 0.9997638

01:22:49.195 --> 01:22:50.255 is really important.

NOTE Confidence: 0.97119653

01:22:51.035 --> 01:22:51.854 We do,

NOTE Confidence: 0.99706393

01:22:52.955 --> 01:22:54.715 have a couple of minutes

NOTE Confidence: 0.99706393

01:22:54.715 --> 01:22:56.235 for some questions. I think

NOTE Confidence: 0.99706393

01:22:56.235 --> 01:22:57.570 most of them have been

NOTE Confidence: 0.99706393

01:22:57.570 --> 01:22:59.250 answered as they came through

NOTE Confidence: 0.99706393

01:22:59.250 --> 01:23:00.290 in the chat, and I

NOTE Confidence: 0.99706393

01:23:00.290 --> 01:23:01.270 don't see any

NOTE Confidence: 0.99980986

01:23:01.969 --> 01:23:03.110 additional there.

NOTE Confidence: 0.9723075

01:23:04.130 --> 01:23:05.409 I did wanna point out

NOTE Confidence: 0.9723075

01:23:05.409 --> 01:23:07.330 one of the questions did,

NOTE Confidence: 0.9944742

01:23:07.810 --> 01:23:08.710 ask about,

NOTE Confidence: 0.94490004

01:23:09.170 --> 01:23:10.150 the role of,

NOTE Confidence: 0.9204874

01:23:10.985 --> 01:23:11.485 ctDNA

NOTE Confidence: 0.9629028

01:23:12.025 --> 01:23:13.005 in in monitoring,

NOTE Confidence: 0.9713966

01:23:13.865 --> 01:23:15.545 minimal residual disease, and I

NOTE Confidence: 0.9713966

01:23:15.545 --> 01:23:16.445 would say

NOTE Confidence: 0.9958478

01:23:17.064 --> 01:23:18.604 that that is a topic

NOTE Confidence: 0.9958478

01:23:18.665 --> 01:23:20.365 that can be its own,

NOTE Confidence: 0.9904855

01:23:21.705 --> 01:23:23.625 CME webinar at a future

NOTE Confidence: 0.9904855

01:23:23.625 --> 01:23:24.825 date. I think there's, you

NOTE Confidence: 0.9904855

01:23:24.825 --> 01:23:26.439 know, lots a lot that

NOTE Confidence: 0.9904855

01:23:26.439 --> 01:23:27.100 we know

NOTE Confidence: 0.98655826

01:23:27.479 --> 01:23:28.840 and probably even more that

NOTE Confidence: 0.98655826

01:23:28.840 --> 01:23:29.960 we don't know about how

NOTE Confidence: 0.98655826

01:23:29.960 --> 01:23:31.340 best to use that technology.

NOTE Confidence: 0.86899537

01:23:36.200 --> 01:23:37.170 Right. There is,

NOTE Confidence: 0.8280935

01:23:39.354 --> 01:23:39.755 one,

NOTE Confidence: 0.9945513

01:23:40.395 --> 01:23:40.895 question,

NOTE Confidence: 0.9511471

01:23:41.755 --> 01:23:43.455 for doctor Du,

NOTE Confidence: 0.99974084

01:23:44.795 --> 01:23:46.635 asking about the role of

NOTE Confidence: 0.99974084

01:23:46.635 --> 01:23:47.135 chemosensitizing

NOTE Confidence: 0.99839705

01:23:47.915 --> 01:23:49.035 drugs in the in the

NOTE Confidence: 0.99839705

01:23:49.035 --> 01:23:50.015 use of SBRT.

