WEBVTT

NOTE duration:"01:11:19"

NOTE recognizability:0.849

NOTE language:en-us

NOTE Confidence: 0.936654842666667

00:00:04.070 --> 00:00:05.942 Well, good afternoon everyone

NOTE Confidence: 0.936654842666667

00:00:05.942 --> 00:00:08.750 and thank you for joining us

NOTE Confidence: 0.936654842666667

00:00:08.835 --> 00:00:11.420 today in pathology grand rounds.

NOTE Confidence: 0.936654842666667

00:00:11.420 --> 00:00:14.031 It is my great honor to introduce

NOTE Confidence: 0.936654842666667

00:00:14.031 --> 00:00:16.300 our grand round speaker today.

NOTE Confidence: 0.936654842666667

00:00:16.300 --> 00:00:18.682 Doctor Dhanpat Jain and I'd like

NOTE Confidence: 0.936654842666667

00:00:18.682 --> 00:00:21.985 to go into some detail about Doctor

NOTE Confidence: 0.936654842666667

00:00:21.985 --> 00:00:25.160 Jane and his many accomplishments.

NOTE Confidence: 0.936654842666667

00:00:25.160 --> 00:00:27.904 So Doctor Jane went to medical school at

NOTE Confidence: 0.936654842666667

00:00:27.904 --> 00:00:31.140 Mysore Medical College in Mysore, Karnataka.

NOTE Confidence: 0.936654842666667

00:00:31.140 --> 00:00:33.530 Sorry if I murder in the name India

NOTE Confidence: 0.936654842666667

00:00:33.530 --> 00:00:35.872 and did his pathology training at

NOTE Confidence: 0.936654842666667

00:00:35.872 --> 00:00:37.872 the Institute of Medical Education

NOTE Confidence: 0.936654842666667

00:00:37.872 --> 00:00:40.400 and Research at Chandigarh, India.

NOTE Confidence: 0.936654842666667

00:00:40.400 --> 00:00:44.274 Before coming to Yale in 1995,

NOTE Confidence: 0.936654842666667

00:00:44.274 --> 00:00:47.718 first as a GI pathology fellow.

NOTE Confidence: 0.936654842666667

00:00:47.720 --> 00:00:49.452 Recruited by Brian West,

NOTE Confidence: 0.936654842666667

00:00:49.452 --> 00:00:51.617 who many of you know.

NOTE Confidence: 0.936654842666667

00:00:51.620 --> 00:00:53.412 And this was only a year after

NOTE Confidence: 0.936654842666667

00:00:53.412 --> 00:00:55.451 I had joined the faculty in 1994

NOTE Confidence: 0.936654842666667

00:00:55.451 --> 00:00:57.677 as a GI and liver pathologist.

NOTE Confidence: 0.936654842666667

00:00:57.680 --> 00:00:59.549 When Dan Pat hit the scene as

NOTE Confidence: 0.936654842666667

00:00:59.549 --> 00:01:00.840 a GI pathology fellow,

NOTE Confidence: 0.936654842666667

00:01:00.840 --> 00:01:03.700 he was already a highly

NOTE Confidence: 0.936654842666667

00:01:03.700 --> 00:01:04.844 accomplished diagnostician.

NOTE Confidence: 0.936654842666667

00:01:04.850 --> 00:01:08.810 And we it was immediately recognized as a

NOTE Confidence: 0.936654842666667

00:01:08.810 --> 00:01:11.977 highly valuable asset to the department.

NOTE Confidence: 0.936654842666667

00:01:11.980 --> 00:01:15.980 He he joined the AP CP Anatomic and

NOTE Confidence: 0.936654842666667

00:01:15.980 --> 00:01:18.882 clinical pathology residency after his

NOTE Confidence: 0.936654842666667

00:01:18.882 --> 00:01:21.674 one year fellowship and that is was

NOTE Confidence: 0.936654842666667

00:01:21.674 --> 00:01:23.490 a four year residency at the time.

NOTE Confidence: 0.936654842666667

00:01:23.490 --> 00:01:26.668 However, when we had an opening on

NOTE Confidence: 0.936654842666667

00:01:26.668 --> 00:01:30.046 the GI faculty arrived sort of almost,

NOTE Confidence: 0.936654842666667

00:01:30.046 --> 00:01:30.890 you know.

NOTE Confidence: 0.936654842666667

00:01:30.890 --> 00:01:33.256 One year before he was to finish

NOTE Confidence: 0.936654842666667

00:01:33.256 --> 00:01:35.449 the CP component of his training.

NOTE Confidence: 0.936654842666667

00:01:35.450 --> 00:01:37.794 I and I think it was me convinced

NOTE Confidence: 0.936654842666667

00:01:37.794 --> 00:01:40.327 him to cut short his CP training

NOTE Confidence: 0.936654842666667

00:01:40.327 --> 00:01:41.823 to join the faculty.

NOTE Confidence: 0.936654842666667

00:01:41.830 --> 00:01:44.042 I basically begged him to do this and

NOTE Confidence: 0.936654842666667

00:01:44.042 --> 00:01:45.754 told John Morrow that chair at the

NOTE Confidence: 0.936654842666667

00:01:45.754 --> 00:01:47.676 time that this is what we needed to

NOTE Confidence: 0.936654842666667

00:01:47.676 --> 00:01:51.240 do and Dan Pat joined the faculty in 1999.

NOTE Confidence: 0.936654842666667

00:01:51.240 --> 00:01:52.652 The rest is history,

NOTE Confidence: 0.936654842666667

00:01:52.652 --> 00:01:54.770 so over the past 22 years,

NOTE Confidence: 0.936654842666667

00:01:54.770 --> 00:01:55.354 Dr.

NOTE Confidence: 0.936654842666667

00:01:55.354 --> 00:02:00.026 Jane has been and is a dynamic diagnostician.

NOTE Confidence: 0.936654842666667

00:02:00.030 --> 00:02:01.082 Outstanding educator,

NOTE Confidence: 0.936654842666667

00:02:01.082 --> 00:02:03.186 clinical researcher and thought

NOTE Confidence: 0.936654842666667

00:02:03.186 --> 00:02:06.695 leader in the field of GI and

NOTE Confidence: 0.936654842666667

00:02:06.695 --> 00:02:08.027 especially liver pathology.

NOTE Confidence: 0.936654842666667

00:02:08.030 --> 00:02:10.942 He has been a professor of pathology

NOTE Confidence: 0.936654842666667

00:02:10.942 --> 00:02:13.060 and internal medicine since 2013,

NOTE Confidence: 0.936654842666667

00:02:13.060 --> 00:02:16.074 and graciously accepted the

NOTE Confidence: 0.936654842666667

00:02:16.074 --> 00:02:18.702 directorship of both the program in

NOTE Confidence: 0.936654842666667

00:02:18.702 --> 00:02:21.400 GI Pathology and the GI pathology.

NOTE Confidence: 0.936654842666667

00:02:21.400 --> 00:02:25.010 Fellowship from me in 2000.

NOTE Confidence: 0.936654842666667

00:02:25.010 --> 00:02:25.758 In 2011,

NOTE Confidence: 0.936654842666667

00:02:25.758 --> 00:02:28.002 when I stepped back from those

NOTE Confidence: 0.936654842666667

00:02:28.002 --> 00:02:30.127 rules for a period of time.

4

NOTE Confidence: 0.936654842666667

00:02:30.130 --> 00:02:33.469 And he brought a vision and energy

NOTE Confidence: 0.936654842666667

00:02:33.469 --> 00:02:37.137 to the goals of our unit that was.

NOTE Confidence: 0.936654842666667

00:02:37.140 --> 00:02:40.038 Successful and exciting.

NOTE Confidence: 0.936654842666667

00:02:40.040 --> 00:02:42.156 With seemingly inexhaustible energy.

NOTE Confidence: 0.936654842666667

00:02:42.156 --> 00:02:44.272 Doctor Jane pursues excellence

NOTE Confidence: 0.936654842666667

00:02:44.272 --> 00:02:46.339 in all that he does,

NOTE Confidence: 0.936654842666667

00:02:46.340 --> 00:02:49.460 both in academic and administrative roles,

NOTE Confidence: 0.936654842666667

00:02:49.460 --> 00:02:51.788 to highlight some of his accomplishments.

NOTE Confidence: 0.936654842666667

00:02:51.790 --> 00:02:53.674 They include winning three

NOTE Confidence: 0.936654842666667

00:02:53.674 --> 00:02:55.558 teaching awards from Yale,

NOTE Confidence: 0.936654842666667

00:02:55.560 --> 00:02:57.300 2 from pathology residents,

NOTE Confidence: 0.936654842666667

00:02:57.300 --> 00:03:00.620 and one from the clinical GI Fellows.

NOTE Confidence: 0.936654842666667

00:03:00.620 --> 00:03:02.425 He has been twice nominated

NOTE Confidence: 0.936654842666667

00:03:02.425 --> 00:03:04.802 for the David Leffell Award for

NOTE Confidence: 0.936654842666667

00:03:04.802 --> 00:03:06.796 Clinical Excellence very recently.

NOTE Confidence: 0.936654842666667

00:03:06.796 --> 00:03:10.247 He is well known for his diagnostic

NOTE Confidence: 0.936654842666667

00:03:10.247 --> 00:03:12.719 expertise being a go to person

NOTE Confidence: 0.936654842666667

00:03:12.719 --> 00:03:15.190 to whom to show difficult cases.

NOTE Confidence: 0.936654842666667

00:03:15.190 --> 00:03:18.100 And with respect to academic focus,

NOTE Confidence: 0.936654842666667

00:03:18.100 --> 00:03:20.158 has a love really for all things

NOTE Confidence: 0.936654842666667

00:03:20.158 --> 00:03:22.309 liver that is reflected in a body

NOTE Confidence: 0.936654842666667

00:03:22.309 --> 00:03:24.609 of work on the pathology of chronic

NOTE Confidence: 0.936654842666667

00:03:24.609 --> 00:03:26.749 liver diseases and tumors and

NOTE Confidence: 0.936654842666667

00:03:26.749 --> 00:03:28.461 especially on liver fibrosis,

NOTE Confidence: 0.936654842666667

00:03:28.470 --> 00:03:31.470 about which we will hear today.

NOTE Confidence: 0.936654842666667

00:03:31.470 --> 00:03:34.014 But in addition to this focus on liver,

NOTE Confidence: 0.936654842666667

00:03:34.020 --> 00:03:35.830 for which he's widely known,

NOTE Confidence: 0.936654842666667

00:03:35.830 --> 00:03:37.900 Dan Pat is that rare breed.

NOTE Confidence: 0.892852338947369

00:03:37.900 --> 00:03:40.480 Almost a throwback throwback to an

NOTE Confidence: 0.892852338947369

00:03:40.480 --> 00:03:43.632 earlier era in that he maintains his

NOTE Confidence: 0.892852338947369

00:03:43.632 --> 00:03:46.338 curiosity about all aspects of GI,

NOTE Confidence: 0.892852338947369

00:03:46.340 --> 00:03:49.292 medicine and pathology such that his

NOTE Confidence: 0.892852338947369

00:03:49.292 --> 00:03:52.290 publications and lectures span the entire

NOTE Confidence: 0.892852338947369

00:03:52.290 --> 00:03:54.675 breadth of inflammatory and neoplastic

NOTE Confidence: 0.892852338947369

00:03:54.675 --> 00:03:57.358 diseases of the entire GI tract.

NOTE Confidence: 0.892852338947369

00:03:57.360 --> 00:04:00.010 He is also widely successful

NOTE Confidence: 0.892852338947369

00:04:00.010 --> 00:04:01.600 collaborator with preeminent

NOTE Confidence: 0.892852338947369

00:04:01.600 --> 00:04:03.938 scientists at Yale and beyond.

NOTE Confidence: 0.892852338947369

00:04:03.940 --> 00:04:07.027 And he has taken on the organization

NOTE Confidence: 0.892852338947369

00:04:07.027 --> 00:04:08.859 and senior editorial duties

NOTE Confidence: 0.892852338947369

00:04:08.859 --> 00:04:10.989 of two major GI textbooks.

NOTE Confidence: 0.892852338947369

00:04:10.990 --> 00:04:13.000 As a recognized key opinion

NOTE Confidence: 0.892852338947369

00:04:13.000 --> 00:04:14.608 leader in liver pathology,

NOTE Confidence: 0.892852338947369

00:04:14.610 --> 00:04:16.997 Dr Jane has been an invited speaker

NOTE Confidence: 0.892852338947369

00:04:16.997 --> 00:04:19.276 in most continents and is soon to

NOTE Confidence: 0.892852338947369

00:04:19.276 --> 00:04:21.058 become the President of the Hans

NOTE Confidence: 0.892852338947369

00:04:21.123 --> 00:04:23.207 Proper Hepatic Pathology Society,

NOTE Confidence: 0.892852338947369

00:04:23.210 --> 00:04:25.744 as well as serving on the national

NOTE Confidence: 0.892852338947369

00:04:25.744 --> 00:04:27.306 newly formed National Accreditation

NOTE Confidence: 0.892852338947369

00:04:27.306 --> 00:04:29.748 Program for Rectal Cancer and serving

NOTE Confidence: 0.892852338947369

00:04:29.748 --> 00:04:32.618 as a member of the Cancer Committee

NOTE Confidence: 0.892852338947369

00:04:32.618 --> 00:04:34.982 of the College of American Pathology.

NOTE Confidence: 0.892852338947369

00:04:34.990 --> 00:04:37.496 He's also on the editorial Board of

NOTE Confidence: 0.892852338947369

00:04:37.496 --> 00:04:39.795 Human Pathology and numerous other

NOTE Confidence: 0.892852338947369

00:04:39.795 --> 00:04:42.099 prestigious pathology cancer journals.

NOTE Confidence: 0.892852338947369

00:04:42.100 --> 00:04:44.278 But just so you don't think he is all

NOTE Confidence: 0.892852338947369

00:04:44.278 --> 00:04:46.379 work and no play on a personal note,

NOTE Confidence: 0.892852338947369

00:04:46.380 --> 00:04:49.670 Dan Pat is also known for his

NOTE Confidence: 0.892852338947369

00:04:49.670 --> 00:04:54.290 sometimes sharp sense of humor.

NOTE Confidence: 0.892852338947369

00:04:54.290 --> 00:04:58.270 His many fun parties.

NOTE Confidence: 0.892852338947369

00:04:58.270 --> 00:05:01.440 And he's an excellent cook,

NOTE Confidence: 0.892852338947369

00:05:01.440 --> 00:05:03.744 and one of his hidden talents is painting,

NOTE Confidence: 0.892852338947369

00:05:03.750 --> 00:05:05.367 and I've had the privilege of seeing

NOTE Confidence: 0.892852338947369

00:05:05.367 --> 00:05:07.117 some of his works over the years.

NOTE Confidence: 0.927773357142857

00:05:09.420 --> 00:05:11.079 In addition to all of this though,

NOTE Confidence: 0.927773357142857

00:05:11.080 --> 00:05:13.636 Dan Pat has been a reliable,

NOTE Confidence: 0.927773357142857

00:05:13.640 --> 00:05:15.844 available and extremely hardworking

NOTE Confidence: 0.927773357142857

00:05:15.844 --> 00:05:19.910 colleague of mine for almost 3 decades.

NOTE Confidence: 0.927773357142857

00:05:19.910 --> 00:05:23.198 And in many ways we have grown up

NOTE Confidence: 0.927773357142857

00:05:23.198 --> 00:05:25.344 together establishing our careers and

NOTE Confidence: 0.927773357142857

00:05:25.344 --> 00:05:27.834 raising children at the same time.

NOTE Confidence: 0.927773357142857

00:05:27.840 --> 00:05:31.354 And for that I am very grateful.

NOTE Confidence: 0.927773357142857

00:05:31.360 --> 00:05:32.944 So without further ado,

NOTE Confidence: 0.927773357142857

00:05:32.944 --> 00:05:36.148 I now give you doctor Dhanpat Jain who

NOTE Confidence: 0.927773357142857

00:05:36.148 --> 00:05:39.140 will speak to us today on liver fibrosis,

NOTE Confidence: 0.927773357142857

00:05:39.140 --> 00:05:40.948 past, present and future.

NOTE Confidence: 0.816753604

00:05:42.630 --> 00:05:45.538 Thank you Maria for that really

NOTE Confidence: 0.816753604

00:05:45.538 --> 00:05:47.970 nice and elaborate introduction

NOTE Confidence: 0.816753604

00:05:47.970 --> 00:05:51.010 and the very kind remarks.

NOTE Confidence: 0.816753604

00:05:51.010 --> 00:05:53.224 It's been really a great honor

NOTE Confidence: 0.816753604

00:05:53.224 --> 00:05:55.489 and privilege to work with this.

NOTE Confidence: 0.816753604

00:05:55.490 --> 00:05:58.073 GI team here worked with you and

NOTE Confidence: 0.816753604

00:05:58.073 --> 00:06:00.845 and you know be a leader for the

NOTE Confidence: 0.816753604

00:06:00.845 --> 00:06:04.912 team of four past many years.

NOTE Confidence: 0.816753604

00:06:04.912 --> 00:06:08.164 And I also knew when I took up

NOTE Confidence: 0.816753604

00:06:08.164 --> 00:06:09.864 the leadership from you that

NOTE Confidence: 0.816753604

00:06:09.864 --> 00:06:12.108 you know this is something that

NOTE Confidence: 0.816753604

00:06:12.108 --> 00:06:14.478 is going to be challenging and

NOTE Confidence: 0.816753604

00:06:14.478 --> 00:06:16.650 and it was going to be hard.

NOTE Confidence: 0.816753604

00:06:16.650 --> 00:06:20.862 But having great colleagues and very

NOTE Confidence: 0.816753604

00:06:20.862 --> 00:06:25.188 talented team members made it all easy.

NOTE Confidence: 0.816753604

00:06:25.190 --> 00:06:27.818 And today when I look back,

NOTE Confidence: 0.816753604

00:06:27.820 --> 00:06:30.571 I feel this was one of the nicest

NOTE Confidence: 0.816753604

00:06:30.571 --> 00:06:33.459 things or fun thing that I was able

NOTE Confidence: 0.816753604

00:06:33.459 --> 00:06:36.624 to accomplish in my career so far so.

NOTE Confidence: 0.816753604

00:06:36.630 --> 00:06:39.800 With that I will start going

NOTE Confidence: 0.816753604

00:06:39.800 --> 00:06:41.300 into today's talk,

NOTE Confidence: 0.816753604

00:06:41.300 --> 00:06:45.370 which is about liver fibrosis and.

NOTE Confidence: 0.90321868

00:06:48.480 --> 00:06:52.456 OK, so today I'm going to talk about

NOTE Confidence: 0.90321868

00:06:52.460 --> 00:06:55.156 why if I process is so important in

NOTE Confidence: 0.90321868

00:06:55.156 --> 00:06:57.649 liver diseases and what are the best

NOTE Confidence: 0.90321868

00:06:57.649 --> 00:07:00.011 methods to assess the fibrosis with

NOTE Confidence: 0.90321868

00:07:00.011 --> 00:07:02.546 some historical perspective impact of

NOTE Confidence: 0.90321868

00:07:02.546 --> 00:07:04.836 various different etiologies on how

NOTE Confidence: 0.90321868

00:07:04.836 --> 00:07:07.660 we assess fibrosis in liver and the

NOTE Confidence: 0.90321868

00:07:07.660 --> 00:07:09.660 various methods of fibrous evaluation.

NOTE Confidence: 0.90321868

00:07:09.660 --> 00:07:11.700 Uh, we talked briefly about the

NOTE Confidence: 0.90321868

00:07:11.700 --> 00:07:13.565 end stage fibrosis or cirrhosis

NOTE Confidence: 0.90321868

00:07:13.565 --> 00:07:15.755 and assessment of its severity,

NOTE Confidence: 0.90321868

00:07:15.760 --> 00:07:18.959 and then also briefly talk about the

NOTE Confidence: 0.90321868

00:07:18.959 --> 00:07:21.980 progression of fibrosis and how do we

NOTE Confidence: 0.90321868

00:07:21.980 --> 00:07:24.246 assess regression in liver and towards

NOTE Confidence: 0.90321868

00:07:24.246 --> 00:07:28.138 the end I will touch upon some of the

NOTE Confidence: 0.90321868

00:07:28.138 --> 00:07:31.024 evolving technologies that are going to

NOTE Confidence: 0.90321868

00:07:31.024 --> 00:07:34.739 shape how the liver biopsy is might be.

NOTE Confidence: 0.90321868

00:07:34.740 --> 00:07:36.480 Perceived in future and what kind

NOTE Confidence: 0.90321868

00:07:36.480 --> 00:07:39.550 of role they will play in the future

NOTE Confidence: 0.90321868

00:07:39.550 --> 00:07:43.070 of hepatology and liver pathology.

NOTE Confidence: 0.90321868

00:07:43.070 --> 00:07:45.940 So the first thing is so why

NOTE Confidence: 0.90321868

00:07:45.940 --> 00:07:47.170 fibrosis so important?

NOTE Confidence: 0.90321868

00:07:47.170 --> 00:07:48.052 Liver right?

NOTE Confidence: 0.90321868

00:07:48.052 --> 00:07:49.816 Fibrosis occurs in virtually

NOTE Confidence: 0.90321868

00:07:49.816 --> 00:07:52.070 every tissue in every organ,

NOTE Confidence: 0.90321868

00:07:52.070 --> 00:07:55.046 but it is very very critical in terms

NOTE Confidence: 0.90321868

00:07:55.046 --> 00:07:57.729 of various chronic disorders in the

NOTE Confidence: 0.90321868

00:07:57.730 --> 00:08:02.058 liver and that is for a few reasons.

NOTE Confidence: 0.90321868

00:08:02.060 --> 00:08:04.531 I know that in the audience there

NOTE Confidence: 0.90321868

00:08:04.531 --> 00:08:06.976 are many people who are not aware

NOTE Confidence: 0.90321868

00:08:06.976 --> 00:08:08.942 of the nuances of liver Histology

NOTE Confidence: 0.90321868

00:08:08.942 --> 00:08:09.908 and liver diseases,

NOTE Confidence: 0.90321868

00:08:09.908 --> 00:08:12.739 so I will go over some of the very

NOTE Confidence: 0.90321868

00:08:12.739 --> 00:08:15.120 basics just to make sure that everybody

NOTE Confidence: 0.90321868

00:08:15.120 --> 00:08:18.448 understands some of the issues that

NOTE Confidence: 0.90321868

00:08:18.448 --> 00:08:20.440 I'm going to discuss about and some of

NOTE Confidence: 0.90321868

00:08:20.494 --> 00:08:22.336 the nuances of the liberal pathology.

NOTE Confidence: 0.90321868

00:08:22.340 --> 00:08:27.034 So here there's a Histology of normal

NOTE Confidence: 0.90321868

00:08:27.034 --> 00:08:29.938 liver which highlights couple few of

NOTE Confidence: 0.90321868

00:08:29.938 --> 00:08:32.508 the normal structures that are very.

NOTE Confidence: 0.90321868

00:08:32.510 --> 00:08:34.510 Critical in terms of understanding

NOTE Confidence: 0.90321868

13

00:08:34.510 --> 00:08:36.110 the pathophysiology of liberty

NOTE Confidence: 0.90321868

00:08:36.110 --> 00:08:38.160 says here you can see the central

NOTE Confidence: 0.90321868

00:08:38.160 --> 00:08:40.600 vein and the portal tracks at the

NOTE Confidence: 0.90321868

00:08:40.600 --> 00:08:42.925 corner of this imaginary hexagon,

NOTE Confidence: 0.90321868

00:08:42.930 --> 00:08:45.882 which is the functional unit of

NOTE Confidence: 0.90321868

00:08:45.882 --> 00:08:48.985 the liver and one of the key

NOTE Confidence: 0.90321868

00:08:48.985 --> 00:08:51.100 things to understand is that.

NOTE Confidence: 0.90321868

00:08:51.100 --> 00:08:53.782 Does blood supply of the liver

NOTE Confidence: 0.90321868

00:08:53.782 --> 00:08:55.954 comes through two major channels?

NOTE Confidence: 0.90321868

00:08:55.954 --> 00:08:58.258 The portal venous system and the

NOTE Confidence: 0.90321868

00:08:58.258 --> 00:09:00.524 hepatic artery which have the terminal

NOTE Confidence: 0.90321868

00:09:00.524 --> 00:09:02.635 branches in the portal track and

NOTE Confidence: 0.90321868

00:09:02.635 --> 00:09:04.410 these empty they're plugged into

NOTE Confidence: 0.90321868

00:09:04.410 --> 00:09:06.936 the hepatic sinus is where it goes

NOTE Confidence: 0.90321868

00:09:06.936 --> 00:09:08.676 through the entire liver lobule

NOTE Confidence: 0.90321868

00:09:08.676 --> 00:09:10.834 to finally reach the hepatic vein

14

NOTE Confidence: 0.90321868

00:09:10.834 --> 00:09:12.922 mills videos or the central vein,

NOTE Confidence: 0.90321868

00:09:12.930 --> 00:09:14.988 and then is drained through their padded

NOTE Confidence: 0.90321868

00:09:14.988 --> 00:09:16.938 veins into the inferior vena cava,

NOTE Confidence: 0.90321868

00:09:16.940 --> 00:09:19.418 and it is very critical that this

NOTE Confidence: 0.90321868

00:09:19.418 --> 00:09:21.670 blood flow occurs in this fashion.

NOTE Confidence: 0.90321868

00:09:21.670 --> 00:09:25.240 Any change in the hepatic blood

NOTE Confidence: 0.90321868

00:09:25.240 --> 00:09:27.601 flow can have severe.

NOTE Confidence: 0.90321868

00:09:27.601 --> 00:09:29.949 A functional derangements which

NOTE Confidence: 0.90321868

00:09:29.949 --> 00:09:33.250 are difficult to see just through

NOTE Confidence: 0.90321868

00:09:33.250 --> 00:09:35.820 normal routine Histology and and.

NOTE Confidence: 0.867075903333333

00:09:38.160 --> 00:09:41.460 This is illustrated here that has

NOTE Confidence: 0.867075903333333

00:09:41.460 --> 00:09:44.540 chronic liver disease progress.

NOTE Confidence: 0.867075903333333

00:09:44.540 --> 00:09:47.270 Liver that is injured is gradually

NOTE Confidence: 0.867075903333333

00:09:47.270 --> 00:09:50.169 replaced by fibrosis and this fibrosis

NOTE Confidence: 0.867075903333333

00:09:50.170 --> 00:09:52.486 takes place in a certain fashion

NOTE Confidence: 0.867075903333333

00:09:52.486 --> 00:09:55.220 and this depends on the etiologies.

NOTE Confidence: 0.867075903333333

00:09:55.220 --> 00:09:58.111 Here is depicted what happens typically in

NOTE Confidence: 0.867075903333333

00:09:58.111 --> 00:10:00.570 chronic hepatic disorders where the fibrosis

NOTE Confidence: 0.867075903333333

00:10:00.570 --> 00:10:02.880 typically starts from the pole tracks.

NOTE Confidence: 0.867075903333333

00:10:02.880 --> 00:10:04.921 These are the full tracks, the central veins,

NOTE Confidence: 0.867075903333333

00:10:04.921 --> 00:10:07.363 the fibrosis from the portal tracks

NOTE Confidence: 0.867075903333333

00:10:07.363 --> 00:10:09.736 extends into the lobular parent Kima,

NOTE Confidence: 0.867075903333333

00:10:09.740 --> 00:10:11.828 forming this kind of thin scepter

NOTE Confidence: 0.867075903333333

00:10:11.828 --> 00:10:13.220 which eventually formed bridges

NOTE Confidence: 0.867075903333333

00:10:13.278 --> 00:10:14.938 between portal tracks and then.

NOTE Confidence: 0.867075903333333

00:10:14.940 --> 00:10:17.135 From these bridges extend from

NOTE Confidence: 0.867075903333333

00:10:17.135 --> 00:10:19.330 pole tracks to Poltrack score.

NOTE Confidence: 0.867075903333333

00:10:19.330 --> 00:10:20.413 Tractor central vein.

NOTE Confidence: 0.867075903333333

00:10:20.413 --> 00:10:23.502 What we refer to as the bridging fibrosis

NOTE Confidence: 0.867075903333333

00:10:23.502 --> 00:10:26.430 and eventually this progresses to forming.

NOTE Confidence: 0.867075903333333

00:10:26.430 --> 00:10:29.090 This kind of hepatic nodules.

NOTE Confidence: 0.867075903333333

00:10:29.090 --> 00:10:32.048 Just surrounded this by 5 perceptor.

NOTE Confidence: 0.867075903333333

00:10:32.050 --> 00:10:33.658 Now. In this regard,

NOTE Confidence: 0.867075903333333

00:10:33.658 --> 00:10:36.070 it is very important to understand

NOTE Confidence: 0.867075903333333

00:10:36.153 --> 00:10:38.788 that while five processes occurring,

NOTE Confidence: 0.867075903333333

00:10:38.790 --> 00:10:40.310 there's certain loss of hepatic

NOTE Confidence: 0.867075903333333

00:10:40.310 --> 00:10:41.526 current time as well.

NOTE Confidence: 0.867075903333333

00:10:41.530 --> 00:10:43.498 But the functional derangement

NOTE Confidence: 0.867075903333333

00:10:43.498 --> 00:10:45.958 that occurs in this setting.

NOTE Confidence: 0.867075903333333

00:10:45.960 --> 00:10:48.948 Is far more than the quantitative

NOTE Confidence: 0.867075903333333

00:10:48.948 --> 00:10:50.940 loss of hepatic parenchyma.

NOTE Confidence: 0.867075903333333

00:10:50.940 --> 00:10:53.240 And why is that so?

NOTE Confidence: 0.867075903333333

00:10:53.240 --> 00:10:55.767 If one looks at a cirrhotic liver,

NOTE Confidence: 0.867075903333333

00:10:55.770 --> 00:10:56.870 the cross is shown here.

NOTE Confidence: 0.867075903333333

00:10:56.870 --> 00:10:59.600 It's a diffuse process, but.

NOTE Confidence: 0.867075903333333

00:10:59.600 --> 00:11:01.480 If you look at the amount of hepatic

NOTE Confidence: 0.867075903333333

00:11:01.480 --> 00:11:03.526 parent comma, there is still present.

00:11:03.526 --> 00:11:04.708 It is substantial.

00:11:04.710 --> 00:11:05.228 In fact,

00:11:05.228 --> 00:11:07.300 most of us know that you need only

00:11:07.367 --> 00:11:11.006 about 20% of the liver to sustain life.

00:11:11.010 --> 00:11:12.950 But once you develop cirrhosis,

00:11:12.950 --> 00:11:15.114 actually the functional derangements

00:11:15.114 --> 00:11:19.580 are much more severe and far

00:11:19.580 --> 00:11:22.256 more than what just the loss

00:11:22.256 --> 00:11:24.086 of parent comma can explain.

00:11:24.090 --> 00:11:25.710 And what is happening is that

00:11:25.710 --> 00:11:27.181 once this fibrosis is developing

00:11:27.181 --> 00:11:28.856 and one can see installing,

00:11:28.860 --> 00:11:30.984 these are the regenerative nodules of

00:11:30.984 --> 00:11:33.146 hepatocytes in a static current level

00:11:33.146 --> 00:11:36.760 which are separated by this receptor.

NOTE Confidence: 0.867075903333333

00:11:36.760 --> 00:11:39.805 So blood supply and blood flow changes,

NOTE Confidence: 0.867075903333333

00:11:39.810 --> 00:11:42.400 and as you can see here in this area,

NOTE Confidence: 0.867075903333333

00:11:42.400 --> 00:11:44.880 the blood flow which was taking place from

NOTE Confidence: 0.867075903333333

00:11:44.880 --> 00:11:47.406 the pole tracks towards the central way.

NOTE Confidence: 0.867075903333333

00:11:47.410 --> 00:11:49.455 Actually because of this fibrosis

NOTE Confidence: 0.867075903333333

00:11:49.455 --> 00:11:51.500 and formation 5 receptor is

NOTE Confidence: 0.867075903333333

00:11:51.569 --> 00:11:53.379 all diverted in the septum.

NOTE Confidence: 0.867075903333333

00:11:53.380 --> 00:11:56.278 Where most of the blood bypasses,

NOTE Confidence: 0.867075903333333

00:11:56.280 --> 00:11:59.431 the hepatic burn came out the lobby and

NOTE Confidence: 0.867075903333333

00:11:59.431 --> 00:12:02.868 now goes directly into the venous system,

NOTE Confidence: 0.867075903333333

00:12:02.870 --> 00:12:07.000 and this change in hemodynamics has severe.

NOTE Confidence: 0.880003628571429

00:12:09.930 --> 00:12:12.597 Impact on the function of the liver.

NOTE Confidence: 0.880003628571429

00:12:12.600 --> 00:12:14.567 This is shown here in three dimensions,

NOTE Confidence: 0.880003628571429

00:12:14.570 --> 00:12:18.147 where each of the cirrhotic nodules now

NOTE Confidence: 0.880003628571429

00:12:18.147 --> 00:12:21.525 has this vascular shunting of blood which

NOTE Confidence: 0.880003628571429

19

00:12:21.525 --> 00:12:25.280 is bypassing most of the nodule and going

NOTE Confidence: 0.880003628571429

00:12:25.280 --> 00:12:28.248 to the periphery and through this fibrous

NOTE Confidence: 0.880003628571429

00:12:28.248 --> 00:12:30.684 SEPTA into the hepatic venous system.

NOTE Confidence: 0.880003628571429

00:12:30.690 --> 00:12:33.418 So this functional aspect of the liver is

NOTE Confidence: 0.880003628571429

00:12:33.418 --> 00:12:36.187 difficult to assess on our routine Histology.

NOTE Confidence: 0.880003628571429

00:12:36.190 --> 00:12:38.956 What we assess is the fibrosis.

NOTE Confidence: 0.880003628571429

00:12:38.960 --> 00:12:41.780 And fibrosis in some sense,

NOTE Confidence: 0.880003628571429

00:12:41.780 --> 00:12:44.240 is the surrogate mass surrogate measure

NOTE Confidence: 0.880003628571429

00:12:44.240 --> 00:12:46.227 of this functional derangement that

NOTE Confidence: 0.880003628571429

00:12:46.227 --> 00:12:48.236 is occurring in the liver because of

NOTE Confidence: 0.880003628571429

00:12:48.236 --> 00:12:50.510 all the chronic disease progression.

NOTE Confidence: 0.880003628571429

00:12:50.510 --> 00:12:53.430 And this has been shown where back that

NOTE Confidence: 0.880003628571429

00:12:53.430 --> 00:12:56.469 as the fibrosis in liver increases,

NOTE Confidence: 0.880003628571429

00:12:56.470 --> 00:13:01.237 the portal pressures increase and the liver.

NOTE Confidence: 0.880003628571429

00:13:01.240 --> 00:13:03.830 Goes progressively from nofi process.

NOTE Confidence: 0.880003628571429

00:13:03.830 --> 00:13:07.890 Too early fibrosis and sources.

NOTE Confidence: 0.880003628571429

00:13:07.890 --> 00:13:12.126 Uhm, this was also shown that as you know,

NOTE Confidence: 0.880003628571429

00:13:12.126 --> 00:13:14.670 the fibrosis increase in the liver.

NOTE Confidence: 0.880003628571429

00:13:14.670 --> 00:13:16.920 There is increased in wedged hepatic

NOTE Confidence: 0.880003628571429

00:13:16.920 --> 00:13:19.245 venous pressure which is indirect measure

NOTE Confidence: 0.880003628571429

00:13:19.245 --> 00:13:21.958 of the portal. Pressure and and the.

NOTE Confidence: 0.9057800875

00:13:24.010 --> 00:13:26.770 This has been shown by many other workers.

NOTE Confidence: 0.9057800875

00:13:26.770 --> 00:13:29.310 That portal pressures are critical

NOTE Confidence: 0.9057800875

00:13:29.310 --> 00:13:31.342 in predicting the prognosis.

NOTE Confidence: 0.9057800875

00:13:31.350 --> 00:13:34.536 Oliver, so that's why the fibrosis

NOTE Confidence: 0.9057800875

00:13:34.536 --> 00:13:38.429 in liver is very critical and for

NOTE Confidence: 0.9057800875

00:13:38.430 --> 00:13:40.430 virtually all chronic liver diseases.

NOTE Confidence: 0.9057800875

00:13:40.430 --> 00:13:42.510 This is probably the most

NOTE Confidence: 0.9057800875

00:13:42.510 --> 00:13:43.758 important prognostic parameter

NOTE Confidence: 0.9057800875

00:13:43.758 --> 00:13:45.170 is irrespective etiology.

NOTE Confidence: 0.9057800875

00:13:45.170 --> 00:13:46.905 Certainly it is very important

NOTE Confidence: 0.9057800875

00:13:46.905 --> 00:13:49.060 for viral not only hepatitis B

NOTE Confidence: 0.9057800875

00:13:49.060 --> 00:13:50.825 repeat DSS and metabolic diseases,

NOTE Confidence: 0.9057800875

00:13:50.830 --> 00:13:53.206 including Nash or alcoholic liver disease,

NOTE Confidence: 0.9057800875

00:13:53.210 --> 00:13:55.310 but even for vascular disorders.

NOTE Confidence: 0.9057800875

00:13:55.310 --> 00:13:56.162 We're made,

NOTE Confidence: 0.9057800875

00:13:56.162 --> 00:13:57.866 I'm sure portal hypertension

NOTE Confidence: 0.9057800875

00:13:57.866 --> 00:13:59.981 even without five process once

NOTE Confidence: 0.9057800875

00:13:59.981 --> 00:14:01.670 fibrosis sets in the disease

NOTE Confidence: 0.9057800875

00:14:01.670 --> 00:14:03.010 progresses even more rapidly.

NOTE Confidence: 0.829981044375

00:14:05.300 --> 00:14:07.128 And as I explained.

NOTE Confidence: 0.829981044375

00:14:07.128 --> 00:14:09.870 Development of fibrosis or this car

NOTE Confidence: 0.829981044375

00:14:09.959 --> 00:14:13.619 certainly represents loss of hepatic friend,

NOTE Confidence: 0.829981044375

00:14:13.620 --> 00:14:17.246 comma or functional reserve of the liver.

NOTE Confidence: 0.829981044375

00:14:17.250 --> 00:14:20.232 But impact is far more because of

NOTE Confidence: 0.829981044375

00:14:20.232 --> 00:14:22.693 the vascular shunting and hemodynamic

NOTE Confidence: 0.829981044375

00:14:22.693 --> 00:14:25.458 alterations that are taking place.

NOTE Confidence: 0.829981044375

00:14:25.460 --> 00:14:27.924 And this is sort of depicted in the

NOTE Confidence: 0.829981044375

00:14:27.924 --> 00:14:30.168 various staging system that were developed

NOTE Confidence: 0.829981044375

00:14:30.170 --> 00:14:32.880 for assessing fibrosis in liver.

NOTE Confidence: 0.829981044375

00:14:32.880 --> 00:14:36.220 This is for chronic hepatitis,

NOTE Confidence: 0.829981044375

00:14:36.220 --> 00:14:38.439 where as I mentioned earlier the fibrosis

NOTE Confidence: 0.829981044375

00:14:38.439 --> 00:14:40.400 starts from pole tracks extending

NOTE Confidence: 0.829981044375

00:14:40.400 --> 00:14:42.296 into periportal hepatic parenchyma.

NOTE Confidence: 0.829981044375

00:14:42.300 --> 00:14:44.772 And then forming bridges and finally

NOTE Confidence: 0.829981044375

00:14:44.772 --> 00:14:47.270 cirrhosis as this fibrosis progressing,

NOTE Confidence: 0.829981044375

00:14:47.270 --> 00:14:50.186 the portal pressures are also increasing

NOTE Confidence: 0.829981044375

00:14:50.186 --> 00:14:53.153 and at certain stage of the stage

NOTE Confidence: 0.829981044375

00:14:53.153 --> 00:14:56.530 three late stage three or stage four

NOTE Confidence: 0.829981044375

00:14:56.530 --> 00:14:58.650 you develop portal hypertension.

NOTE Confidence: 0.829981044375

00:14:58.650 --> 00:15:00.000 Now this pattern of fibrosis.

NOTE Confidence: 0.829981044375

00:15:00.000 --> 00:15:02.808 This is depicted here for chronic

NOTE Confidence: 0.829981044375

00:15:02.808 --> 00:15:05.010 hepatitis varies from disease to disease.

NOTE Confidence: 0.829981044375

00:15:05.010 --> 00:15:05.650 For example,

NOTE Confidence: 0.829981044375

00:15:05.650 --> 00:15:07.890 if we talk about Billy disorders like

NOTE Confidence: 0.829981044375

00:15:07.890 --> 00:15:11.520 primary skills in college, ID's or.

NOTE Confidence: 0.829981044375

00:15:11.520 --> 00:15:15.548 Primary period cholangitis So if I

NOTE Confidence: 0.829981044375

00:15:15.548 --> 00:15:17.228 process starts predominantly from the

NOTE Confidence: 0.829981044375

00:15:17.228 --> 00:15:19.620 portal tracks and then forms portal portal,

NOTE Confidence: 0.829981044375

00:15:19.620 --> 00:15:22.005 bridging scepter and progresses to

NOTE Confidence: 0.829981044375

00:15:22.005 --> 00:15:24.962 cirrhosis whereas in Nash or or

NOTE Confidence: 0.829981044375

00:15:24.962 --> 00:15:27.280 alcoholic liver disease the fibrosis

NOTE Confidence: 0.829981044375

00:15:27.280 --> 00:15:29.800 tends to prefer the precentral regions

NOTE Confidence: 0.829981044375

00:15:29.800 --> 00:15:32.789 in the early stages and that's why.

NOTE Confidence: 0.876431258823529

00:15:35.370 --> 00:15:37.482 You know many different staging system

NOTE Confidence: 0.876431258823529

00:15:37.482 --> 00:15:39.729 for this fibrosis have been developed

NOTE Confidence: 0.876431258823529

00:15:39.729 --> 00:15:41.669 which are more disease specific.

NOTE Confidence: 0.876431258823529

00:15:41.670 --> 00:15:44.364 There are many staging systems available

NOTE Confidence: 0.876431258823529

00:15:44.364 --> 00:15:47.310 for chronic hepatitis that are listed here.

NOTE Confidence: 0.876431258823529

00:15:47.310 --> 00:15:49.282 Similarly, they are staging

NOTE Confidence: 0.876431258823529

00:15:49.282 --> 00:15:51.254 systems for beauty diseases.

NOTE Confidence: 0.876431258823529

00:15:51.260 --> 00:15:53.100 For non alcoholic steatohepatitis.

NOTE Confidence: 0.876431258823529

00:15:53.100 --> 00:15:55.400 And even for alcoholic disease,

NOTE Confidence: 0.876431258823529

00:15:55.400 --> 00:15:57.542 which many people are not familiar

NOTE Confidence: 0.876431258823529

00:15:57.542 --> 00:15:59.676 with because the staging system was

NOTE Confidence: 0.876431258823529

00:15:59.676 --> 00:16:01.232 never used in clinical practice.

NOTE Confidence: 0.876431258823529

00:16:01.232 --> 00:16:03.468 But there is a staging system or

NOTE Confidence: 0.876431258823529

00:16:03.468 --> 00:16:05.118 even for alcoholic liver disease,

NOTE Confidence: 0.876431258823529

00:16:05.120 --> 00:16:06.630 and there are staging systems

NOTE Confidence: 0.876431258823529

00:16:06.630 --> 00:16:08.140 that have been recently proposed,

NOTE Confidence: 0.876431258823529

00:16:08.140 --> 00:16:09.571 forgiven congestive hepatopathy,

NOTE Confidence: 0.876431258823529

00:16:09.571 --> 00:16:12.433 and all these staging systems take

NOTE Confidence: 0.876431258823529

00:16:12.440 --> 00:16:15.320 various nuances of the specific disease

NOTE Confidence: 0.876431258823529

00:16:15.320 --> 00:16:18.482 entity and how the fibrosis progresses

NOTE Confidence: 0.876431258823529

00:16:18.482 --> 00:16:21.788 in this disease entity to account

NOTE Confidence: 0.876431258823529

00:16:21.788 --> 00:16:24.258 for the differences among themselves.