NOTE Confidence: 0.96265006

01:23:50.920 --> 01:23:52.039 Yeah. You caught me right

NOTE Confidence: 0.96265006

01:23:52.039 --> 01:23:53.239 as I was, trying to

NOTE Confidence: 0.96265006

01:23:53.239 --> 01:23:55.000 type an answer there, doctor

NOTE Confidence: 0.96265006

01:23:55.000 --> 01:23:56.139 Kromansky. So,

NOTE Confidence: 0.97999746

01:23:56.760 --> 01:23:57.559 I'll say that,

NOTE Confidence: 0.9882719

01:23:58.119 --> 01:23:59.639 this has been looked at

NOTE Confidence: 0.9882719

01:23:59.639 --> 01:24:00.039 with,

NOTE Confidence: 0.9781391

01:24:00.679 --> 01:24:01.179 SRS.

NOTE Confidence: 0.9714621

01:24:01.479 --> 01:24:02.679 I would say that's more

NOTE Confidence: 0.9714621

01:24:02.679 --> 01:24:03.579 brain directed,

NOTE Confidence: 0.9003172

01:24:06.435 --> 01:24:08.534 stereotactic treatment. But then also

NOTE Confidence: 0.9003172

01:24:08.755 --> 01:24:10.375 in some early phase,

NOTE Confidence: 0.9486227

01:24:10.994 --> 01:24:13.314 clinical trials for SBRT and

NOTE Confidence: 0.9486227

01:24:13.314 --> 01:24:14.514 other sites, you know, I

NOTE Confidence: 0.9486227

01:24:14.514 --> 01:24:14.994 ran a,

NOTE Confidence: 0.960813

01:24:16.354 --> 01:24:17.474 a phase one trial a

NOTE Confidence: 0.960813

01:24:17.474 --> 01:24:18.675 few years ago looking at

NOTE Confidence: 0.960813

01:24:18.675 --> 01:24:21.074 immunotherapy combined with SBRT for

NOTE Confidence: 0.960813

01:24:21.074 --> 01:24:22.054 pancreas cancers.

NOTE Confidence: 0.98940355

01:24:22.729 --> 01:24:24.330 And, you know, I've I've

NOTE Confidence: 0.98940355

01:24:24.330 --> 01:24:25.370 been seeing a lot of

NOTE Confidence: 0.98940355

01:24:25.370 --> 01:24:25.870 proposals

NOTE Confidence: 0.9472546

01:24:26.250 --> 01:24:28.170 for looking at, the combination

NOTE Confidence: 0.9472546

01:24:28.170 --> 01:24:29.790 of biologics like immunotherapy

NOTE Confidence: 0.99761176

01:24:30.170 --> 01:24:30.989 with SBRT

NOTE Confidence: 0.9258776

01:24:31.370 --> 01:24:33.130 for liver cancers. And in

NOTE Confidence: 0.9258776

01:24:33.130 --> 01:24:34.670 fact, we have not for,

NOTE Confidence: 0.9253845

01:24:35.210 --> 01:24:36.969 HCC, but for sorry. Not

NOTE Confidence: 0.9253845

01:24:36.969 --> 01:24:39.045 for colorectal metastases, but for

NOTE Confidence: 0.89548135

01:24:39.345 --> 01:24:40.785 HCC at this point, a,

NOTE Confidence: 0.89548135

01:24:41.185 --> 01:24:43.025 clinical trial that's a national

NOTE Confidence: 0.89548135

01:24:43.025 --> 01:24:44.865 cooperative group trial looking for

NOTE Confidence: 0.89548135

01:24:44.865 --> 01:24:46.625 HCC at the combination of

NOTE Confidence: 0.89548135

01:24:46.625 --> 01:24:48.085 immunotherapy with SBRT

NOTE Confidence: 0.9724693

01:24:48.705 --> 01:24:49.665 and trying to figure out

NOTE Confidence: 0.9724693

01:24:49.665 --> 01:24:51.104 if that's, more effective than

NOTE Confidence: 0.9724693

01:24:51.104 --> 01:24:52.325 immunotherapy alone.