NOTE Confidence: 0.876431258823529

00:16:24.260 --> 00:16:27.860 So. Uhm?

NOTE Confidence: 0.876431258823529

00:16:27.860 --> 00:16:30.596 What this does is that now we have multiple

NOTE Confidence: 0.876431258823529

00:16:30.596 --> 00:16:32.740 different systems for assessing fibrosis,

NOTE Confidence: 0.876431258823529

00:16:32.740 --> 00:16:35.310 even from the same disorders.

NOTE Confidence: 0.876431258823529

00:16:35.310 --> 00:16:37.536 And if one looks at many

NOTE Confidence: 0.876431258823529

00:16:37.536 --> 00:16:39.020 of these staging systems,

NOTE Confidence: 0.876431258823529

00:16:39.020 --> 00:16:41.140 it is very clear that.

NOTE Confidence: 0.881971012727273

00:16:43.800 --> 00:16:46.212 While the advanced stages of all

NOTE Confidence: 0.881971012727273

00:16:46.212 --> 00:16:48.480 the systems are fairly similar,

NOTE Confidence: 0.881971012727273

00:16:48.480 --> 00:16:51.480 there are more nuances and differences in the

NOTE Confidence: 0.881971012727273

00:16:51.480 --> 00:16:53.918 earlier stages of the particular disease.

NOTE Confidence: 0.881971012727273

00:16:53.920 --> 00:16:55.876 But the practical problem remains that

NOTE Confidence: 0.881971012727273

00:16:55.876 --> 00:16:57.862 when you have multiple different systems

NOTE Confidence: 0.881971012727273

00:16:57.862 --> 00:17:00.342 to use in a clinical practice or trials,

NOTE Confidence: 0.881971012727273

00:17:00.350 --> 00:17:03.638 it becomes very difficult to compare

NOTE Confidence: 0.881971012727273

00:17:03.640 --> 00:17:07.423 reports from different places or compare

NOTE Confidence: 0.881971012727273

00:17:07.423 --> 00:17:09.688 different studies or compare clinical

NOTE Confidence: 0.881971012727273

00:17:09.688 --> 00:17:12.530 trials where people might have different

NOTE Confidence: 0.881971012727273

00:17:12.530 --> 00:17:17.250 staging systems in that particular study so.

NOTE Confidence: 0.881971012727273

00:17:17.250 --> 00:17:18.850 And while we are talking about this one,

NOTE Confidence: 0.881971012727273

00:17:18.850 --> 00:17:21.748 it was very clear that actually having

NOTE Confidence: 0.881971012727273

00:17:21.748 --> 00:17:24.183 a universal system for fibrosis in

NOTE Confidence: 0.881971012727273

00:17:24.183 --> 00:17:27.650 liver would be very, very useful.

NOTE Confidence: 0.881971012727273

00:17:27.650 --> 00:17:31.378 And we started the this work in one

NOTE Confidence: 0.881971012727273

00:17:31.378 --> 00:17:34.520 of our residents. Gabriel Lerner.

NOTE Confidence: 0.875937451818182

00:17:36.710 --> 00:17:39.246 Took on this project and I like his

NOTE Confidence: 0.875937451818182

00:17:39.246 --> 00:17:42.321 smile on the photograph here and

NOTE Confidence: 0.875937451818182

00:17:42.321 --> 00:17:47.340 this study was aimed at designing a.

NOTE Confidence: 0.875937451818182

00:17:47.340 --> 00:17:50.034 Fibrosing staging system taking key features

NOTE Confidence: 0.875937451818182

00:17:50.034 --> 00:17:53.220 from all the systems that are available.

NOTE Confidence: 0.875937451818182

00:17:53.220 --> 00:17:56.475 To make it applicable to any disease,

NOTE Confidence: 0.875937451818182

00:17:56.480 --> 00:17:58.740 irrespective etiology.

NOTE Confidence: 0.875937451818182

00:17:58.740 --> 00:18:01.236 And this is an ongoing project,

NOTE Confidence: 0.875937451818182

00:18:01.240 --> 00:18:05.176 and in this study actually we had

NOTE Confidence: 0.875937451818182

00:18:05.176 --> 00:18:07.804 one universal system which was the

NOTE Confidence: 0.875937451818182

00:18:07.804 --> 00:18:10.374 earlier draft of this staging system,

NOTE Confidence: 0.875937451818182

00:18:10.374 --> 00:18:13.536 and we applied this to many

NOTE Confidence: 0.875937451818182

00:18:13.536 --> 00:18:14.590 different disorders.

NOTE Confidence: 0.875937451818182

00:18:14.590 --> 00:18:18.384 We had the 10 cases of each.

NOTE Confidence: 0.875937451818182

00:18:18.390 --> 00:18:20.970 That is a B&C auto mean.

NOTE Confidence: 0.875937451818182

00:18:20.970 --> 00:18:22.638 Hepatitis primary schools,

NOTE Confidence: 0.875937451818182

00:18:22.638 --> 00:18:23.750 colleges, PVC,

NOTE Confidence: 0.875937451818182

00:18:23.750 --> 00:18:25.246 congestive hepatopathy,

NOTE Confidence: 0.875937451818182

00:18:25.246 --> 00:18:29.724 Nash and some cases with two two

NOTE Confidence: 0.875937451818182

00:18:29.724 --> 00:18:32.128 disorders at the same time and

NOTE Confidence: 0.875937451818182

00:18:32.128 --> 00:18:35.536 then stage these using the disease

NOTE Confidence: 0.875937451818182

00:18:35.536 --> 00:18:37.982 specific staging system and then

NOTE Confidence: 0.875937451818182

00:18:37.982 --> 00:18:40.322 using our proposed universal fibrosis

NOTE Confidence: 0.875937451818182

00:18:40.322 --> 00:18:43.018 scoring system and found that they

NOTE Confidence: 0.875937451818182

00:18:43.018 --> 00:18:46.004 function or or work almost in

NOTE Confidence: 0.875937451818182

00:18:46.004 --> 00:18:48.338 identical fashion in the initial.

NOTE Confidence: 0.875937451818182

00:18:48.338 --> 00:18:49.436 Analysis we did.

NOTE Confidence: 0.875937451818182

00:18:49.440 --> 00:18:51.729 We found only two cases where the

NOTE Confidence: 0.875937451818182

00:18:51.729 --> 00:18:53.630 staging systems gave a slightly

NOTE Confidence: 0.875937451818182

00:18:53.630 --> 00:18:54.480 different result,

NOTE Confidence: 0.875937451818182

00:18:54.480 --> 00:18:56.088 but when we looked at those

NOTE Confidence: 0.875937451818182

00:18:56.088 --> 00:18:56.892 cases more carefully,

NOTE Confidence: 0.875937451818182

00:18:56.900 --> 00:18:59.000 we realize that actually there was

NOTE Confidence: 0.875937451818182

00:18:59.000 --> 00:19:01.259 problem in our initial analysis and

NOTE Confidence: 0.875937451818182

00:19:01.259 --> 00:19:03.229 eventually there was no difference

NOTE Confidence: 0.875937451818182

00:19:03.229 --> 00:19:05.848 between how they were staged by the

NOTE Confidence: 0.875937451818182

00:19:05.848 --> 00:19:07.912 disease specific system and using our

NOTE Confidence: 0.875937451818182

00:19:07.920 --> 00:19:10.352 universal fibrosis scoring system.

NOTE Confidence: 0.875937451818182

00:19:10.352 --> 00:19:10.960 However,

NOTE Confidence: 0.875937451818182

00:19:10.960 --> 00:19:12.969 this is still a work in progress

NOTE Confidence: 0.875937451818182

00:19:12.969 --> 00:19:15.968 and we are still working with many

NOTE Confidence: 0.875937451818182

00:19:15.968 --> 00:19:18.408 different things on this project.

NOTE Confidence: 0.875937451818182

00:19:18.408 --> 00:19:20.886 And and the hopefully this will result

NOTE Confidence: 0.875937451818182

00:19:20.886 --> 00:19:23.568 in a manuscript soon and this is the

NOTE Confidence: 0.875937451818182

00:19:23.568 --> 00:19:25.710 sort of current draft that we have.

NOTE Confidence: 0.875937451818182

00:19:25.710 --> 00:19:28.580 We're hoping that this system will not

NOTE Confidence: 0.875937451818182

00:19:28.580 --> 00:19:30.970 only allow to develop an universal system,

NOTE Confidence: 0.875937451818182

00:19:30.970 --> 00:19:32.608 which is which can be used

NOTE Confidence: 0.875937451818182

00:19:32.608 --> 00:19:34.410 for a variety of disorders,

NOTE Confidence: 0.875937451818182

00:19:34.410 --> 00:19:37.500 but we'll also add certain additional

NOTE Confidence: 0.875937451818182

00:19:37.500 --> 00:19:40.614 features which will further enhance the

NOTE Confidence: 0.875937451818182

00:19:40.614 --> 00:19:43.524 staging of fibrosis in certain areas,

NOTE Confidence: 0.875937451818182

00:19:43.530 --> 00:19:45.570 particularly stage three and four,

NOTE Confidence: 0.875937451818182

00:19:45.570 --> 00:19:48.870 where subclassification of these stages can.

NOTE Confidence: 0.875937451818182

00:19:48.870 --> 00:19:49.181 Uhm,

NOTE Confidence: 0.875937451818182

00:19:49.181 --> 00:19:50.736 you know be clinically helpful

NOTE Confidence: 0.875937451818182

00:19:50.736 --> 00:19:53.213 and also get rid of some of the

NOTE Confidence: 0.875937451818182

00:19:53.213 --> 00:19:55.160 practical issues that we have in

NOTE Confidence: 0.875937451818182

00:19:55.160 --> 00:19:57.080 our routine clinical practice.

NOTE Confidence: 0.8695156925

00:19:59.970 --> 00:20:03.764 However. When we look at this whole

NOTE Confidence: 0.8695156925

00:20:03.764 --> 00:20:06.309 progression of fibrosis in liver,

NOTE Confidence: 0.8695156925

00:20:06.310 --> 00:20:08.414 as I mentioned earlier,

NOTE Confidence: 0.8695156925

00:20:08.414 --> 00:20:11.044 that increasing fibrosis in chronic

NOTE Confidence: 0.8695156925

00:20:11.044 --> 00:20:14.002 liver disorders of various etiologies

NOTE Confidence: 0.8695156925

00:20:14.002 --> 00:20:17.578 eventually leads to cirrhosis and cirrhosis.

NOTE Confidence: 0.8695156925

00:20:17.578 --> 00:20:19.648 As all of you know,

NOTE Confidence: 0.8695156925

00:20:19.650 --> 00:20:22.961 has been considered as the end stage

NOTE Confidence: 0.8695156925

00:20:22.961 --> 00:20:25.609 liver disease for many decades,

NOTE Confidence: 0.8695156925

00:20:25.610 --> 00:20:27.598 and it was thought that once you

NOTE Confidence: 0.8695156925

00:20:27.598 --> 00:20:28.876 develop cirrhosis, that's it,

NOTE Confidence: 0.8695156925

00:20:28.876 --> 00:20:32.150 and there is nothing else that can be done.

NOTE Confidence: 0.8695156925

00:20:32.150 --> 00:20:33.644 And and the.

NOTE Confidence: 0.8695156925

00:20:33.644 --> 00:20:37.976 There was no further sort of a disease

NOTE Confidence: 0.8695156925

00:20:37.976 --> 00:20:41.360 severity classification understanding of.

NOTE Confidence: 0.8695156925

00:20:41.360 --> 00:20:44.560 Process within this whole process.

NOTE Confidence: 0.8695156925

00:20:44.560 --> 00:20:45.877 However, with time,

NOTE Confidence: 0.8695156925

00:20:45.877 --> 00:20:48.072 the concept that cirrhosis may

NOTE Confidence: 0.8695156925

00:20:48.072 --> 00:20:51.027 not be just one end stage disease

NOTE Confidence: 0.8695156925

00:20:51.030 --> 00:20:55.940 started evolving and in this field.

NOTE Confidence: 0.8695156925

00:20:55.940 --> 00:20:58.370 Doctor Lupe Garcia saw who

NOTE Confidence: 0.8695156925

00:20:58.370 --> 00:21:00.800 is a very eminent liver,

NOTE Confidence: 0.8695156925

00:21:00.800 --> 00:21:02.843 hepatologist at Yale,

NOTE Confidence: 0.8695156925

00:21:02.843 --> 00:21:06.458 has been a pioneer who has really

NOTE Confidence: 0.8695156925

00:21:06.458 --> 00:21:08.939 worked in this area and came up

NOTE Confidence: 0.8695156925

00:21:08.939 --> 00:21:10.757 with this idea many years ago

NOTE Confidence: 0.8695156925

00:21:10.757 --> 00:21:13.305 to me when I was a very junior

NOTE Confidence: 0.8695156925

00:21:13.305 --> 00:21:17.588 and young faculty that you know.

NOTE Confidence: 0.8695156925

00:21:17.590 --> 00:21:19.640 We understand that the clinical

NOTE Confidence: 0.8695156925

00:21:19.640 --> 00:21:21.936 outcome of patients who have

NOTE Confidence: 0.8695156925

00:21:21.936 --> 00:21:24.068 cirrhosis are very variable,

NOTE Confidence: 0.8695156925

00:21:24.070 --> 00:21:25.730 not only between different technologies,

NOTE Confidence: 0.8695156925

00:21:25.730 --> 00:21:27.250 but within the same ideology,

NOTE Confidence: 0.8695156925

00:21:27.250 --> 00:21:29.890 so there must be different features

NOTE Confidence: 0.8695156925

00:21:29.890 --> 00:21:32.619 within the CD cirrhosis which define

NOTE Confidence: 0.8695156925

00:21:32.620 --> 00:21:35.848 something called mild and severe cirrhosis,

NOTE Confidence: 0.8695156925

00:21:35.850 --> 00:21:39.821 and her idea was if there are clinical

NOTE Confidence: 0.8695156925

00:21:39.821 --> 00:21:41.506 parameters which help us differentiate

NOTE Confidence: 0.8695156925

00:21:41.506 --> 00:21:43.149 between mild and severe process,

NOTE Confidence: 0.8695156925

00:21:43.150 --> 00:21:45.614 there must be logic features that can also

NOTE Confidence: 0.8695156925

00:21:45.614 --> 00:21:47.678 help us differentiate between this smile.

NOTE Confidence: 0.8695156925

00:21:47.678 --> 00:21:50.566 And see your form of cirrhosis and

NOTE Confidence: 0.8695156925

00:21:50.566 --> 00:21:54.332 at that time this whole concept that

NOTE Confidence: 0.8695156925

00:21:54.332 --> 00:21:57.839 cirrhosis is reversible was controversial.

NOTE Confidence: 0.8695156925

00:21:57.840 --> 00:22:00.311 But with time this has become very

NOTE Confidence: 0.8695156925

00:22:00.311 --> 00:22:02.439 clear that fibrosis can trigger

NOTE Confidence: 0.8695156925

00:22:02.439 --> 00:22:04.804 reverse and cirrhosis can reverse.

NOTE Confidence: 0.8695156925

00:22:04.810 --> 00:22:08.230 So this whole concept of understanding

NOTE Confidence: 0.8695156925

00:22:08.230 --> 00:22:12.310 mild and severe variants of cirrhosis

NOTE Confidence: 0.8695156925

00:22:12.310 --> 00:22:14.640 was critical and very important.

NOTE Confidence: 0.8695156925

00:22:14.640 --> 00:22:16.166 And I have to mention that the

NOTE Confidence: 0.696928086

00:22:18.300 --> 00:22:22.746 loopy Garcia has been a great mentor

NOTE Confidence: 0.696928086

00:22:22.746 --> 00:22:25.252 for me and and the great collaborator

NOTE Confidence: 0.696928086

00:22:25.252 --> 00:22:27.220 and friend, who has been very,

NOTE Confidence: 0.696928086

00:22:27.220 --> 00:22:28.840 very instrumental in many of the

NOTE Confidence: 0.696928086

00:22:28.901 --> 00:22:30.756 studies that I'm going to show you.

NOTE Confidence: 0.696928086

00:22:30.760 --> 00:22:33.266 And and her insight and and her

NOTE Confidence: 0.696928086

00:22:33.266 --> 00:22:35.220 guidance has been invaluable.

NOTE Confidence: 0.696928086

00:22:35.220 --> 00:22:37.152 This work would not have been done

NOTE Confidence: 0.696928086

00:22:37.152 --> 00:22:38.740 without her help and guidance.

NOTE Confidence: 0.696928086

00:22:38.740 --> 00:22:41.692 So when we were talking about how to

NOTE Confidence: 0.696928086

00:22:41.692 --> 00:22:44.670 kind of divide cirrhosis into this mild

NOTE Confidence: 0.696928086

00:22:44.670 --> 00:22:47.330 and severe form and we came up with

NOTE Confidence: 0.696928086

00:22:47.330 --> 00:22:49.295 a variety of this logic features that

NOTE Confidence: 0.696928086

00:22:49.295 --> 00:22:51.639 we could look into and and then we

NOTE Confidence: 0.696928086

00:22:51.703 --> 00:22:55.099 designed this study with one of the.

NOTE Confidence: 0.696928086

00:22:55.100 --> 00:22:56.440 Medical students at that time,

NOTE Confidence: 0.696928086

00:22:56.440 --> 00:22:57.194 Satish Gola,

NOTE Confidence: 0.696928086

00:22:57.194 --> 00:23:00.793 who then went on to become a GI fellow

NOTE Confidence: 0.696928086

00:23:00.793 --> 00:23:04.272 and and now is a a gastroenterologist

NOTE Confidence: 0.696928086

00:23:04.272 --> 00:23:07.812 practicing in Mount Sinai, NY, and.

NOTE Confidence: 0.696928086

00:23:07.812 --> 00:23:11.580 In that study we looked at.

NOTE Confidence: 0.698506957272727

00:23:13.880 --> 00:23:17.030 Liver biopsy is that had the hepatic

NOTE Confidence: 0.698506957272727

00:23:17.030 --> 00:23:19.340 venous pressure gradient measurements

NOTE Confidence: 0.698506957272727

00:23:19.340 --> 00:23:22.670 available and looked at the variety

NOTE Confidence: 0.698506957272727

00:23:22.670 --> 00:23:25.575 of histologic features that included

NOTE Confidence: 0.698506957272727

00:23:25.575 --> 00:23:28.152 everything the the presence of inflammation,

NOTE Confidence: 0.698506957272727

00:23:28.152 --> 00:23:29.472 the presence of degree of

NOTE Confidence: 0.698506957272727

00:23:29.472 --> 00:23:30.957 status is the presence of iron,

NOTE Confidence: 0.698506957272727

00:23:30.960 --> 00:23:32.020 the presence of portal tracks,

NOTE Confidence: 0.698506957272727

00:23:32.020 --> 00:23:33.720 the loss of central veins,

NOTE Confidence: 0.698506957272727

00:23:33.720 --> 00:23:35.556 and characteristic of nodules.

NOTE Confidence: 0.698506957272727

00:23:35.556 --> 00:23:39.447 The fiber scepter and try to see which of

NOTE Confidence: 0.698506957272727

00:23:39.447 --> 00:23:43.270 these correlated with the HPG measurements.

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NOTE Confidence: 0.698506957272727

00:23:43.270 --> 00:23:45.736 Which clinically has been shown to

NOTE Confidence: 0.698506957272727

00:23:45.736 --> 00:23:48.170 correlate very well with the severity

NOTE Confidence: 0.698506957272727

00:23:48.170 --> 00:23:50.939 of a liver disease and and then.

NOTE Confidence: 0.698506957272727

00:23:50.939 --> 00:23:52.268 In this regard,

NOTE Confidence: 0.698506957272727

00:23:52.270 --> 00:23:55.830 we'll talk a little more later on, but.

NOTE Confidence: 0.698506957272727

00:23:55.830 --> 00:23:59.530 Off 6 denotes portal hypertension,

NOTE Confidence: 0.698506957272727

00:23:59.530 --> 00:24:03.100 and it's been shown in studies that.

NOTE Confidence: 0.698506957272727

00:24:03.100 --> 00:24:06.664 He HPG of 10 is clinically

NOTE Confidence: 0.698506957272727

00:24:06.664 --> 00:24:08.446 significant portal hypertension,

NOTE Confidence: 0.698506957272727

00:24:08.450 --> 00:24:13.070 wherein if patients have HPV of 10

NOTE Confidence: 0.698506957272727

00:24:13.070 --> 00:24:15.575 they have significant worse outcomes

NOTE Confidence: 0.698506957272727

00:24:15.575 --> 00:24:18.697 and and chances to become so.

NOTE Confidence: 0.698506957272727

00:24:18.697 --> 00:24:23.016 In this particular study we started various.

NOTE Confidence: 0.698506957272727

00:24:23.020 --> 00:24:25.365 Use logic features and correlated

NOTE Confidence: 0.698506957272727

00:24:25.365 --> 00:24:28.054 them with the HPV measurements and

NOTE Confidence: 0.698506957272727

37

00:24:28.054 --> 00:24:30.118 after many things that we started,

NOTE Confidence: 0.698506957272727

00:24:30.120 --> 00:24:34.270 it turned out that. Uhm?

NOTE Confidence: 0.698506957272727

00:24:34.270 --> 00:24:37.084 So size of the nodules and the

NOTE Confidence: 0.698506957272727

00:24:37.084 --> 00:24:40.573 width of the scepter had the best

NOTE Confidence: 0.698506957272727

00:24:40.573 --> 00:24:43.088 correlation with the HPV measurements.

NOTE Confidence: 0.698506957272727

00:24:43.088 --> 00:24:43.956 In fact,

NOTE Confidence: 0.698506957272727

00:24:43.956 --> 00:24:47.094 most of the patients who have small

NOTE Confidence: 0.698506957272727

00:24:47.094 --> 00:24:49.794 nodules in liver biopsies or thick

NOTE Confidence: 0.698506957272727

00:24:49.794 --> 00:24:52.891 fibrous SEPTA had clinically significant

NOTE Confidence: 0.698506957272727

00:24:52.891 --> 00:24:56.459 portal hypertension, as shown here.

NOTE Confidence: 0.698506957272727

00:24:56.460 --> 00:24:59.376 And this is also shown here.

NOTE Confidence: 0.698506957272727

00:24:59.380 --> 00:25:01.276 And when we did the multivariate

NOTE Confidence: 0.698506957272727

00:25:01.276 --> 00:25:03.020 analysis of the many things,

NOTE Confidence: 0.698506957272727

00:25:03.020 --> 00:25:05.988 the nodule size and the septal thickness

NOTE Confidence: 0.698506957272727

00:25:05.988 --> 00:25:08.312 remain the only independent features

NOTE Confidence: 0.698506957272727

00:25:08.312 --> 00:25:10.942 that correlated with the clinically

NOTE Confidence: 0.698506957272727

00:25:10.942 --> 00:25:12.520 significant portal hypertension.

NOTE Confidence: 0.698506957272727

00:25:12.520 --> 00:25:13.786 So what does this mean and

NOTE Confidence: 0.698506957272727

00:25:13.786 --> 00:25:14.920 how does this look like?

NOTE Confidence: 0.698506957272727

00:25:14.920 --> 00:25:15.972 Well, on liver biopsy,

NOTE Confidence: 0.698506957272727

00:25:15.972 --> 00:25:17.902 this is what it is when you

NOTE Confidence: 0.698506957272727

00:25:17.902 --> 00:25:19.377 look at the liver biopsies,

NOTE Confidence: 0.698506957272727

00:25:19.380 --> 00:25:20.568 everybody will recognize.

NOTE Confidence: 0.698506957272727

00:25:20.568 --> 00:25:22.548 These are small nodules and

NOTE Confidence: 0.698506957272727

00:25:22.548 --> 00:25:24.670 these are large large nodules.

NOTE Confidence: 0.698506957272727

00:25:24.670 --> 00:25:26.840 So while this was obvious to us.

NOTE Confidence: 0.698506957272727

00:25:26.840 --> 00:25:27.996 While doing the study,

NOTE Confidence: 0.698506957272727

00:25:27.996 --> 00:25:30.656 and this is how we did it when we

NOTE Confidence: 0.698506957272727

00:25:30.656 --> 00:25:32.834 were trying to publish this paper,

NOTE Confidence: 0.698506957272727

00:25:32.840 --> 00:25:34.704 the reviewers asked us,

NOTE Confidence: 0.698506957272727

00:25:34.704 --> 00:25:35.636 you know.

NOTE Confidence: 0.698506957272727

00:25:35.640 --> 00:25:37.845 What does this mean in terms of

NOTE Confidence: 0.698506957272727

00:25:37.845 --> 00:25:39.690 actual size of the objects?

NOTE Confidence: 0.698506957272727

00:25:39.690 --> 00:25:44.170 So this is something we actually.

NOTE Confidence: 0.698506957272727

00:25:44.170 --> 00:25:46.072 Made rough estimates from and this

NOTE Confidence: 0.698506957272727

00:25:46.072 --> 00:25:48.338 is in fine print here that small

NOTE Confidence: 0.698506957272727

00:25:48.338 --> 00:25:50.372 nodules for us meant something which

NOTE Confidence: 0.698506957272727

00:25:50.372 --> 00:25:52.400 were less than about 1 millimeter

NOTE Confidence: 0.698506957272727

00:25:52.400 --> 00:25:54.326 in size and large nodules that

NOTE Confidence: 0.698506957272727

00:25:54.394 --> 00:25:56.476 were more than two millimeter size.

NOTE Confidence: 0.698506957272727

00:25:56.480 --> 00:25:58.776 And we took the width of needle

NOTE Confidence: 0.698506957272727

00:25:58.776 --> 00:26:01.110 biopsies which is about 1 millimeter.

NOTE Confidence: 0.698506957272727

00:26:01.110 --> 00:26:04.930 As a rough guide. And.

NOTE Confidence: 0.698506957272727

00:26:04.930 --> 00:26:06.760 Same thing for fibrous SEPTA here.

NOTE Confidence: 0.698506957272727

00:26:06.760 --> 00:26:08.260 Uh, this is a liver biopsy.

NOTE Confidence: 0.698506957272727

00:26:08.260 --> 00:26:08.966 Very big,

NOTE Confidence: 0.698506957272727

00:26:08.966 --> 00:26:11.437 very thin 5 receptor is a liver

NOTE Confidence: 0.698506957272727

00:26:11.437 --> 00:26:14.080 biopsy with very thick pipe receptor.

NOTE Confidence: 0.698506957272727

00:26:14.080 --> 00:26:17.326 Again based on our rough estimates

NOTE Confidence: 0.698506957272727

00:26:17.330 --> 00:26:19.878 set that there were less than .1

NOTE Confidence: 0.698506957272727

00:26:19.878 --> 00:26:21.914 millimeter where in the range of

NOTE Confidence: 0.698506957272727

00:26:21.914 --> 00:26:24.224 being thin scepter and those that

NOTE Confidence: 0.698506957272727

00:26:24.224 --> 00:26:26.734 were greater than .2 millimeters

NOTE Confidence: 0.698506957272727

00:26:26.734 --> 00:26:28.645 where considered acceptable and

NOTE Confidence: 0.698506957272727

00:26:28.645 --> 00:26:30.670 for the study required presence

NOTE Confidence: 0.698506957272727

00:26:30.670 --> 00:26:32.820 of more than 2/3 of the liver

NOTE Confidence: 0.698506957272727

00:26:32.820 --> 00:26:34.990 biopsy to have that feature either.

NOTE Confidence: 0.698506957272727

00:26:34.990 --> 00:26:35.415 Nodules,

NOTE Confidence: 0.698506957272727

00:26:35.415 --> 00:26:37.965 or the scepter to be considered

NOTE Confidence: 0.698506957272727

00:26:37.965 --> 00:26:39.240 predominantly acceptor or

NOTE Confidence: 0.698506957272727

00:26:39.309 --> 00:26:41.640 predominantly small notes if these

NOTE Confidence: 0.698506957272727

00:26:41.640 --> 00:26:44.136 were not fulfilled then these were

NOTE Confidence: 0.698506957272727

00:26:44.136 --> 00:26:45.962 considered mixed or intermediate.

NOTE Confidence: 0.698506957272727

00:26:45.962 --> 00:26:46.403 So.

NOTE Confidence: 0.698506957272727

00:26:46.403 --> 00:26:49.490 Why does this thing work out that

NOTE Confidence: 0.882856076

00:26:49.580 --> 00:26:52.280 the when you have small nodules

NOTE Confidence: 0.882856076

00:26:52.280 --> 00:26:54.080 or thick fibrous SEPTA,

NOTE Confidence: 0.882856076

00:26:54.080 --> 00:26:55.532 you have clinically significant

NOTE Confidence: 0.882856076

00:26:55.532 --> 00:26:56.984 portal hypertension and hence?

NOTE Confidence: 0.875379591111111

00:26:59.390 --> 00:27:02.144 So this is depicted here in a cartoon form.

NOTE Confidence: 0.875379591111111

00:27:02.150 --> 00:27:06.330 So if you can imagine a liver where you have.

NOTE Confidence: 0.875379591111111

00:27:06.330 --> 00:27:09.354 Progressive scarring shown by blue here and

NOTE Confidence: 0.875379591111111

00:27:09.354 --> 00:27:11.816 this brown represents the riscal hepatic

NOTE Confidence: 0.875379591111111

00:27:11.816 --> 00:27:14.371 comma which is broken up in nodules,

NOTE Confidence: 0.875379591111111

00:27:14.380 --> 00:27:16.588 which is what happens in cirrhosis.

NOTE Confidence: 0.875379591111111

00:27:16.590 --> 00:27:18.592 One can imagine that if this is

NOTE Confidence: 0.875379591111111

00:27:18.592 --> 00:27:20.569 happening in a very uniform way,

NOTE Confidence: 0.875379591111111

00:27:20.570 --> 00:27:24.315 all the modules will look like this.

00:27:24.320 --> 00:27:27.779 Shown here in this photograph as small

00:27:27.779 --> 00:27:30.351 nodules and here as large nodules and

00:27:30.351 --> 00:27:33.088 one can easily imagine that if all

00:27:33.088 --> 00:27:35.800 nodules were small or became smaller.

00:27:35.800 --> 00:27:37.980 The amount of hepatic turntable

00:27:37.980 --> 00:27:39.528 decrease and the distance between

00:27:39.528 --> 00:27:40.913 these nodules will also increase,

00:27:40.920 --> 00:27:43.170 which indirectly means the fibrous

00:27:43.170 --> 00:27:46.212 SEPTA which will be on the same

00:27:46.212 --> 00:27:48.156 token if the nodules are large.

00:27:48.160 --> 00:27:50.510 There's more hepatic parenchyma and

00:27:50.510 --> 00:27:52.860 less distance between adjacent nodules.

00:27:52.860 --> 00:27:55.490 However, as we all know,

00:27:55.490 --> 00:27:57.877 these are cartoons and this is a

00:27:57.877 --> 00:27:58.900 very schematic representation.

00:27:58.900 --> 00:28:00.334 In real life it doesn't happen

00:28:00.334 --> 00:28:01.590 like this in real life.

00:28:01.590 --> 00:28:03.612 What happens is something like this

00:28:03.612 --> 00:28:06.029 where the nodules are of variable size.

00:28:06.030 --> 00:28:07.174 One can have predominance

00:28:07.174 --> 00:28:08.318 of one particular type,

00:28:08.320 --> 00:28:09.844 but it's never very uniform and

00:28:09.844 --> 00:28:12.140 there's a lot of variability in how the

00:28:12.140 --> 00:28:15.420 scarring occurs in the liver, which.

00:28:15.420 --> 00:28:17.755 Makes assessment of these things

00:28:17.755 --> 00:28:19.623 in liver biopsies challenge.

00:28:19.630 --> 00:28:21.410 So.

00:28:21.410 --> 00:28:22.930 Based on our study,

00:28:22.930 --> 00:28:25.210 we had proposed that liver cirrhosis

00:28:25.283 --> 00:28:27.773 can be classified based on historic

00:28:27.773 --> 00:28:29.866 features into mild, moderate,

NOTE Confidence: 0.875379591111111

00:28:29.866 --> 00:28:34.470 severe or so called 484B and C.

NOTE Confidence: 0.875379591111111

00:28:34.470 --> 00:28:40.060 Based on the four four tiered staging system.

NOTE Confidence: 0.875379591111111

00:28:40.060 --> 00:28:42.643 Our study was very soon validated by

NOTE Confidence: 0.875379591111111

00:28:42.643 --> 00:28:45.374 another group from New Delhi or working

NOTE Confidence: 0.875379591111111

00:28:45.374 --> 00:28:47.708 on patients with chronic hepatitis B,

NOTE Confidence: 0.875379591111111

00:28:47.710 --> 00:28:49.294 and their results were

NOTE Confidence: 0.875379591111111

00:28:49.294 --> 00:28:50.878 virtually identical to ours,

NOTE Confidence: 0.875379591111111

00:28:50.880 --> 00:28:54.030 which was very satisfying to see that.

NOTE Confidence: 0.875379591111111

00:28:54.030 --> 00:28:55.526 Irrespective of whether to

NOTE Confidence: 0.875379591111111

00:28:55.526 --> 00:28:58.460 separate his B or C or alcohol,

NOTE Confidence: 0.875379591111111

00:28:58.460 --> 00:29:01.204 the nodule size and the septal width

NOTE Confidence: 0.875379591111111

00:29:01.210 --> 00:29:04.408 with predictive of severity of cirrhosis.

NOTE Confidence: 0.875379591111111

00:29:04.410 --> 00:29:06.294 Based on this study and some

NOTE Confidence: 0.875379591111111

00:29:06.294 --> 00:29:08.329 other work that I'll show later,

NOTE Confidence: 0.875379591111111

00:29:08.330 --> 00:29:10.987 we came up with a classification

NOTE Confidence: 0.875379591111111

00:29:10.987 --> 00:29:13.468 system of cirrhosis.

NOTE Confidence: 0.875379591111111

00:29:13.470 --> 00:29:16.217 Which is shown here where you

NOTE Confidence: 0.875379591111111

00:29:16.217 --> 00:29:18.659 could take any of these parameters

NOTE Confidence: 0.875379591111111

00:29:18.659 --> 00:29:21.557 and based on the presence of the

NOTE Confidence: 0.875379591111111

00:29:21.557 --> 00:29:24.350 feature you could give a score and

NOTE Confidence: 0.875379591111111

00:29:24.350 --> 00:29:28.275 then classify this as 484B or 4C

NOTE Confidence: 0.875379591111111

00:29:28.275 --> 00:29:30.450 and this had clinical correlates

NOTE Confidence: 0.875379591111111

00:29:30.450 --> 00:29:32.769 with the presence of either.

NOTE Confidence: 0.875379591111111

00:29:32.769 --> 00:29:34.701 Compensated cirrhosis or decompensate

NOTE Confidence: 0.875379591111111

00:29:34.701 --> 00:29:37.550 sources as well as portal pressures.

NOTE Confidence: 0.61359728

00:29:40.200 --> 00:29:42.900 Over a month.

NOTE Confidence: 0.61359728

00:29:42.900 --> 00:29:45.978 We realize that the while we're.

NOTE Confidence: 0.61359728

00:29:45.980 --> 00:29:49.184 We published this and this was a good study.

NOTE Confidence: 0.61359728

00:29:49.190 --> 00:29:50.750 Some of this work actually

NOTE Confidence: 0.61359728

00:29:50.750 --> 00:29:51.998 have been done earlier,

NOTE Confidence: 0.61359728

00:29:52.000 --> 00:29:56.098 and this sort of classification

NOTE Confidence: 0.61359728

00:29:56.098 --> 00:29:59.233 of cirrhosis into pile moderate

NOTE Confidence: 0.61359728

00:29:59.233 --> 00:30:02.429 severe was done by Lynette Group.

NOTE Confidence: 0.61359728

00:30:02.430 --> 00:30:05.710 In the year 2000 and and this was

NOTE Confidence: 0.61359728

00:30:05.710 --> 00:30:08.328 published only as an abstract form,

NOTE Confidence: 0.61359728

00:30:08.330 --> 00:30:12.446 so this was not widely recognized and

NOTE Confidence: 0.61359728

00:30:12.446 --> 00:30:16.248 we were certainly not aware of this.

NOTE Confidence: 0.61359728

00:30:16.250 --> 00:30:18.200 And the the principles were virtually

NOTE Confidence: 0.61359728

00:30:18.200 --> 00:30:20.802 similar to what we had come up with.

NOTE Confidence: 0.61359728

00:30:20.802 --> 00:30:22.926 The presence of nodules are the

NOTE Confidence: 0.61359728

00:30:22.926 --> 00:30:25.600 size of the nodules and with the

NOTE Confidence: 0.61359728

00:30:25.600 --> 00:30:27.654 scepter where critical in sort

NOTE Confidence: 0.61359728

00:30:27.654 --> 00:30:29.578 of classifying the cirrhosis.

NOTE Confidence: 0.61359728

00:30:29.580 --> 00:30:31.760 We eventually ended up publishing

NOTE Confidence: 0.61359728

00:30:31.760 --> 00:30:33.963 this a paper in 2006,

NOTE Confidence: 0.61359728

00:30:33.963 --> 00:30:35.775 and we're finding the

NOTE Confidence: 0.61359728

00:30:35.775 --> 00:30:37.624 classification somewhat in 2012.

NOTE Confidence: 0.61359728

00:30:37.624 --> 00:30:41.012 And now at least we have two

NOTE Confidence: 0.61359728

00:30:41.012 --> 00:30:43.616 systems of classifying cirrhosis.

NOTE Confidence: 0.61359728

00:30:43.616 --> 00:30:46.304 The one is the Linux system and and

NOTE Confidence: 0.61359728

00:30:46.304 --> 00:30:49.043 now I'm part of that group as well as

NOTE Confidence: 0.61359728

00:30:49.043 --> 00:30:51.234 well as the system that we developed

NOTE Confidence: 0.61359728

00:30:51.234 --> 00:30:53.840 here with collaboration with the Doctor,

NOTE Confidence: 0.61359728

00:30:53.840 --> 00:30:54.572 Lupe Garcia,

NOTE Confidence: 0.61359728

00:30:54.572 --> 00:30:57.134 and these two systems are shown here,

NOTE Confidence: 0.61359728

00:30:57.140 --> 00:30:59.317 and they're fairly similar in in in

NOTE Confidence: 0.61359728

00:30:59.317 --> 00:31:01.308 how they approach this whole issue.

NOTE Confidence: 0.61359728

00:31:01.310 --> 00:31:04.936 The only thing being that in Linux

NOTE Confidence: 0.61359728

00:31:04.936 --> 00:31:06.780 system the septal thickness was

NOTE Confidence: 0.61359728

00:31:06.780 --> 00:31:08.760 defined as broad when the size.

NOTE Confidence: 0.61359728

00:31:08.760 --> 00:31:10.664 Of the scepter was equivalent to the

NOTE Confidence: 0.61359728

00:31:10.664 --> 00:31:12.788 size of the nodules and very broad when

NOTE Confidence: 0.61359728

00:31:12.788 --> 00:31:14.600 it was greater than the size of nodules,

NOTE Confidence: 0.61359728

00:31:14.600 --> 00:31:17.720 which is a very subjective evaluation,

NOTE Confidence: 0.61359728

00:31:17.720 --> 00:31:19.872 and we know that the size of the

NOTE Confidence: 0.61359728

00:31:19.872 --> 00:31:21.943 nodules can vary within the liver

NOTE Confidence: 0.61359728

00:31:21.943 --> 00:31:23.778 biopsy and between liver biopsy.

NOTE Confidence: 0.61359728

00:31:23.780 --> 00:31:27.668 So to us it looked like there was

NOTE Confidence: 0.61359728

00:31:27.668 --> 00:31:29.188 more subjectivity involved in the

NOTE Confidence: 0.61359728

00:31:29.188 --> 00:31:30.700 Linux system then our system,

NOTE Confidence: 0.61359728

00:31:30.700 --> 00:31:33.202 which was somewhat more semi quantitative

NOTE Confidence: 0.61359728

00:31:33.202 --> 00:31:36.428 and we wanted to see how do these

NOTE Confidence: 0.61359728

00:31:36.428 --> 00:31:38.971 two systems compare and this work.

NOTE Confidence: 0.61359728

00:31:38.971 --> 00:31:42.310 Was undertaken by one of our residents,

NOTE Confidence: 0.61359728

00:31:42.310 --> 00:31:44.106 Maria Olavi or Carolina,

NOTE Confidence: 0.61359728

00:31:44.106 --> 00:31:47.950 who now is a fellow at Mayo Clinic

NOTE Confidence: 0.61359728

00:31:47.950 --> 00:31:51.450 and in this study we looked at.

NOTE Confidence: 0.61359728

49

00:31:51.450 --> 00:31:54.640 Fifty liver biopsy with thrusters

NOTE Confidence: 0.61359728

00:31:54.640 --> 00:31:57.394 which were randomly selected and these

NOTE Confidence: 0.61359728

00:31:57.394 --> 00:31:59.642 were evaluated independently by three

NOTE Confidence: 0.61359728

00:31:59.642 --> 00:32:01.702 pathologists that included a resident

NOTE Confidence: 0.61359728

00:32:01.702 --> 00:32:03.990 and associate professor and professor,

NOTE Confidence: 0.61359728

00:32:03.990 --> 00:32:07.206 just to see how experienced may

NOTE Confidence: 0.61359728

00:32:07.210 --> 00:32:09.562 affect this evaluation and the what

NOTE Confidence: 0.61359728

00:32:09.562 --> 00:32:12.072 it shows was that both systems

NOTE Confidence: 0.61359728

00:32:12.072 --> 00:32:14.676 were fairly compatible in terms of

NOTE Confidence: 0.842622415

00:32:17.150 --> 00:32:19.832 assigning the stage based on the

NOTE Confidence: 0.842622415

00:32:19.832 --> 00:32:22.200 logic features as stated. Uhm?

NOTE Confidence: 0.842622415

00:32:22.200 --> 00:32:24.520 Our system performs slightly

NOTE Confidence: 0.842622415

00:32:24.520 --> 00:32:27.420 better than the Linux system,

NOTE Confidence: 0.842622415

00:32:27.420 --> 00:32:29.932 largely because I think again some of the

NOTE Confidence: 0.842622415

00:32:29.932 --> 00:32:32.277 features were better defined in our system.

NOTE Confidence: 0.842622415

00:32:32.280 --> 00:32:35.031 But overall I think both systems perform

NOTE Confidence: 0.842622415

00:32:35.031 --> 00:32:37.979 fairly similar in sub classifying services.

NOTE Confidence: 0.842622415

00:32:37.980 --> 00:32:41.709 So in conclusion.

NOTE Confidence: 0.842622415

00:32:41.710 --> 00:32:45.552 We recognize that the the nodule size and

NOTE Confidence: 0.842622415

00:32:45.552 --> 00:32:49.530 the fiber swift are are predictive of HPV,

NOTE Confidence: 0.842622415

00:32:49.530 --> 00:32:53.970 gene liver and small nodularity and

NOTE Confidence: 0.842622415

00:32:53.970 --> 00:32:57.182 increasing fiber scepter with can

NOTE Confidence: 0.842622415

00:32:57.182 --> 00:32:59.585 predict development of clinical

NOTE Confidence: 0.842622415

00:32:59.585 --> 00:33:01.370 significance portal hypertension

NOTE Confidence: 0.842622415

00:33:01.370 --> 00:33:03.884 and based on these parameters can

NOTE Confidence: 0.842622415

00:33:03.884 --> 00:33:06.440 certainly be classified into a mild,

NOTE Confidence: 0.842622415

00:33:06.440 --> 00:33:08.200 moderate and severe stage.

NOTE Confidence: 0.842622415

00:33:08.200 --> 00:33:10.180 So when you're working with

NOTE Confidence: 0.842622415

00:33:10.180 --> 00:33:11.316 these nodules except.