NOTE Confidence: 0.95029944

01:24:53.620 --> 01:24:54.660 So, there's a lot of,

NOTE Confidence: 0.91703176

01:24:56.180 --> 01:24:57.300 I think work to be

NOTE Confidence: 0.91703176

01:24:57.300 --> 01:24:58.980 done there. At least we

NOTE Confidence: 0.91703176

01:24:58.980 --> 01:24:59.800 think that,

NOTE Confidence: 0.96387166

01:25:00.500 --> 01:25:02.020 because SBRT is such a

NOTE Confidence: 0.96387166

01:25:02.020 --> 01:25:02.520 focused,

NOTE Confidence: 0.97896534

01:25:02.900 --> 01:25:04.500 treatment that it's likely to

NOTE Confidence: 0.97896534

01:25:04.500 --> 01:25:05.960 be safe with many,

NOTE Confidence: 0.9102893

01:25:06.340 --> 01:25:07.400 systemic therapies,

NOTE Confidence: 0.9787633

01:25:08.365 --> 01:25:09.245 And there needs to be

NOTE Confidence: 0.9787633

01:25:09.245 --> 01:25:10.525 a lot more work to

NOTE Confidence: 0.9787633

01:25:10.525 --> 01:25:12.445 define the biology and the

NOTE Confidence: 0.9787633

01:25:12.604 --> 01:25:14.865 but the biologic interaction of,

NOTE Confidence: 0.9963983

01:25:15.485 --> 01:25:15.985 chemotherapies

NOTE Confidence: 0.9899801

01:25:16.365 --> 01:25:19.104 and other targeted biologic therapies,

NOTE Confidence: 0.9920922

01:25:19.725 --> 01:25:21.564 in combination with SBRT to

NOTE Confidence: 0.9920922

01:25:21.564 --> 01:25:23.140 try to improve effectiveness. But

NOTE Confidence: 0.9920922

01:25:23.140 --> 01:25:24.200 that's a great question

NOTE Confidence: 0.996356

01:25:24.580 --> 01:25:25.780 and very important for clinical

NOTE Confidence: 0.996356

01:25:25.780 --> 01:25:26.600 trial work.

NOTE Confidence: 0.9772522

01:25:30.420 --> 01:25:31.460 Right. Well, it looks like

NOTE Confidence: 0.9772522

01:25:31.460 --> 01:25:32.820 we're coming up on the

NOTE Confidence: 0.9772522

01:25:32.820 --> 01:25:33.320 hour.

NOTE Confidence: 0.978095

01:25:34.020 --> 01:25:35.460 I wanna, again, thank our

NOTE Confidence: 0.978095

01:25:35.460 --> 01:25:36.820 panelists. I also wanna thank

NOTE Confidence: 0.978095

01:25:36.820 --> 01:25:37.560 our audience,

NOTE Confidence: 0.99568254

01:25:38.145 --> 01:25:40.485 for their attention and engagement,

NOTE Confidence: 0.94621414

01:25:41.825 --> 01:25:43.185 during this session. I hope

NOTE Confidence: 0.94621414

01:25:43.185 --> 01:25:43.845 it was,

NOTE Confidence: 0.7240414

01:25:44.785 --> 01:25:45.285 informative,

NOTE Confidence: 0.9751612

01:25:45.825 --> 01:25:46.325 and,

NOTE Confidence: 0.99909556

01:25:47.025 --> 01:25:48.725 know that all of us

NOTE Confidence: 0.998649

01:25:49.935 --> 01:25:52.195 would be available for sidebars

NOTE Confidence: 0.998649

01:25:52.255 --> 01:25:53.375 at a future time as

NOTE Confidence: 0.998649

01:25:53.375 --> 01:25:53.875 needed.

NOTE Confidence: 0.99968004

01:25:55.055 --> 01:25:56.575 So I hope everybody has

NOTE Confidence: 0.99968004

01:25:56.575 --> 01:25:57.715 a great evening.

NOTE Confidence: 0.9964584

01:25:59.135 --> 01:26:01.075 Thanks so much. Thank you.