NOTE Confidence: 0.842622415

00:33:11.316 --> 00:33:13.122 Wherever you look, you find those.

NOTE Confidence: 0.842622415

00:33:13.122 --> 00:33:14.760 So if you look at the sky,

NOTE Confidence: 0.842622415

00:33:14.760 --> 00:33:16.350 I could find nodules in the

NOTE Confidence: 0.842622415

00:33:16.350 --> 00:33:17.790 clouds and the scepter there.

NOTE Confidence: 0.842622415

00:33:17.790 --> 00:33:20.250 Or if you look from the sky into the ground,

NOTE Confidence: 0.842622415

00:33:20.250 --> 00:33:21.420 you could find nodules and

NOTE Confidence: 0.842622415

00:33:21.420 --> 00:33:22.890 the SEPTA even in the sand.

NOTE Confidence: 0.75622046

00:33:25.190 --> 00:33:27.864 However. Moving forward,

NOTE Confidence: 0.75622046

00:33:27.864 --> 00:33:30.120 I think the question that we were asking

NOTE Confidence: 0.75622046

00:33:30.173 --> 00:33:32.237 was in this particular study that we did.

NOTE Confidence: 0.75622046

00:33:32.240 --> 00:33:34.724 We correlated the stylistic features with

NOTE Confidence: 0.75622046

00:33:34.724 --> 00:33:37.619 the the hepatic venous pressure gradient,

NOTE Confidence: 0.75622046

00:33:37.620 --> 00:33:40.220 which correlate with prognosis

NOTE Confidence: 0.75622046

00:33:40.220 --> 00:33:42.170 of cirrhosis but.

NOTE Confidence: 0.75622046

00:33:42.170 --> 00:33:44.180 The next question or scandal is

NOTE Confidence: 0.75622046

00:33:44.180 --> 00:33:45.185 a Histology predictor.

NOTE Confidence: 0.75622046

00:33:45.190 --> 00:33:47.934 Prognosis of cirrhosis directly?

NOTE Confidence: 0.75622046

00:33:47.934 --> 00:33:50.652 And this was more or less the kind of

NOTE Confidence: 0.75622046

00:33:50.652 --> 00:33:52.345 question that we wanted to validate

NOTE Confidence: 0.75622046

00:33:52.345 --> 00:33:54.412 based on our initial study and the

NOTE Confidence: 0.75622046

00:33:54.412 --> 00:33:56.326 people who are familiar with the

NOTE Confidence: 0.75622046

00:33:56.326 --> 00:33:58.674 progression of chronic liver disease.

NOTE Confidence: 0.75622046

00:33:58.674 --> 00:34:00.750 Recognize that clinically,

NOTE Confidence: 0.75622046

00:34:00.750 --> 00:34:04.488 cirrhosis is divided into two stages,

NOTE Confidence: 0.75622046

00:34:04.490 --> 00:34:05.879 the compensated cirrhosis

NOTE Confidence: 0.75622046

00:34:05.879 --> 00:34:07.268 or decompensated process,

NOTE Confidence: 0.75622046

00:34:07.270 --> 00:34:10.306 and the reason being that once.

NOTE Confidence: 0.75622046

00:34:10.310 --> 00:34:11.702 You develop decompensation.

NOTE Confidence: 0.75622046

00:34:11.702 --> 00:34:14.486 The prognosis tends to be really

NOTE Confidence: 0.75622046

00:34:14.490 --> 00:34:16.674 bad and the progression of the liver

NOTE Confidence: 0.75622046

00:34:16.674 --> 00:34:18.668 disease or liver failure is rapid,

NOTE Confidence: 0.75622046

00:34:18.670 --> 00:34:21.125 so this was shown in different

NOTE Confidence: 0.75622046

00:34:21.125 --> 00:34:22.950 studies at the median survival

NOTE Confidence: 0.75622046

53

00:34:22.950 --> 00:34:24.826 of patients who have compensated

NOTE Confidence: 0.75622046

00:34:24.826 --> 00:34:27.290 cirrhosis is in excess of 12 years,

NOTE Confidence: 0.75622046

00:34:27.290 --> 00:34:30.330 whereas those who develop compensation,

NOTE Confidence: 0.75622046

00:34:30.330 --> 00:34:32.206 the median survival becomes around two years,

NOTE Confidence: 0.75622046

00:34:32.210 --> 00:34:34.840 which is a big difference.

NOTE Confidence: 0.75622046

00:34:34.840 --> 00:34:35.260 Uh,

NOTE Confidence: 0.75622046

00:34:35.260 --> 00:34:37.958 this was also shown by studies

NOTE Confidence: 0.75622046

00:34:37.958 --> 00:34:41.546 from here we're doctor Garcia was

NOTE Confidence: 0.75622046

00:34:41.546 --> 00:34:45.348 involved and the the presence of HPVG,

NOTE Confidence: 0.75622046

00:34:45.348 --> 00:34:47.391 which was less than ten,

NOTE Confidence: 0.75622046

00:34:47.391 --> 00:34:50.646 was also the significant negative

NOTE Confidence: 0.75622046

00:34:50.646 --> 00:34:54.099 predictive value that patients who had.

NOTE Confidence: 0.75622046

00:34:54.100 --> 00:34:55.306 No clinically significant

NOTE Confidence: 0.75622046

00:34:55.306 --> 00:34:56.110 portal hypertension,

NOTE Confidence: 0.75622046

00:34:56.110 --> 00:34:58.954 which is pressure measurement less than

NOTE Confidence: 0.75622046

00:34:58.954 --> 00:35:02.272 10 had in 90% chance of not developing

NOTE Confidence: 0.75622046

00:35:02.272 --> 00:35:04.670 clinical decompensation in a Fourier theory.

NOTE Confidence: 0.75622046

00:35:04.670 --> 00:35:06.885 So again signifying the importance

NOTE Confidence: 0.75622046

00:35:06.885 --> 00:35:09.100 of the pressure measurements and

NOTE Confidence: 0.75622046

00:35:09.173 --> 00:35:11.492 how this collects with the clinical

NOTE Confidence: 0.75622046

00:35:11.492 --> 00:35:13.216 spirit of the disease.

NOTE Confidence: 0.75622046

00:35:13.220 --> 00:35:16.996 So the question that we would ask was.

NOTE Confidence: 0.75622046

00:35:17.000 --> 00:35:19.380 Do the sample thickness and or the

NOTE Confidence: 0.75622046

00:35:19.380 --> 00:35:21.400 nodule size predict clinical development

NOTE Confidence: 0.75622046

00:35:21.400 --> 00:35:23.730 of decompensation in patients who

NOTE Confidence: 0.75622046

00:35:23.730 --> 00:35:26.270 have this logically proven cirrhosis?

NOTE Confidence: 0.75622046

00:35:26.270 --> 00:35:28.664 And this was a study that was

NOTE Confidence: 0.75622046

00:35:28.664 --> 00:35:31.268 undertaken with one of the GI Fellows

NOTE Confidence: 0.75622046

00:35:31.268 --> 00:35:33.530 on the clinical side Prithvi Cinema,

NOTE Confidence: 0.75622046

00:35:33.530 --> 00:35:33.992 Son,

NOTE Confidence: 0.75622046

00:35:33.992 --> 00:35:36.302 who is now a practicing

NOTE Confidence: 0.75622046

00:35:36.302 --> 00:35:38.150 gastroenterologist in the Boston

NOTE Confidence: 0.75622046

00:35:38.226 --> 00:35:42.700 area and in this study we looked at.

NOTE Confidence: 0.75622046

00:35:42.700 --> 00:35:46.115 Patients with the biopsy proven

NOTE Confidence: 0.75622046

00:35:46.115 --> 00:35:49.805 cirrhosis and followed them for

NOTE Confidence: 0.75622046

00:35:49.805 --> 00:35:51.665 development of the competition.

NOTE Confidence: 0.75622046

00:35:51.670 --> 00:35:56.158 There were 168 patients included of

NOTE Confidence: 0.75622046

00:35:56.158 --> 00:35:58.239 which 3043 developed decompensation

NOTE Confidence: 0.75622046

00:35:58.239 --> 00:36:00.454 and these biopsies were reviewed

NOTE Confidence: 0.75622046

00:36:00.454 --> 00:36:02.161 blindly without the knowledge

NOTE Confidence: 0.75622046

00:36:02.161 --> 00:36:04.441 of the clinical findings by two

NOTE Confidence: 0.75622046

00:36:04.441 --> 00:36:06.246 independent observers and many

NOTE Confidence: 0.75622046

00:36:06.246 --> 00:36:08.318 different things were assessed.

NOTE Confidence: 0.75622046

00:36:08.320 --> 00:36:09.364 But specifically,

NOTE Confidence: 0.75622046

00:36:09.364 --> 00:36:13.018 the sample thickness and the nodule size.

NOTE Confidence: 0.75622046

00:36:13.020 --> 00:36:13.611 And.

NOTE Confidence: 0.75622046

00:36:13.611 --> 00:36:17.024 The results showed that the septal

NOTE Confidence: 0.75622046

00:36:17.024 --> 00:36:19.294 thickness did predict a progression

NOTE Confidence: 0.75622046

00:36:19.294 --> 00:36:21.770 to decompensation in these patients,

NOTE Confidence: 0.75622046

00:36:21.770 --> 00:36:24.098 as shown here.

NOTE Confidence: 0.75622046

00:36:24.100 --> 00:36:27.929 The acceptor, as opposed to either the.

NOTE Confidence: 0.75622046

00:36:27.930 --> 00:36:31.044 Intermediate or thin SEPTA had a

NOTE Confidence: 0.75622046

00:36:31.044 --> 00:36:33.480 significant association with progression too.

NOTE Confidence: 0.863015662105263

00:36:35.500 --> 00:36:36.498 Decompensated, cirrhosis,

NOTE Confidence: 0.863015662105263

00:36:36.498 --> 00:36:39.492 and eventually when we did the

NOTE Confidence: 0.863015662105263

00:36:39.492 --> 00:36:41.927 analysis using thick persistent except

NOTE Confidence: 0.863015662105263

00:36:41.927 --> 00:36:44.645 and this became even more obvious.

NOTE Confidence: 0.863015662105263

00:36:44.650 --> 00:36:47.681 When he looked at the nodule size

NOTE Confidence: 0.863015662105263

00:36:47.681 --> 00:36:49.971 while the trends were similar,

NOTE Confidence: 0.863015662105263

00:36:49.971 --> 00:36:53.277 but the findings were not statistically

NOTE Confidence: 0.863015662105263

00:36:53.277 --> 00:36:56.450 significant and even when we studied

NOTE Confidence: 0.863015662105263

00:36:56.450 --> 00:37:00.680 the the small versus not small nodules.

NOTE Confidence: 0.863015662105263

00:37:00.680 --> 00:37:03.440 It was obvious that only after

NOTE Confidence: 0.863015662105263

00:37:03.440 --> 00:37:05.779 48 months the process started

NOTE Confidence: 0.863015662105263

00:37:05.779 --> 00:37:08.144 separating between these two groups,

NOTE Confidence: 0.863015662105263

00:37:08.150 --> 00:37:10.246 and while the reasons are not obvious to

NOTE Confidence: 0.863015662105263

00:37:10.246 --> 00:37:12.707 us or not very immediately clear to us,

NOTE Confidence: 0.863015662105263

00:37:12.710 --> 00:37:14.957 it is possible that in early stages,

NOTE Confidence: 0.863015662105263

00:37:14.960 --> 00:37:17.440 when the nodules is small,

NOTE Confidence: 0.863015662105263

00:37:17.440 --> 00:37:20.520 but the 5% are also very thin,

NOTE Confidence: 0.863015662105263

00:37:20.520 --> 00:37:22.310 probably there's no difference based

NOTE Confidence: 0.863015662105263

00:37:22.310 --> 00:37:25.160 on the nodule size as they sufficient.

NOTE Confidence: 0.863015662105263

00:37:25.160 --> 00:37:29.850 You know, parent, camel, reserved and and.

NOTE Confidence: 0.863015662105263

00:37:29.850 --> 00:37:31.788 Does not impact the overall process.

NOTE Confidence: 0.863015662105263

00:37:31.790 --> 00:37:35.155 However, it certainly validated our

NOTE Confidence: 0.863015662105263

00:37:35.155 --> 00:37:38.030 previous findings that you know,

NOTE Confidence: 0.863015662105263

00:37:38.030 --> 00:37:40.580 except on liver biopsies are associated

NOTE Confidence: 0.863015662105263

00:37:40.580 --> 00:37:42.701 with significantly higher rate of

NOTE Confidence: 0.863015662105263

00:37:42.701 --> 00:37:44.301 decompensation when compared with

NOTE Confidence: 0.863015662105263

00:37:44.301 --> 00:37:46.948 patients who do not have the acceptor.

NOTE Confidence: 0.863015662105263

00:37:46.950 --> 00:37:47.938 And as I mentioned,

NOTE Confidence: 0.863015662105263

00:37:47.938 --> 00:37:49.420 while this trend was seen with

NOTE Confidence: 0.863015662105263

00:37:49.478 --> 00:37:50.369 the small nodules,

NOTE Confidence: 0.863015662105263

00:37:50.370 --> 00:37:52.690 this was certainly not statistically

NOTE Confidence: 0.863015662105263

00:37:52.690 --> 00:37:55.150 significant in this regard, so.

NOTE Confidence: 0.863015662105263

00:37:55.150 --> 00:37:58.150 What does this all mean?

NOTE Confidence: 0.863015662105263

00:37:58.150 --> 00:37:58.651 Well.

NOTE Confidence: 0.863015662105263

00:37:58.651 --> 00:37:59.152 Well,

NOTE Confidence: 0.863015662105263

00:37:59.152 --> 00:37:59.653 uh,

NOTE Confidence: 0.863015662105263

00:37:59.653 --> 00:38:02.659 this certainly has some implications for

NOTE Confidence: 0.863015662105263

00:38:02.659 --> 00:38:05.400 patients who are being considered for

NOTE Confidence: 0.863015662105263

00:38:05.400 --> 00:38:07.056 treatment for a variety of disorders,

NOTE Confidence: 0.863015662105263

00:38:07.060 --> 00:38:08.563 or even transplantation.

NOTE Confidence: 0.863015662105263

00:38:08.563 --> 00:38:11.068 Some of the important considerations

NOTE Confidence: 0.863015662105263

00:38:11.068 --> 00:38:14.168 are that once these patients do

NOTE Confidence: 0.863015662105263

00:38:14.168 --> 00:38:18.116 show thick scepter on liver biopsy,

NOTE Confidence: 0.863015662105263

00:38:18.120 --> 00:38:22.355 this could allow initiation of non selective.

NOTE Confidence: 0.863015662105263

00:38:22.360 --> 00:38:25.135 Now even further investigation to

NOTE Confidence: 0.863015662105263

00:38:25.135 --> 00:38:27.910 prevent or delay the decompensation.

NOTE Confidence: 0.863015662105263

00:38:27.910 --> 00:38:28.291 Also,

NOTE Confidence: 0.863015662105263

00:38:28.291 --> 00:38:31.339 we know that these days you know some

NOTE Confidence: 0.863015662105263

00:38:31.339 --> 00:38:34.392 of the patients with cirrhosis can

NOTE Confidence: 0.863015662105263

00:38:34.392 --> 00:38:37.908 undergo resection of the liver cancers,

NOTE Confidence: 0.863015662105263

00:38:37.910 --> 00:38:39.905 and this is a very select group

NOTE Confidence: 0.863015662105263

00:38:39.905 --> 00:38:41.394 because we recognize that patients

NOTE Confidence: 0.863015662105263

00:38:41.394 --> 00:38:43.089 who are cirrhotic and develop

NOTE Confidence: 0.863015662105263

00:38:43.089 --> 00:38:44.208 particular carcinoma are,

NOTE Confidence: 0.863015662105263

00:38:44.210 --> 00:38:47.024 in general not good candidates for surgery

NOTE Confidence: 0.863015662105263

00:38:47.024 --> 00:38:48.826 because they tend to decompensate.

NOTE Confidence: 0.863015662105263

00:38:48.826 --> 00:38:51.315 But a subset of these patients who

NOTE Confidence: 0.863015662105263

00:38:51.315 --> 00:38:53.794 are probably having poorly or mild

NOTE Confidence: 0.863015662105263

00:38:53.794 --> 00:38:56.074 sources can undergo this reception,

NOTE Confidence: 0.863015662105263

00:38:56.080 --> 00:38:58.500 and in this regard.

NOTE Confidence: 0.863015662105263

00:38:58.500 --> 00:39:00.985 You find fix up down liver biopsy

NOTE Confidence: 0.863015662105263

00:39:00.985 --> 00:39:02.999 is probably that would be in control

NOTE Confidence: 0.863015662105263

00:39:02.999 --> 00:39:04.709 application for a search filter

NOTE Confidence: 0.863015662105263

00:39:04.709 --> 00:39:06.120 section of hypercellular carcinoma

NOTE Confidence: 0.863015662105263

00:39:06.120 --> 00:39:07.780 in the background of success.

NOTE Confidence: 0.863015662105263

00:39:07.780 --> 00:39:10.696 So those are the immediate kind of

NOTE Confidence: 0.863015662105263

00:39:10.696 --> 00:39:12.664 clinical implications that I can think

NOTE Confidence: 0.863015662105263

00:39:12.664 --> 00:39:16.800 of and I think more will probably come so.

NOTE Confidence: 0.863015662105263

00:39:16.800 --> 00:39:18.893 This is another view from Sky to

NOTE Confidence: 0.863015662105263

00:39:18.893 --> 00:39:21.363 show you how we can start seeing

NOTE Confidence: 0.863015662105263

00:39:21.363 --> 00:39:23.243 nodules and the five perceptor,

NOTE Confidence: 0.863015662105263

00:39:23.250 --> 00:39:25.637 and now the nodules are even colored.

NOTE Confidence: 0.863015662105263

00:39:25.640 --> 00:39:28.346 This is a photograph taken from

NOTE Confidence: 0.863015662105263

00:39:28.346 --> 00:39:30.036 the aircraft somewhere in the

NOTE Confidence: 0.863015662105263

00:39:30.036 --> 00:39:31.608 region of I think San Francisco.

NOTE Confidence: 0.906767358

00:39:34.850 --> 00:39:36.410 So as I mentioned earlier,

NOTE Confidence: 0.906767358

00:39:36.410 --> 00:39:40.652 this fibrosis which was considered earlier

NOTE Confidence: 0.906767358

00:39:40.652 --> 00:39:43.342 irreversible phenomena now is recognized,

NOTE Confidence: 0.906767358

00:39:43.342 --> 00:39:45.462 is actually dynamic process even

NOTE Confidence: 0.906767358

00:39:45.462 --> 00:39:48.683 within the liver and with effective

NOTE Confidence: 0.906767358

00:39:48.683 --> 00:39:51.938 therapy the fibrosis can progress.

NOTE Confidence: 0.906767358

00:39:51.940 --> 00:39:55.503 And now there are very effective therapies

NOTE Confidence: 0.906767358

00:39:55.503 --> 00:39:58.204 available for viral hepatitis B&C,

NOTE Confidence: 0.906767358

00:39:58.204 --> 00:40:00.956 which were not available or two decades ago,

NOTE Confidence: 0.906767358

00:40:00.960 --> 00:40:03.466 and this has changed the whole field.

NOTE Confidence: 0.906767358

00:40:03.470 --> 00:40:05.006 In trying to assess.

NOTE Confidence: 0.906767358

00:40:05.006 --> 00:40:08.590 How do we say this fibrosis is progressing?

NOTE Confidence: 0.906767358

00:40:08.590 --> 00:40:10.570 Or this is, you know,

NOTE Confidence: 0.906767358

00:40:10.570 --> 00:40:13.258 regressing and all the systems that I

NOTE Confidence: 0.906767358

00:40:13.258 --> 00:40:16.024 showed you earlier in terms of assessing

NOTE Confidence: 0.906767358

00:40:16.024 --> 00:40:18.328 fibrosis stage do not address this

NOTE Confidence: 0.906767358

00:40:18.406 --> 00:40:20.876 system of progression or regression.

NOTE Confidence: 0.906767358

00:40:20.880 --> 00:40:24.084 So, uh, this uh issue we

NOTE Confidence: 0.906767358

00:40:24.084 --> 00:40:27.169 had discussed in one of the.

NOTE Confidence: 0.906767358

00:40:27.170 --> 00:40:30.704 Reviews that we wrote for one of the seminars

NOTE Confidence: 0.906767358

00:40:30.704 --> 00:40:34.688 in particular topology and the Doctor,

NOTE Confidence: 0.906767358

00:40:34.690 --> 00:40:36.066 Garcia and Doctor Peter,

NOTE Confidence: 0.906767358

00:40:36.066 --> 00:40:38.646 producer who's from Europe who have done a

NOTE Confidence: 0.906767358

00:40:38.646 --> 00:40:41.169 lot of work in this area where my Co authors.

NOTE Confidence: 0.906767358

00:40:41.170 --> 00:40:43.342 So this is something which I'll

NOTE Confidence: 0.906767358

00:40:43.342 --> 00:40:45.210 illustrate by example here.

NOTE Confidence: 0.906767358

00:40:45.210 --> 00:40:48.776 So this is a process which is.

NOTE Confidence: 0.906767358

00:40:48.776 --> 00:40:50.864 Very obvious on Histology.

NOTE Confidence: 0.906767358

00:40:50.870 --> 00:40:52.795 These are cirrhotic not justify

NOTE Confidence: 0.906767358

00:40:52.795 --> 00:40:54.335 perceptor are very broad.

NOTE Confidence: 0.906767358

00:40:54.340 --> 00:40:57.007 So from my prior studies one could

NOTE Confidence: 0.906767358

00:40:57.007 --> 00:40:59.210 easily predict that this in this

NOTE Confidence: 0.906767358

00:40:59.210 --> 00:41:00.850 patient the the portal hypertension

NOTE Confidence: 0.906767358

00:41:00.850 --> 00:41:02.150 will be clinically significant.

NOTE Confidence: 0.906767358

00:41:02.150 --> 00:41:03.805 Portal hypertension or the measurement

NOTE Confidence: 0.906767358

00:41:03.805 --> 00:41:06.099 of the HPV will be greater than

NOTE Confidence: 0.906767358

00:41:06.099 --> 00:41:08.462 10 and here you can see a lot of

NOTE Confidence: 0.906767358

00:41:08.462 --> 00:41:10.170 inflammation while the cloud coloration,

NOTE Confidence: 0.906767358

00:41:10.170 --> 00:41:11.922 this fibrous SEPTA.

NOTE Confidence: 0.906767358

00:41:11.922 --> 00:41:12.506 However,

NOTE Confidence: 0.906767358

00:41:12.506 --> 00:41:15.392 once you treat this process and let's

NOTE Confidence: 0.906767358

00:41:15.392 --> 00:41:17.448 say this was something which was chronic

NOTE Confidence: 0.906767358

00:41:17.448 --> 00:41:19.254 hepatitis C which can be treated.

NOTE Confidence: 0.906767358

00:41:19.260 --> 00:41:23.208 A lot of things can happen and

NOTE Confidence: 0.906767358

00:41:23.208 --> 00:41:26.196 this can start looking like this.

NOTE Confidence: 0.906767358

00:41:26.200 --> 00:41:28.580 Where is fiber sector which is broad,

NOTE Confidence: 0.906767358

00:41:28.580 --> 00:41:30.125 can become thinner.

NOTE Confidence: 0.906767358

00:41:30.125 --> 00:41:32.700 The degree of inflammation decreases.

NOTE Confidence: 0.906767358

00:41:32.700 --> 00:41:35.514 The celebrity of this fiber sector decreases.

NOTE Confidence: 0.906767358

00:41:35.520 --> 00:41:36.604 And uh,

NOTE Confidence: 0.906767358

00:41:36.604 --> 00:41:39.314 the vascularity of this separate

NOTE Confidence: 0.906767358

00:41:39.314 --> 00:41:41.240 descriptions there's some restoration

NOTE Confidence: 0.906767358

00:41:41.240 --> 00:41:43.080 of the lobular architecture.

NOTE Confidence: 0.906767358

00:41:43.080 --> 00:41:46.038 There's some restoration of the zonal

NOTE Confidence: 0.906767358

00:41:46.040 --> 00:41:48.510 distribution hepatocytes in this thing.

NOTE Confidence: 0.906767358

00:41:48.510 --> 00:41:50.654 So from this cirrhosis,

NOTE Confidence: 0.906767358

00:41:50.654 --> 00:41:53.754 which is the severe untreated cirrhosis,

NOTE Confidence: 0.906767358

00:41:53.754 --> 00:41:56.616 one can progress to disconnect services,

NOTE Confidence: 0.906767358

00:41:56.620 --> 00:41:58.276 which is still cirrhosis.

NOTE Confidence: 0.906767358

00:41:58.276 --> 00:41:59.518 Still stage four.

NOTE Confidence: 0.906767358

00:41:59.520 --> 00:42:02.628 But it must work improved clinically

NOTE Confidence: 0.906767358

00:42:02.628 --> 00:42:03.664 and functionally.

NOTE Confidence: 0.906767358

00:42:03.670 --> 00:42:05.700 And.

NOTE Confidence: 0.906767358

00:42:05.700 --> 00:42:07.308 These features on progression,

NOTE Confidence: 0.906767358

00:42:07.308 --> 00:42:08.916 which were kind of

NOTE Confidence: 0.906767358

00:42:08.916 --> 00:42:10.619 recognized by many experts.

NOTE Confidence: 0.906767358

00:42:10.620 --> 00:42:12.076 They feel we're eventually

NOTE Confidence: 0.906767358

00:42:12.076 --> 00:42:13.896 put into a staging system,

NOTE Confidence: 0.906767358

00:42:13.900 --> 00:42:16.300 which I'm going to show.

NOTE Confidence: 0.906767358

00:42:16.300 --> 00:42:19.136 This is same thing shown on any sections.

NOTE Confidence: 0.906767358

00:42:19.136 --> 00:42:21.995 Again to illustrate that the cirrhosis

NOTE Confidence: 0.906767358

00:42:21.995 --> 00:42:24.515 which is severe and very active has this

NOTE Confidence: 0.906767358

00:42:24.515 --> 00:42:26.795 broad sector with a lot of inflammation,

NOTE Confidence: 0.906767358

00:42:26.800 --> 00:42:28.865 lot of buckler proliferation and

66

NOTE Confidence: 0.906767358

00:42:28.865 --> 00:42:31.842 vascular which is not obvious on either

NOTE Confidence: 0.906767358

00:42:31.842 --> 00:42:33.937 HIV sections or try constructions,

NOTE Confidence: 0.906767358

00:42:33.940 --> 00:42:35.200 and our routine Histology,

NOTE Confidence: 0.906767358

00:42:35.200 --> 00:42:37.576 but can be seen by other techniques

NOTE Confidence: 0.906767358

00:42:37.576 --> 00:42:40.066 that these things progress and receptor

NOTE Confidence: 0.906767358

00:42:40.066 --> 00:42:42.857 become like this where they're very thin,

NOTE Confidence: 0.906767358

00:42:42.860 --> 00:42:44.090 relatively acellular,

NOTE Confidence: 0.906767358

00:42:44.090 --> 00:42:47.165 relatively avascular, without any doctor.

NOTE Confidence: 0.906767358

00:42:47.170 --> 00:42:49.338 Information with some restoration

NOTE Confidence: 0.906767358

00:42:49.338 --> 00:42:52.048 of the lower popular architecture.

NOTE Confidence: 0.906767358

00:42:52.050 --> 00:42:57.150 So a group from Beijing, China.

NOTE Confidence: 0.906767358

00:42:57.150 --> 00:42:58.210 Studied the,

NOTE Confidence: 0.906767358

00:42:58.210 --> 00:42:59.270 you know,

NOTE Confidence: 0.906767358

00:42:59.270 --> 00:43:02.460 the features of regression in patients

NOTE Confidence: 0.906767358

00:43:02.460 --> 00:43:06.740 with chronic hepatitis B and in this group.

NOTE Confidence: 0.906767358

00:43:06.740 --> 00:43:10.324 Doctor Neal Tease who is a very eminent

00:43:10.324 --> 00:43:12.916 liver pathologist and have some yield

00:43:12.916 --> 00:43:15.460 connection because he worked here at

00:43:15.537 --> 00:43:17.868 Yale with Diane Kraus on stem cells

00:43:17.868 --> 00:43:20.457 and is a faculty in New York.

00:43:20.460 --> 00:43:22.155 Applied this concept of progression

00:43:22.155 --> 00:43:24.487 of high process to develop a scoring

00:43:24.487 --> 00:43:28.326 system and in this study they could

00:43:28.330 --> 00:43:30.630 using many different parameters.

00:43:30.630 --> 00:43:32.100 They showed that.

00:43:34.700 --> 00:43:37.240 Treatment of chronic hepatitis results

00:43:37.240 --> 00:43:40.310 in regression of this fibrous SEPTA.

00:43:40.310 --> 00:43:42.080 So just looking at this system,

00:43:42.080 --> 00:43:45.140 you know broadly what it is when you

00:43:45.140 --> 00:43:47.000 have this progressive fibrosis and they

00:43:47.000 --> 00:43:49.109 showed with all the features that had

NOTE Confidence: 0.873263723636364

00:43:49.109 --> 00:43:50.641 mentioned of sale lurdy, vascularity,

NOTE Confidence: 0.873263723636364

00:43:50.641 --> 00:43:53.308 the inflammation when you have more than

NOTE Confidence: 0.873263723636364

00:43:53.308 --> 00:43:55.755 50% of the fiber SEPTA in the biopsy,

NOTE Confidence: 0.873263723636364

00:43:55.760 --> 00:43:58.970 that is considered a predominantly

NOTE Confidence: 0.873263723636364

00:43:58.970 --> 00:44:00.896 progressive fibrosis or

NOTE Confidence: 0.873263723636364

00:44:00.896 --> 00:44:05.030 assigned escorpi when. You have.

NOTE Confidence: 0.873263723636364

00:44:05.030 --> 00:44:07.918 More than 50% sector showing regression

NOTE Confidence: 0.873263723636364

00:44:07.918 --> 00:44:11.614 features as I showed you earlier is

NOTE Confidence: 0.873263723636364

00:44:11.614 --> 00:44:13.997 you're considered a score of our.

NOTE Confidence: 0.873263723636364

00:44:14.000 --> 00:44:15.820 And if this was mix of this,

NOTE Confidence: 0.873263723636364

00:44:15.820 --> 00:44:18.080 it was considered indeterminate,

NOTE Confidence: 0.873263723636364

00:44:18.080 --> 00:44:21.103 and this was a highlighted or.

NOTE Confidence: 0.873263723636364

00:44:21.103 --> 00:44:24.190 This has been sort of referred to

NOTE Confidence: 0.873263723636364

00:44:24.281 --> 00:44:27.980 as the PIR score in various studies,

NOTE Confidence: 0.873263723636364

00:44:27.980 --> 00:44:30.326 and this is again illustrated herein

NOTE Confidence: 0.873263723636364

00:44:30.326 --> 00:44:33.827 from this paper that this is a patient

NOTE Confidence: 0.873263723636364

00:44:33.827 --> 00:44:36.152 with progressive fibrosis before treatment,

NOTE Confidence: 0.873263723636364

00:44:36.160 --> 00:44:39.700 which became progressive fibrosis,

NOTE Confidence: 0.873263723636364

00:44:39.700 --> 00:44:42.486 still cirrhosis but within the stage

NOTE Confidence: 0.873263723636364

00:44:42.486 --> 00:44:44.010 it has changed his character from.

NOTE Confidence: 0.873263723636364

00:44:44.010 --> 00:44:47.440 Progressive, too, regressive as shown here.

NOTE Confidence: 0.8565454225

00:44:49.850 --> 00:44:54.050 And in this study they had paired

NOTE Confidence: 0.8565454225

00:44:54.050 --> 00:44:56.375 biopsies in 71 patients where they

NOTE Confidence: 0.8565454225

00:44:56.375 --> 00:44:58.100 looked at the pretreatment and

NOTE Confidence: 0.8565454225

00:44:58.168 --> 00:45:01.158 posttreatment Histology and showed that

NOTE Confidence: 0.8565454225

00:45:01.158 --> 00:45:04.330 many of these patients converted from

NOTE Confidence: 0.8565454225

00:45:04.330 --> 00:45:06.780 Progressive 5 Percepta to regressive,

NOTE Confidence: 0.8565454225

00:45:06.780 --> 00:45:09.530 high perceptive and of these

NOTE Confidence: 0.8565454225

00:45:09.530 --> 00:45:11.588 more than half of the patient

NOTE Confidence: 0.8565454225

00:45:11.588 --> 00:45:15.428 at least had improvement in one

NOTE Confidence: 0.8565454225

00:45:15.430 --> 00:45:20.098 stage following treatment and.

NOTE Confidence: 0.8565454225

00:45:20.100 --> 00:45:22.644 Almost half of the patients had

NOTE Confidence: 0.8565454225

00:45:22.644 --> 00:45:24.340 significant improvement in the

NOTE Confidence: 0.8565454225

00:45:24.340 --> 00:45:26.928 substage of cirrhosis fibrosis.

NOTE Confidence: 0.962729866

00:45:29.570 --> 00:45:31.490 So based on this study,

NOTE Confidence: 0.962729866

00:45:31.490 --> 00:45:34.997 the group proposed this PR scoring system,

NOTE Confidence: 0.962729866

00:45:35.000 --> 00:45:37.632 which has now been referred to as

NOTE Confidence: 0.962729866

00:45:37.632 --> 00:45:39.924 the Beijing System for classification

NOTE Confidence: 0.962729866

00:45:39.924 --> 00:45:42.096 of progressive or regressive

NOTE Confidence: 0.962729866

00:45:42.096 --> 00:45:44.268 fibrosis in liver diseases.

NOTE Confidence: 0.962729866

00:45:44.270 --> 00:45:46.045 And it is certainly conceptually

NOTE Confidence: 0.962729866

00:45:46.045 --> 00:45:47.820 very good and recognizes the

NOTE Confidence: 0.962729866

00:45:47.886 --> 00:45:49.458 dynamic nature of fibrosis.

NOTE Confidence: 0.962729866

00:45:49.460 --> 00:45:51.056 And, at least in this study,

NOTE Confidence: 0.962729866

00:45:51.060 --> 00:45:54.808 had shown good reproducibility with good

NOTE Confidence: 0.962729866

00:45:54.808 --> 00:45:57.348 inter and intra observer variation,

NOTE Confidence: 0.962729866

00:45:57.350 --> 00:45:58.602 primarily done on biopsies.

NOTE Confidence: 0.962729866

00:45:58.602 --> 00:46:00.905 And it was felt that since this

NOTE Confidence: 0.962729866

00:46:00.905 --> 00:46:02.740 didn't require any special stain,

NOTE Confidence: 0.962729866

00:46:02.740 --> 00:46:05.680 it was easy to apply and this

NOTE Confidence: 0.962729866

00:46:05.680 --> 00:46:08.200 was subsequently sort of.

NOTE Confidence: 0.962729866

00:46:08.200 --> 00:46:12.344 Bradley did on his very small study

NOTE Confidence: 0.962729866

00:46:12.344 --> 00:46:16.948 of A5 cases of chronic hepatitis C

NOTE Confidence: 0.962729866

00:46:16.948 --> 00:46:19.880 with autoimmune hepatitis where the

NOTE Confidence: 0.962729866

00:46:19.880 --> 00:46:22.705 patients were treated with directly

NOTE Confidence: 0.962729866

00:46:22.705 --> 00:46:26.268 acting antiviral agents and on paired biopsy,

NOTE Confidence: 0.962729866

00:46:26.268 --> 00:46:27.180 is they?

NOTE Confidence: 0.962729866

00:46:27.180 --> 00:46:29.500 Confirm that the progressive sectors

NOTE Confidence: 0.962729866

00:46:29.500 --> 00:46:31.356 can become regressive sectors,

NOTE Confidence: 0.962729866

00:46:31.360 --> 00:46:32.506 so very small.

NOTE Confidence: 0.962729866

00:46:32.506 --> 00:46:34.034 Study validating the findings

NOTE Confidence: 0.962729866

00:46:34.034 --> 00:46:36.420 from this page in classification.

NOTE Confidence: 0.962729866

00:46:36.420 --> 00:46:40.148 We also undertook this kind of a project

NOTE Confidence: 0.962729866

00:46:40.148 --> 00:46:43.515 of assessing the same findings in a

NOTE Confidence: 0.962729866

00:46:43.515 --> 00:46:46.890 subset of chronic hepatitis C patients,

NOTE Confidence: 0.962729866

00:46:46.890 --> 00:46:49.790 and this project was.

NOTE Confidence: 0.962729866

00:46:49.790 --> 00:46:53.220 Done with collaboration with a ROM Shelly,

NOTE Confidence: 0.962729866

00:46:53.220 --> 00:46:56.260 who was our fellow and then became a

NOTE Confidence: 0.962729866

00:46:56.347 --> 00:46:59.399 faculty here and now has disappeared with

NOTE Confidence: 0.962729866

00:46:59.399 --> 00:47:02.726 the dark side in in private practice.

NOTE Confidence: 0.962729866

00:47:02.726 --> 00:47:04.805 However, you know he was a very nice

NOTE Confidence: 0.962729866

00:47:04.805 --> 00:47:08.758 person to work with, a great guy and.

NOTE Confidence: 0.962729866

00:47:08.760 --> 00:47:13.733 This was a great study that we published and.

NOTE Confidence: 0.962729866

00:47:13.733 --> 00:47:18.956 In this study we had addressed many issues,

NOTE Confidence: 0.962729866

00:47:18.956 --> 00:47:22.610 but one of them was assessment of.

NOTE Confidence: 0.962729866

00:47:22.610 --> 00:47:24.944 So called regression of fibrosis in

NOTE Confidence: 0.962729866

00:47:24.944 --> 00:47:26.680 patients with chronic hepatitis C.

NOTE Confidence: 0.962729866

00:47:26.680 --> 00:47:29.428 Once we once they were treated

NOTE Confidence: 0.962729866

00:47:29.428 --> 00:47:31.260 with directly acting antivirals,

NOTE Confidence: 0.962729866

00:47:31.260 --> 00:47:34.970 which leads to.

NOTE Confidence: 0.962729866

00:47:34.970 --> 00:47:37.994 Cure of this viral infection with what's

NOTE Confidence: 0.962729866

00:47:37.994 --> 00:47:40.460 called sustained while response or SVR,

NOTE Confidence: 0.962729866

00:47:40.460 --> 00:47:43.491 where the viral load in purple blood

NOTE Confidence: 0.962729866

00:47:43.491 --> 00:47:45.416 becomes undetectable after the therapy.

NOTE Confidence: 0.962729866

00:47:45.416 --> 00:47:47.176 And this is shown histologically,

NOTE Confidence: 0.962729866

00:47:47.180 --> 00:47:49.460 why should what I showed you earlier from

NOTE Confidence: 0.962729866

00:47:49.460 --> 00:47:52.122 our study that the patients who had fibrosis,

NOTE Confidence: 0.962729866

00:47:52.122 --> 00:47:54.018 which was considered

NOTE Confidence: 0.962729866

00:47:54.018 --> 00:47:55.914 progressive on treatment,

NOTE Confidence: 0.962729866

00:47:55.920 --> 00:48:00.150 could become aggressive with the?

NOTE Confidence: 0.962729866

00:48:00.150 --> 00:48:01.950 Features that I mentioned earlier

NOTE Confidence: 0.962729866

00:48:01.950 --> 00:48:04.175 pending of the fibrous septal lack

NOTE Confidence: 0.962729866

00:48:04.175 --> 00:48:06.712 of cellularity lack of pallor,

NOTE Confidence: 0.962729866

00:48:06.712 --> 00:48:09.128 proliferation and decreasing inflammation.

NOTE Confidence: 0.962729866

00:48:09.130 --> 00:48:12.784 Same things shown in HD sections here.

NOTE Confidence: 0.962729866

00:48:12.790 --> 00:48:14.260 One of the things which we did

NOTE Confidence: 0.962729866

00:48:14.260 --> 00:48:15.992 realize in our study is that while

NOTE Confidence: 0.962729866

00:48:15.992 --> 00:48:17.564 these things sometimes are easier to

NOTE Confidence: 0.962729866

00:48:17.614 --> 00:48:19.156 evaluate on pipes because the amount

NOTE Confidence: 0.962729866

00:48:19.156 --> 00:48:21.525 of tissue that you see is blessed.

NOTE Confidence: 0.962729866

00:48:21.525 --> 00:48:23.750 On dissection specimens with you

NOTE Confidence: 0.962729866

00:48:23.750 --> 00:48:26.655 more to see you always find areas

NOTE Confidence: 0.962729866

00:48:26.655 --> 00:48:28.558 that put these things in.

NOTE Confidence: 0.962729866

00:48:28.558 --> 00:48:31.798 Little bit of question as to whether

NOTE Confidence: 0.962729866

00:48:31.798 --> 00:48:34.960 this really belongs to regressive or

NOTE Confidence: 0.962729866

00:48:35.049 --> 00:48:40.050 progressive or indeterminate category.

NOTE Confidence: 0.962729866

00:48:40.050 --> 00:48:41.666 And in this study,

NOTE Confidence: 0.962729866

00:48:41.666 --> 00:48:45.279 we had many other things that that overall,

NOTE Confidence: 0.962729866

00:48:45.280 --> 00:48:47.870 while we could see there were more,

NOTE Confidence: 0.962729866

00:48:47.870 --> 00:48:50.095 it's sort of progressive subtype

NOTE Confidence: 0.962729866

00:48:50.095 --> 00:48:53.286 patients who had achieved SVR in patients

NOTE Confidence: 0.962729866

00:48:53.286 --> 00:48:55.606 who are treated with antivirals.

NOTE Confidence: 0.962729866

00:48:55.610 --> 00:48:56.076 Overall,

NOTE Confidence: 0.962729866

00:48:56.076 --> 00:48:58.872 the difference between the PR score

NOTE Confidence: 0.962729866

00:48:58.872 --> 00:49:01.425 between untreated patients was not

NOTE Confidence: 0.962729866

00:49:01.425 --> 00:49:03.354 statistically significant and this

NOTE Confidence: 0.962729866

00:49:03.354 --> 00:49:06.308 still remains the same when we combine

NOTE Confidence: 0.962729866

00:49:06.308 --> 00:49:08.090 progressive with indeterminate

NOTE Confidence: 0.962729866

00:49:08.090 --> 00:49:09.242 category and compared.

NOTE Confidence: 0.962729866

00:49:09.242 --> 00:49:11.302 With the, uh, those with regression,

NOTE Confidence: 0.962729866

00:49:11.302 --> 00:49:14.370 and there are quite a few reasons for that.

NOTE Confidence: 0.962729866

00:49:14.370 --> 00:49:17.196 Once one of which I highlighted

NOTE Confidence: 0.962729866

00:49:17.196 --> 00:49:18.609 that the assessing

NOTE Confidence: 0.773555436666667

00:49:18.610 --> 00:49:20.450 the PR score on resection

NOTE Confidence: 0.773555436666667

00:49:20.450 --> 00:49:21.922 specimens were not easy,

NOTE Confidence: 0.773555436666667

00:49:21.930 --> 00:49:25.330 and also that the group that we have

NOTE Confidence: 0.773555436666667

00:49:25.330 --> 00:49:27.450 included both the explants and liver

NOTE Confidence: 0.773555436666667

00:49:27.450 --> 00:49:29.620 biopsies and and many of the patients

NOTE Confidence: 0.773555436666667

00:49:29.683 --> 00:49:31.568 have very severe advanced disease.

NOTE Confidence: 0.773555436666667

00:49:31.570 --> 00:49:33.196 So there was a selection bias

NOTE Confidence: 0.773555436666667

00:49:33.196 --> 00:49:34.009 in their patients.

NOTE Confidence: 0.773555436666667

00:49:34.010 --> 00:49:34.799 However, when we.

NOTE Confidence: 0.853391768888889

00:49:36.820 --> 00:49:38.752 Looked at a subset of patients

NOTE Confidence: 0.853391768888889

00:49:38.752 --> 00:49:40.426 where we had paired biopsies

NOTE Confidence: 0.853391768888889

00:49:40.426 --> 00:49:42.680 and we are only seven of those.

NOTE Confidence: 0.853391768888889

00:49:42.680 --> 00:49:45.720 It was clear that four of those seven

NOTE Confidence: 0.853391768888889

00:49:45.720 --> 00:49:48.120 patients did change their characters

NOTE Confidence: 0.853391768888889

00:49:48.120 --> 00:49:50.140 from progressive or indeterminate.

NOTE Confidence: 0.853391768888889

00:49:50.140 --> 00:49:52.308 2 Progressive on treatment,

NOTE Confidence: 0.853391768888889

00:49:52.308 --> 00:49:55.560 so this certainly validated what has

NOTE Confidence: 0.853391768888889

00:49:55.653 --> 00:49:58.677 been shown earlier in the Beijing study

NOTE Confidence: 0.853391768888889

00:49:58.677 --> 00:50:02.356 and and the other from Mount Sinai in.

NOTE Confidence: 0.853391768888889

00:50:02.356 --> 00:50:03.634 In this study,

NOTE Confidence: 0.853391768888889

00:50:03.634 --> 00:50:06.690 we also sort of provided evidence that.

NOTE Confidence: 0.853391768888889

00:50:06.690 --> 00:50:08.712 Uh. Not only these patients clear

NOTE Confidence: 0.853391768888889

00:50:08.712 --> 00:50:10.480 the virus from parental blood,

NOTE Confidence: 0.853391768888889

00:50:10.480 --> 00:50:14.642 but if you look at the tissues

NOTE Confidence: 0.853391768888889

00:50:14.642 --> 00:50:18.166 by highly sensitive PCR.

NOTE Confidence: 0.853391768888889

00:50:18.170 --> 00:50:20.492 There is no evidence of residual

NOTE Confidence: 0.853391768888889

00:50:20.492 --> 00:50:22.699 virus in the tissues and this

NOTE Confidence: 0.853391768888889

00:50:22.700 --> 00:50:26.856 is an important finding because

NOTE Confidence: 0.853391768888889

00:50:26.856 --> 00:50:29.348 earlier it was controversial.

NOTE Confidence: 0.853391768888889

00:50:29.350 --> 00:50:32.528 If there was some degree of risk

NOTE Confidence: 0.853391768888889

00:50:32.528 --> 00:50:35.425 tool Oracle hepatitis C virus in

NOTE Confidence: 0.853391768888889

00:50:35.425 --> 00:50:37.349 tissues even after achieving.

NOTE Confidence: 0.853391768888889

00:50:37.350 --> 00:50:40.817 Clinical cure or so called SVR in

NOTE Confidence: 0.853391768888889

00:50:40.817 --> 00:50:42.966 this study the the viral PCR was

NOTE Confidence: 0.853391768888889

00:50:42.966 --> 00:50:45.020 done by using a highly sensitive

NOTE Confidence: 0.853391768888889

00:50:45.020 --> 00:50:47.849 essay at the CDC and at least we

NOTE Confidence: 0.853391768888889

00:50:47.849 --> 00:50:50.292 showed that in all the patients that

NOTE Confidence: 0.853391768888889

00:50:50.292 --> 00:50:52.386 had the clinically achieved SVR,

NOTE Confidence: 0.853391768888889

00:50:52.386 --> 00:50:54.556 there were no residual virus

NOTE Confidence: 0.853391768888889

00:50:54.556 --> 00:50:56.879 at the tissue level as well.

NOTE Confidence: 0.853391768888889

00:50:56.880 --> 00:50:57.886 Our uh,

NOTE Confidence: 0.853391768888889

00:50:57.886 --> 00:51:00.904 the other things that we also

NOTE Confidence: 0.853391768888889

00:51:00.904 --> 00:51:03.632 recognize from our study is that

NOTE Confidence: 0.853391768888889

00:51:03.632 --> 00:51:05.824 the progression of fibrosis may

NOTE Confidence: 0.853391768888889

00:51:05.824 --> 00:51:08.500 not occur uniformly in all patients

NOTE Confidence: 0.853391768888889

00:51:08.500 --> 00:51:11.260 and patients who may have very

NOTE Confidence: 0.853391768888889

00:51:11.260 --> 00:51:13.620 severe disease to start with.

NOTE Confidence: 0.853391768888889

00:51:13.620 --> 00:51:15.192 Either you may not see any

NOTE Confidence: 0.853391768888889

00:51:15.192 --> 00:51:16.819 regression or it may take long

NOTE Confidence: 0.853391768888889

00:51:16.819 --> 00:51:20.140 time and if patients who have.

NOTE Confidence: 0.853391768888889

00:51:20.140 --> 00:51:22.121 But I just infection for long period

NOTE Confidence: 0.853391768888889

00:51:22.121 --> 00:51:24.339 time or the ten years of duration.

NOTE Confidence: 0.853391768888889

00:51:24.340 --> 00:51:27.217 The regression again may not be obvious,

NOTE Confidence: 0.853391768888889

00:51:27.220 --> 00:51:30.294 or may or may not be seen and in

NOTE Confidence: 0.853391768888889

00:51:30.294 --> 00:51:32.479 this subgroup of seven patients,

NOTE Confidence: 0.853391768888889

00:51:32.480 --> 00:51:34.424 those who did not show any

NOTE Confidence: 0.853391768888889

00:51:34.424 --> 00:51:35.720 change to regressive fibrosis.

NOTE Confidence: 0.853391768888889

00:51:35.720 --> 00:51:38.576 All of them had hepatitis C infection

NOTE Confidence: 0.853391768888889

00:51:38.576 --> 00:51:42.188 for more than 1010 years of duration.

NOTE Confidence: 0.853391768888889

00:51:42.190 --> 00:51:42.516 Also,

NOTE Confidence: 0.853391768888889

00:51:42.516 --> 00:51:44.472 I think the process is slow

NOTE Confidence: 0.853391768888889

00:51:44.472 --> 00:51:46.249 and takes a long time,

NOTE Confidence: 0.853391768888889

00:51:46.250 --> 00:51:48.441 and in this study the the median

NOTE Confidence: 0.853391768888889

00:51:48.441 --> 00:51:50.389 follow-up was around about two years,

NOTE Confidence: 0.853391768888889

00:51:50.390 --> 00:51:53.686 so I think you need long term studies

NOTE Confidence: 0.853391768888889

00:51:53.686 --> 00:51:56.545 to assess what time or duration it

NOTE Confidence: 0.853391768888889

00:51:56.545 --> 00:51:59.548 takes for this regression to occur.

NOTE Confidence: 0.853391768888889

00:51:59.550 --> 00:52:02.052 So the other issues with hold

NOTE Confidence: 0.853391768888889

00:52:02.052 --> 00:52:04.137 this hypothesis is that what

NOTE Confidence: 0.853391768888889

00:52:04.137 --> 00:52:06.793 I've shown you is is all done on.

NOTE Confidence: 0.853391768888889

00:52:06.800 --> 00:52:08.510 Qualitative assessment of

NOTE Confidence: 0.853391768888889

00:52:08.510 --> 00:52:10.790 various features on Histology,

NOTE Confidence: 0.853391768888889

00:52:10.790 --> 00:52:13.052 and this is highly subjective and

NOTE Confidence: 0.853391768888889

00:52:13.052 --> 00:52:14.780 there is significant interobserver

NOTE Confidence: 0.853391768888889

00:52:14.780 --> 00:52:15.644 intraobserver variability.

NOTE Confidence: 0.853391768888889

00:52:15.650 --> 00:52:16.571 The question is,

NOTE Confidence: 0.853391768888889

00:52:16.571 --> 00:52:18.720 can we make it more objective and

NOTE Confidence: 0.853391768888889

00:52:18.788 --> 00:52:21.182 this was shown way back that if

NOTE Confidence: 0.853391768888889

00:52:21.182 --> 00:52:23.480 you assess just the fibrosis area

NOTE Confidence: 0.853391768888889

00:52:23.566 --> 00:52:25.597 using digital image analysis,

NOTE Confidence: 0.853391768888889

00:52:25.597 --> 00:52:28.342 there is a significant correlation

NOTE Confidence: 0.853391768888889

00:52:28.342 --> 00:52:30.778 with increasing fibrosis with the

NOTE Confidence: 0.853391768888889

00:52:30.780 --> 00:52:33.282 portal pressures and process and and

NOTE Confidence: 0.853391768888889

00:52:33.282 --> 00:52:36.959 the IT was also obvious that in in each.

NOTE Confidence: 0.853391768888889

00:52:36.960 --> 00:52:40.173 Fibrosis group there was still a high

NOTE Confidence: 0.853391768888889

00:52:40.173 --> 00:52:43.238 variability in the clinical subgroups,

NOTE Confidence: 0.853391768888889

00:52:43.240 --> 00:52:45.508 which again goes back to some of

NOTE Confidence: 0.853391768888889

00:52:45.508 --> 00:52:48.739 the issues of fibrosis in liver.

NOTE Confidence: 0.853391768888889

00:52:48.740 --> 00:52:51.588 So we also try to address this issue

NOTE Confidence: 0.853391768888889

00:52:51.588 --> 00:52:54.194 using some quantitative parameters with

NOTE Confidence: 0.853391768888889

00:52:54.194 --> 00:52:56.744 the one of the gastroenterologists

NOTE Confidence: 0.853391768888889

00:52:56.744 --> 00:52:59.660 from Thailand who was working with

NOTE Confidence: 0.853391768888889

00:52:59.738 --> 00:53:02.170 Doctor Garcia and now he's a guest role.

NOTE Confidence: 0.853391768888889

00:53:02.170 --> 00:53:04.442 Is that Alan practicing

NOTE Confidence: 0.853391768888889

00:53:04.442 --> 00:53:05.578 clinical gastroenterology?

NOTE Confidence: 0.853391768888889

00:53:05.580 --> 00:53:10.036 And in this study we looked at the

NOTE Confidence: 0.754689985714286

00:53:10.040 --> 00:53:12.048 fibrosis area by quantitative

NOTE Confidence: 0.754689985714286

00:53:12.048 --> 00:53:13.554 digital image analysis.

NOTE Confidence: 0.754689985714286

00:53:13.560 --> 00:53:16.020 The nodule size we counted the

NOTE Confidence: 0.754689985714286

00:53:16.020 --> 00:53:18.026 number of modules per millimeter

NOTE Confidence: 0.754689985714286

00:53:18.026 --> 00:53:19.490 of liberal biopsy again.

NOTE Confidence: 0.754689985714286

00:53:19.490 --> 00:53:21.660 Incorrectly looking at the size of the

NOTE Confidence: 0.754689985714286

00:53:21.660 --> 00:53:23.830 nodules and beat up the fibrous septum

NOTE Confidence: 0.754689985714286

00:53:23.830 --> 00:53:26.482 and the while assessing the fibrosis

NOTE Confidence: 0.754689985714286

00:53:26.482 --> 00:53:28.910 area using digital Amana Umagine,

NOTE Confidence: 0.754689985714286

00:53:28.910 --> 00:53:30.715 Alesis where you use the

NOTE Confidence: 0.754689985714286

00:53:30.715 --> 00:53:33.060 color for thresholding which

NOTE Confidence: 0.754689985714286

00:53:33.060 --> 00:53:34.901 was fairly straightforward.

NOTE Confidence: 0.754689985714286

00:53:34.901 --> 00:53:38.027 Assessing the nodule size and septal

NOTE Confidence: 0.754689985714286

00:53:38.027 --> 00:53:41.060 with was problematic and we took

NOTE Confidence: 0.754689985714286

00:53:41.060 --> 00:53:44.699 multiple measurements in each nodule.

NOTE Confidence: 0.754689985714286

00:53:44.700 --> 00:53:46.931 And and at the you know, uh,

NOTE Confidence: 0.754689985714286

00:53:46.931 --> 00:53:49.186 in the various 5 receptor

NOTE Confidence: 0.754689985714286

00:53:49.186 --> 00:53:50.963 across a liver biopsy,

NOTE Confidence: 0.754689985714286

00:53:50.963 --> 00:53:53.609 again calculating the mean and median.

NOTE Confidence: 0.754689985714286

00:53:53.610 --> 00:53:55.160 But as you can see,

NOTE Confidence: 0.754689985714286

00:53:55.160 --> 00:53:57.540 there are many areas where you could

NOTE Confidence: 0.754689985714286

00:53:57.540 --> 00:53:59.782 have drawn these measurements and

NOTE Confidence: 0.754689985714286

00:53:59.782 --> 00:54:02.837 that makes it somewhat challenging.

NOTE Confidence: 0.754689985714286

00:54:02.840 --> 00:54:03.298 However,

NOTE Confidence: 0.754689985714286

00:54:03.298 --> 00:54:06.504 as we expected the fibrosis area and

NOTE Confidence: 0.754689985714286

00:54:06.504 --> 00:54:09.362 the nodule site did have correlation

NOTE Confidence: 0.754689985714286

00:54:09.362 --> 00:54:14.090 with the HP VG and and the.

NOTE Confidence: 0.754689985714286

00:54:14.090 --> 00:54:16.045 This correlation was even retained

NOTE Confidence: 0.754689985714286

00:54:16.045 --> 00:54:18.795 once you even reached a clinically

NOTE Confidence: 0.754689985714286

00:54:18.795 --> 00:54:20.970 significant portal hypertension.

NOTE Confidence: 0.754689985714286

00:54:20.970 --> 00:54:21.900 That is,

NOTE Confidence: 0.754689985714286

00:54:21.900 --> 00:54:24.225 even patients who have clinically

NOTE Confidence: 0.754689985714286

00:54:24.225 --> 00:54:25.620 significant portal hypertension.

NOTE Confidence: 0.754689985714286

00:54:25.620 --> 00:54:28.836 If you increase the fibrosis area,

NOTE Confidence: 0.754689985714286

00:54:28.840 --> 00:54:30.460 the pressures continuously

NOTE Confidence: 0.754689985714286

00:54:30.460 --> 00:54:32.620 and keep on increasing.

NOTE Confidence: 0.903190110714286

00:54:34.670 --> 00:54:37.798 So this study kind of validated what we

NOTE Confidence: 0.903190110714286

00:54:37.798 --> 00:54:41.140 had shown earlier on subjective analysis,

NOTE Confidence: 0.903190110714286

00:54:41.140 --> 00:54:43.885 but we realized in this study that they were

NOTE Confidence: 0.903190110714286

00:54:43.885 --> 00:54:45.943 practical issues of measuring the nodule

NOTE Confidence: 0.903190110714286

00:54:45.943 --> 00:54:49.778 size and fibrous SEPTA, which was not.

NOTE Confidence: 0.903190110714286

00:54:49.780 --> 00:54:51.588 Ready for clinical use,

NOTE Confidence: 0.903190110714286

00:54:51.588 --> 00:54:53.396 but certainly validated our,

NOTE Confidence: 0.903190110714286

00:54:53.400 --> 00:54:56.148 you know earlier findings.

NOTE Confidence: 0.903190110714286

00:54:56.150 --> 00:54:58.878 This is around year 2009 and 10 I

NOTE Confidence: 0.903190110714286

00:54:58.878 --> 00:55:02.194 think at that time this technology was

NOTE Confidence: 0.903190110714286

00:55:02.194 --> 00:55:05.052 still evolving and UPMC had acquired

NOTE Confidence: 0.903190110714286

00:55:05.052 --> 00:55:08.491 the whole slide scanners and had the

NOTE Confidence: 0.903190110714286

00:55:08.491 --> 00:55:12.109 people working on various algorithm to

NOTE Confidence: 0.903190110714286

00:55:12.109 --> 00:55:14.320 assess histologically by automation,

NOTE Confidence: 0.903190110714286

00:55:14.320 --> 00:55:17.320 and we collaborated with UPMC to

NOTE Confidence: 0.903190110714286

00:55:17.320 --> 00:55:20.417 look at the same things where.

NOTE Confidence: 0.903190110714286

00:55:20.420 --> 00:55:22.935 Doctor Ahmed otherwise was our

NOTE Confidence: 0.903190110714286

00:55:22.935 --> 00:55:24.947 fellow at that time.

NOTE Confidence: 0.903190110714286

00:55:24.950 --> 00:55:27.080 Pursuing the project and we looked

NOTE Confidence: 0.903190110714286

00:55:27.080 --> 00:55:29.832 at the many things we looked at the

NOTE Confidence: 0.903190110714286

00:55:29.832 --> 00:55:32.161 fibrosis area we tried to sort of

NOTE Confidence: 0.903190110714286

00:55:32.161 --> 00:55:34.430 automate the nodule size and the

NOTE Confidence: 0.903190110714286

00:55:34.430 --> 00:55:37.130 diameter of nodule using computer algorithms.

NOTE Confidence: 0.903190110714286

00:55:37.130 --> 00:55:41.148 While it you know proved our prior

NOTE Confidence: 0.903190110714286

00:55:41.148 --> 00:55:43.160 kind of concepts, again,

NOTE Confidence: 0.903190110714286

00:55:43.160 --> 00:55:45.310 we recognize that the computer

NOTE Confidence: 0.903190110714286

00:55:45.310 --> 00:55:47.843 algorithms are not very good in

NOTE Confidence: 0.903190110714286

00:55:47.843 --> 00:55:49.407 identifying all the fibrosis,

NOTE Confidence: 0.903190110714286

00:55:49.410 --> 00:55:52.908 and we're missing nodules at times,

NOTE Confidence: 0.903190110714286

00:55:52.910 --> 00:55:55.598 and the estimation of the nodule size

NOTE Confidence: 0.903190110714286

00:55:55.598 --> 00:55:57.959 and the diameter was not perfect.

NOTE Confidence: 0.903190110714286

00:55:57.960 --> 00:55:59.236 And besides those examples,

NOTE Confidence: 0.903190110714286

00:55:59.236 --> 00:56:01.580 we know that there are many other

NOTE Confidence: 0.903190110714286

00:56:01.580 --> 00:56:03.415 areas where this is challenging,

NOTE Confidence: 0.903190110714286

00:56:03.420 --> 00:56:05.436 so this is another liver biopsy

NOTE Confidence: 0.903190110714286

00:56:05.436 --> 00:56:07.359 which shows many different sizes of.

NOTE Confidence: 0.903190110714286

00:56:07.360 --> 00:56:10.280 Modules and very different kind of SEPTA.

NOTE Confidence: 0.903190110714286

00:56:10.280 --> 00:56:12.080 And many times these things can

NOTE Confidence: 0.903190110714286

00:56:12.080 --> 00:56:14.304 be even more challenging where you

NOTE Confidence: 0.903190110714286

00:56:14.304 --> 00:56:15.984 have delicate fibrous SEPTA,

NOTE Confidence: 0.903190110714286

00:56:15.990 --> 00:56:18.881 and not just which are composed for

NOTE Confidence: 0.903190110714286

00:56:18.881 --> 00:56:21.420 virtually all only few hepatocytes.

NOTE Confidence: 0.903190110714286

00:56:21.420 --> 00:56:23.372 In addition to this,

NOTE Confidence: 0.903190110714286

00:56:23.372 --> 00:56:26.300 we recognize that the the significance

NOTE Confidence: 0.903190110714286

00:56:26.385 --> 00:56:28.750 of very central or sinusoidal file

NOTE Confidence: 0.903190110714286

00:56:28.750 --> 00:56:31.437 process is far more functionally than

NOTE Confidence: 0.903190110714286

00:56:31.437 --> 00:56:33.502 what it appears quantitatively and

NOTE Confidence: 0.903190110714286

00:56:33.502 --> 00:56:36.323 this is not captured by many of the

NOTE Confidence: 0.903190110714286

00:56:36.323 --> 00:56:40.808 other quantitative image analysis so.

NOTE Confidence: 0.903190110714286

00:56:40.810 --> 00:56:43.013 There are many challenges that prevent

NOTE Confidence: 0.903190110714286

00:56:43.013 --> 00:56:45.764 us from applying some of these things

NOTE Confidence: 0.903190110714286

00:56:45.764 --> 00:56:49.097 that we have learned from our liver

NOTE Confidence: 0.903190110714286

00:56:49.097 --> 00:56:51.073 biopsy analysis into automation.

NOTE Confidence: 0.903190110714286

00:56:51.080 --> 00:56:52.665 Another feature which is also

NOTE Confidence: 0.903190110714286

00:56:52.665 --> 00:56:54.575 difficult is that the liver biopsy

00:56:54.575 --> 00:56:56.444 has many normal 4 tracks that have

00:56:56.444 --> 00:56:58.260 lot of collagen or branching,

00:56:58.260 --> 00:57:01.170 or tracks that show fibrosis tissue.

00:57:01.170 --> 00:57:04.025 That again is easily recognized

00:57:04.025 --> 00:57:05.738 by Vista pathologist,

00:57:05.740 --> 00:57:08.722 but the image analysis it has

00:57:08.722 --> 00:57:10.710 to be done manually.

00:57:10.710 --> 00:57:13.188 So the issue is that the fibrosis

00:57:13.188 --> 00:57:14.668 assessment remains subjective and

00:57:14.668 --> 00:57:16.822 there's a lot of interobserver and

00:57:16.822 --> 00:57:18.424 interrupts or variability on top

00:57:18.424 --> 00:57:20.264 of that there is a lot of sampling

00:57:20.270 --> 00:57:22.120 issues with liver biopsy because

00:57:22.120 --> 00:57:24.323 liver box represents a very tiny

00:57:24.323 --> 00:57:26.794 sample of this huge liver and there

00:57:26.794 --> 00:57:29.639 are issues of both qualitative versus

NOTE Confidence: 0.903190110714286

00:57:29.639 --> 00:57:32.219 quantitative assessment of high process.

NOTE Confidence: 0.903190110714286

00:57:32.220 --> 00:57:35.204 So during this time while this is happening,

NOTE Confidence: 0.903190110714286

00:57:35.210 --> 00:57:36.906 many different noninvasive tests

NOTE Confidence: 0.903190110714286

00:57:36.906 --> 00:57:39.026 that assess the liberal globally

NOTE Confidence: 0.903190110714286

00:57:39.026 --> 00:57:40.788 have been developed which.

NOTE Confidence: 0.903190110714286

00:57:40.790 --> 00:57:43.430 Are gradually replacing and has replaced

NOTE Confidence: 0.903190110714286

00:57:43.430 --> 00:57:46.320 a blower biopsy in many settings.

NOTE Confidence: 0.903190110714286

00:57:46.320 --> 00:57:49.932 These tests are based on some

NOTE Confidence: 0.903190110714286

00:57:49.932 --> 00:57:53.124 psychological markers as well as

NOTE Confidence: 0.903190110714286

00:57:53.124 --> 00:57:55.882 imaging studies that evaluate liver

NOTE Confidence: 0.903190110714286

00:57:55.882 --> 00:57:59.212 stiffness and are are are kind of

NOTE Confidence: 0.903190110714286

00:57:59.212 --> 00:58:02.179 becoming so popular and so useful,

NOTE Confidence: 0.903190110714286

00:58:02.180 --> 00:58:04.091 and I'm sure that at some time

NOTE Confidence: 0.903190110714286

00:58:04.091 --> 00:58:05.609 they will completely replace you.

NOTE Confidence: 0.903190110714286

00:58:05.610 --> 00:58:06.148 Know,

NOTE Confidence: 0.903190110714286

00:58:06.148 --> 00:58:08.726 fibrosis and liver biopsies that

NOTE Confidence: 0.903190110714286

00:58:08.726 --> 00:58:10.856 people suspect that liver biopsy.

NOTE Confidence: 0.814441566666667

00:58:10.860 --> 00:58:14.118 May become extent and and the.

NOTE Confidence: 0.814441566666667

00:58:14.118 --> 00:58:16.870 Well, this may not happen exactly like this,

NOTE Confidence: 0.814441566666667

00:58:16.870 --> 00:58:20.128 but the people have seen a decline in liver

NOTE Confidence: 0.814441566666667

00:58:20.128 --> 00:58:22.873 biopsy is in in many different settings

NOTE Confidence: 0.814441566666667

00:58:22.873 --> 00:58:25.789 and in certain parts of the world where

NOTE Confidence: 0.814441566666667

00:58:25.790 --> 00:58:29.339 there is certainly a decline in the,

NOTE Confidence: 0.814441566666667

00:58:29.340 --> 00:58:31.470 you know liver biopsy now.

NOTE Confidence: 0.814441566666667

00:58:31.470 --> 00:58:36.064 So what one can do to liver biopsy to make

NOTE Confidence: 0.814441566666667

00:58:36.064 --> 00:58:40.125 it more informative so that you know we.

NOTE Confidence: 0.814441566666667

00:58:40.125 --> 00:58:42.752 Still do liver biopsy and

NOTE Confidence: 0.814441566666667

00:58:42.752 --> 00:58:43.676 get more information.

NOTE Confidence: 0.814441566666667

00:58:43.680 --> 00:58:45.290 That is not easily available

NOTE Confidence: 0.814441566666667

00:58:45.290 --> 00:58:46.256 from other weeds,

NOTE Confidence: 0.814441566666667

00:58:46.260 --> 00:58:48.100 so I know that I'm close to time,

NOTE Confidence: 0.814441566666667

00:58:48.100 --> 00:58:51.898 so I'll just quickly go over this thing and.

NOTE Confidence: 0.814441566666667

00:58:51.900 --> 00:58:54.004 Talk briefly about the

NOTE Confidence: 0.814441566666667

00:58:54.004 --> 00:58:55.902 the uh advanced Histology,

NOTE Confidence: 0.814441566666667

00:58:55.902 --> 00:58:58.007 which is something that Rick

NOTE Confidence: 0.814441566666667

00:58:58.007 --> 00:59:00.222 Torres has developed and he has

NOTE Confidence: 0.814441566666667

00:59:00.222 --> 00:59:01.707 already given a grand round,

NOTE Confidence: 0.814441566666667

00:59:01.710 --> 00:59:04.234 so I'm not going to kind of go over

NOTE Confidence: 0.814441566666667

00:59:04.234 --> 00:59:06.336 all the things that he has done,

NOTE Confidence: 0.814441566666667

00:59:06.336 --> 00:59:09.424 but what he has done is he has

NOTE Confidence: 0.814441566666667

00:59:09.424 --> 00:59:13.518 applied clearing of tissues and using

NOTE Confidence: 0.814441566666667

00:59:13.518 --> 00:59:16.440 multiphoton microscopy generated.

NOTE Confidence: 0.814441566666667

00:59:16.440 --> 00:59:19.405 Computer algorithms that can convert

NOTE Confidence: 0.814441566666667

00:59:19.405 --> 00:59:22.370 images acquired by multiphoton microscopy

NOTE Confidence: 0.814441566666667

00:59:22.455 --> 00:59:24.060 into equivalence mathematically,

NOTE Confidence: 0.814441566666667

00:59:24.060 --> 00:59:26.660 and this produces beautiful

NOTE Confidence: 0.814441566666667

00:59:26.660 --> 00:59:30.358 images that can be put on servers

NOTE Confidence: 0.814441566666667

00:59:30.358 --> 00:59:32.298 that can be accessed remotely.

NOTE Confidence: 0.814441566666667

00:59:32.300 --> 00:59:35.114 You can see these images have high

NOTE Confidence: 0.814441566666667

00:59:35.114 --> 00:59:37.285 quality of tissue Histology with

NOTE Confidence: 0.814441566666667

00:59:37.285 --> 00:59:41.061 great details and you can look at many

NOTE Confidence: 0.814441566666667

00:59:41.061 --> 00:59:44.109 multiple different levels you can use.

NOTE Confidence: 0.814441566666667

00:59:44.110 --> 00:59:44.382 Second,

NOTE Confidence: 0.814441566666667

00:59:44.382 --> 00:59:46.286 harmonic generation to look at the collagen,

NOTE Confidence: 0.814441566666667

00:59:46.290 --> 00:59:48.036 which is very important to assessment

NOTE Confidence: 0.814441566666667

00:59:48.036 --> 00:59:50.009 of fibrosis in liver as they showed.

NOTE Confidence: 0.814441566666667

00:59:50.010 --> 00:59:52.159 And you can look at these tissues

NOTE Confidence: 0.814441566666667

00:59:52.159 --> 00:59:53.080 in three dimension,

NOTE Confidence: 0.814441566666667

00:59:53.080 --> 00:59:56.698 which adds a certain level of

NOTE Confidence: 0.814441566666667

00:59:56.700 --> 00:59:59.130 advanced Histology which is not

NOTE Confidence: 0.814441566666667

00:59:59.130 --> 01:00:01.560 available with our routine methods.

NOTE Confidence: 0.814441566666667

93

01:00:01.560 --> 01:00:03.960 You can color this.

NOTE Confidence: 0.814441566666667

01:00:03.960 --> 01:00:05.680 Uhm?

NOTE Confidence: 0.814441566666667

01:00:05.680 --> 01:00:07.808 Find links in any color that you

NOTE Confidence: 0.814441566666667

01:00:07.808 --> 01:00:10.217 would like and to resemble any stain,

NOTE Confidence: 0.814441566666667

01:00:10.220 --> 01:00:13.188 and we also have started working on

NOTE Confidence: 0.814441566666667

01:00:13.190 --> 01:00:15.488 this using liberty and this work

NOTE Confidence: 0.814441566666667

01:00:15.488 --> 01:00:17.764 was done with all of you portal

NOTE Confidence: 0.814441566666667

01:00:17.764 --> 01:00:19.813 who was our fellow and in this

NOTE Confidence: 0.814441566666667

01:00:19.813 --> 01:00:22.117 study we just tried to look at you

NOTE Confidence: 0.814441566666667

01:00:22.117 --> 01:00:24.110 know how does the Histology done

NOTE Confidence: 0.814441566666667

01:00:24.110 --> 01:00:26.674 by this advanced Histology look or

NOTE Confidence: 0.814441566666667

01:00:26.674 --> 01:00:28.578 compared to traditional astrology,

NOTE Confidence: 0.814441566666667

01:00:28.580 --> 01:00:30.770 and our findings were that they

NOTE Confidence: 0.814441566666667

01:00:30.770 --> 01:00:33.110 look very good without any artifacts

NOTE Confidence: 0.814441566666667

01:00:33.110 --> 01:00:35.758 and the diagnosis can be made of.

NOTE Confidence: 0.814441566666667

01:00:35.758 --> 01:00:37.984 Significance of in one of the cases

NOTE Confidence: 0.814441566666667

01:00:37.984 --> 01:00:40.189 where you could study the levels,

NOTE Confidence: 0.814441566666667

01:00:40.190 --> 01:00:42.245 the fibrosis stage changed from

NOTE Confidence: 0.814441566666667

01:00:42.245 --> 01:00:43.478 2 to cirrhosis.

NOTE Confidence: 0.814441566666667

01:00:43.480 --> 01:00:45.785 Based on this advanced three

NOTE Confidence: 0.814441566666667

01:00:45.785 --> 01:00:47.629 dimensional or multiple levels.

NOTE Confidence: 0.814441566666667

01:00:47.630 --> 01:00:49.735 Histology compared to the two

NOTE Confidence: 0.814441566666667

01:00:49.735 --> 01:00:51.419 dimensional strategy with two.

NOTE Confidence: 0.814441566666667

01:00:51.420 --> 01:00:53.620 So on top of this,

NOTE Confidence: 0.814441566666667

01:00:53.620 --> 01:00:56.311 if we don't add what is going on with

NOTE Confidence: 0.814441566666667

01:00:56.311 --> 01:00:59.246 the analysis of tissues by either

NOTE Confidence: 0.814441566666667

01:00:59.246 --> 01:01:01.801 mass spectrometry or ramen spectrometry,

NOTE Confidence: 0.814441566666667

01:01:01.810 --> 01:01:04.706 I think one can look at the chemical

NOTE Confidence: 0.814441566666667

01:01:04.706 --> 01:01:06.283 composition of various tissues

NOTE Confidence: 0.814441566666667

01:01:06.283 --> 01:01:09.013 that are either a batter sites or

NOTE Confidence: 0.814441566666667

01:01:09.013 --> 01:01:11.636 other components that goes beyond

NOTE Confidence: 0.814441566666667

01:01:11.636 --> 01:01:14.217 just DNA and RNA evaluation.

NOTE Confidence: 0.814441566666667

01:01:14.217 --> 01:01:16.805 This allows for quantitative

NOTE Confidence: 0.814441566666667

01:01:16.805 --> 01:01:19.393 analysis of various things,

NOTE Confidence: 0.814441566666667

01:01:19.400 --> 01:01:21.364 including lipids, proteins, metals.

NOTE Confidence: 0.814441566666667

01:01:21.364 --> 01:01:24.820 Nucleic acids at the very tissue level,

NOTE Confidence: 0.814441566666667

01:01:24.820 --> 01:01:26.510 which can be identified using

NOTE Confidence: 0.814441566666667

01:01:26.510 --> 01:01:28.670 probes or on two dimensional slides,

NOTE Confidence: 0.814441566666667

01:01:28.670 --> 01:01:31.442 will allows for insight to localization

NOTE Confidence: 0.814441566666667

01:01:31.442 --> 01:01:33.860 of those chemicals within tissues

NOTE Confidence: 0.814441566666667

01:01:33.860 --> 01:01:36.394 to the extent that is now almost

NOTE Confidence: 0.814441566666667

01:01:36.394 --> 01:01:38.010 at the cellular level,

NOTE Confidence: 0.814441566666667

01:01:38.010 --> 01:01:40.968 and I see the application of

NOTE Confidence: 0.814441566666667

01:01:40.968 --> 01:01:41.954 this technology

NOTE Confidence: 0.763834924

01:01:41.960 --> 01:01:43.694 in routine Histology.

NOTE Confidence: 0.763834924

01:01:43.694 --> 01:01:45.680 Advancing our knowledge in

NOTE Confidence: 0.763834924

01:01:45.680 --> 01:01:48.170 each area we are working with

NOTE Confidence: 0.763834924

01:01:48.170 --> 01:01:50.290 this company site to various.

NOTE Confidence: 0.763834924

01:01:50.290 --> 01:01:52.315 Sort of apply this technology

NOTE Confidence: 0.763834924

01:01:52.315 --> 01:01:53.530 to liver biopsies.

NOTE Confidence: 0.763834924

01:01:53.530 --> 01:01:56.188 They're already working on breast cancer.

NOTE Confidence: 0.763834924

01:01:56.190 --> 01:01:57.933 In our department,

NOTE Confidence: 0.763834924

01:01:57.933 --> 01:02:01.115 our work has been slightly delayed

NOTE Confidence: 0.763834924

01:02:01.115 --> 01:02:02.490 due to the COVID situation,

NOTE Confidence: 0.763834924

01:02:02.490 --> 01:02:04.490 but I'm very excited by

NOTE Confidence: 0.763834924

01:02:04.490 --> 01:02:06.022 collaboration with this company.

NOTE Confidence: 0.763834924

01:02:06.022 --> 01:02:09.006 Looking at, you know these new

NOTE Confidence: 0.763834924

01:02:09.006 --> 01:02:10.247 technologies in liver biopsies,

NOTE Confidence: 0.763834924

01:02:10.247 --> 01:02:11.850 so if you missed some of the

NOTE Confidence: 0.763834924

01:02:11.899 --> 01:02:13.731 things that I say that if you need

NOTE Confidence: 0.763834924

01:02:13.731 --> 01:02:14.967 more details we have addressed

NOTE Confidence: 0.763834924

01:02:14.967 --> 01:02:16.780 this in one of the reviews that

NOTE Confidence: 0.763834924

01:02:16.833 --> 01:02:18.687 we just recently published, so.

NOTE Confidence: 0.763834924

01:02:18.687 --> 01:02:19.968 Justin, in summary,

NOTE Confidence: 0.763834924

01:02:19.968 --> 01:02:22.103 I think Universal fibrosis system

NOTE Confidence: 0.763834924

01:02:22.103 --> 01:02:24.424 for assessing fibrosis and liver

NOTE Confidence: 0.763834924

01:02:24.424 --> 01:02:26.244 disease is desperately needed

NOTE Confidence: 0.763834924

01:02:26.244 --> 01:02:28.977 and it will be very useful when

NOTE Confidence: 0.763834924

01:02:28.977 --> 01:02:30.798 we can validate this system.

NOTE Confidence: 0.763834924

01:02:30.798 --> 01:02:32.888 I've shown you the subclassification

NOTE Confidence: 0.763834924

01:02:32.888 --> 01:02:33.306 cirrhosis.

NOTE Confidence: 0.763834924

01:02:33.310 --> 01:02:36.320 How it can be done and hopefully

NOTE Confidence: 0.763834924

01:02:36.320 --> 01:02:38.710 with advances in related fields.

NOTE Confidence: 0.763834924

01:02:38.710 --> 01:02:41.989 This will find more place in

NOTE Confidence: 0.763834924

01:02:41.989 --> 01:02:43.618 routine clinical practice.

NOTE Confidence: 0.763834924

01:02:43.620 --> 01:02:45.664 The evaluation of regression

NOTE Confidence: 0.763834924

01:02:45.664 --> 01:02:47.708 and progression of fibrosis.

NOTE Confidence: 0.763834924

01:02:47.710 --> 01:02:51.038 It is in a novel concept and it

NOTE Confidence: 0.763834924

01:02:51.038 --> 01:02:52.372 certainly requires some refinement

NOTE Confidence: 0.763834924

01:02:52.372 --> 01:02:54.500 before it can be used in practice,

NOTE Confidence: 0.763834924

01:02:54.500 --> 01:02:58.190 but this is almost there and I've

NOTE Confidence: 0.763834924

01:02:58.190 --> 01:03:00.365 shown you some quantitative image

NOTE Confidence: 0.763834924

01:03:00.365 --> 01:03:02.961 analysis that can be applied and

NOTE Confidence: 0.763834924

01:03:02.961 --> 01:03:05.238 with the availability of artificial

NOTE Confidence: 0.763834924

01:03:05.238 --> 01:03:07.870 intelligence and machine learning,

NOTE Confidence: 0.763834924

01:03:07.870 --> 01:03:10.266 this conservative advance our

NOTE Confidence: 0.763834924

01:03:10.266 --> 01:03:12.063 understanding and clinical

NOTE Confidence: 0.763834924

01:03:12.063 --> 01:03:14.560 use of liver biopsy.

NOTE Confidence: 0.763834924

01:03:14.560 --> 01:03:16.792 And the most exciting part of this is

NOTE Confidence: 0.763834924

01:03:16.792 --> 01:03:18.382 application of molecular pathology or

NOTE Confidence: 0.763834924

01:03:18.382 --> 01:03:21.020 chemistry at the tissue level or cell level,

NOTE Confidence: 0.763834924

01:03:21.020 --> 01:03:22.192 which is tremendous potential

NOTE Confidence: 0.763834924

01:03:22.192 --> 01:03:23.950 not only in the cancer field,

NOTE Confidence: 0.763834924

01:03:23.950 --> 01:03:24.906 but inflammatory,

NOTE Confidence: 0.763834924

01:03:24.906 --> 01:03:26.340 metabolic and infectious

NOTE Confidence: 0.763834924

01:03:26.340 --> 01:03:28.252 disorders of the liver.

NOTE Confidence: 0.763834924

01:03:28.260 --> 01:03:29.046 So with that,

NOTE Confidence: 0.763834924

01:03:29.046 --> 01:03:30.618 thank you very much for attention.

NOTE Confidence: 0.763834924

01:03:30.620 --> 01:03:32.796 I know I went a few minutes overtime,

NOTE Confidence: 0.763834924

01:03:32.800 --> 01:03:36.106 but I'll be happy to take any

NOTE Confidence: 0.763834924

01:03:36.106 --> 01:03:37.780 questions if there are any.

NOTE Confidence: 0.763834924

01:03:37.780 --> 01:03:38.260 Thank you,

NOTE Confidence: 0.881750644615385

01:03:38.960 --> 01:03:42.983 Dan Pat, thank you for that amazing tour and

NOTE Confidence: 0.881750644615385

01:03:42.983 --> 01:03:46.312 thank you for sharing this body of work.

NOTE Confidence: 0.881750644615385

01:03:46.312 --> 01:03:48.490 That's very deep in fighting in

NOTE Confidence: 0.881750644615385

01:03:48.564 --> 01:03:51.080 liver fibrosis and especially

NOTE Confidence: 0.881750644615385

01:03:51.080 --> 01:03:52.338 exciting technologies.

NOTE Confidence: 0.881750644615385

01:03:52.340 --> 01:03:54.962 At the end I I'll start.

NOTE Confidence: 0.881750644615385

01:03:54.962 --> 01:03:57.144 I think we can, you know take 5

100

NOTE Confidence: 0.881750644615385

01:03:57.144 --> 01:03:58.530 minutes for questions and I bet.

NOTE Confidence: 0.881750644615385

01:03:58.530 --> 01:04:00.366 There's a lot more than that.

NOTE Confidence: 0.881750644615385

01:04:00.370 --> 01:04:02.185 Well, I'll just start while

NOTE Confidence: 0.881750644615385

01:04:02.185 --> 01:04:04.000 people are collecting their their

NOTE Confidence: 0.881750644615385

01:04:04.063 --> 01:04:06.424 thoughts back to the size of the

NOTE Confidence: 0.881750644615385

01:04:06.424 --> 01:04:08.330 nodules in the fiber septien,

NOTE Confidence: 0.881750644615385

01:04:08.330 --> 01:04:09.878 a diagnostic liver biopsy.

NOTE Confidence: 0.930118608

01:04:10.690 --> 01:04:12.460 What are your thoughts as

NOTE Confidence: 0.818848412

01:04:12.470 --> 01:04:16.829 to when, if, or should this kind of

NOTE Confidence: 0.818848412

01:04:16.829 --> 01:04:19.860 information be provided in a biopsy report?

NOTE Confidence: 0.85353688

01:04:21.640 --> 01:04:24.195 I think this is a great question,

NOTE Confidence: 0.85353688

01:04:24.200 --> 01:04:26.775 and while the systems that

NOTE Confidence: 0.85353688

01:04:26.775 --> 01:04:29.498 I mentioned have been now,

NOTE Confidence: 0.85353688

01:04:29.498 --> 01:04:33.446 you know literature for many years.

NOTE Confidence: 0.85353688

01:04:33.450 --> 01:04:35.496 As you know, in clinical practice

NOTE Confidence: 0.85353688

01:04:35.496 --> 01:04:37.690 we really don't sign out for ABC,

NOTE Confidence: 0.85353688

01:04:37.690 --> 01:04:40.668 and I think this is largely due to the

NOTE Confidence: 0.85353688

01:04:40.668 --> 01:04:42.864 fact that in clinical practice the

NOTE Confidence: 0.85353688

01:04:42.864 --> 01:04:44.937 implications of that are still limited.

NOTE Confidence: 0.85353688

01:04:44.940 --> 01:04:48.522 But the areas where this is going to get

NOTE Confidence: 0.85353688

01:04:48.522 --> 01:04:51.786 important and the areas where it will find a.

NOTE Confidence: 0.85353688

01:04:51.790 --> 01:04:54.040 You know application is when

NOTE Confidence: 0.85353688

01:04:54.040 --> 01:04:56.290 treatment decisions are based on

NOTE Confidence: 0.85353688

01:04:56.370 --> 01:04:59.030 presence of early versus capacitors.

NOTE Confidence: 0.85353688

01:04:59.030 --> 01:05:00.675 For example hepatitis C right

NOTE Confidence: 0.85353688

01:05:00.675 --> 01:05:01.991 now everybody with cirrhosis

NOTE Confidence: 0.85353688

01:05:01.991 --> 01:05:03.997 gets treated with antiviral drugs

NOTE Confidence: 0.85353688

01:05:03.997 --> 01:05:05.617 because they're highly effective,

NOTE Confidence: 0.85353688

01:05:05.620 --> 01:05:07.858 but if one realizes that it's

NOTE Confidence: 0.85353688

01:05:07.858 --> 01:05:09.790 not beneficial in people who

NOTE Confidence: 0.85353688

01:05:09.790 --> 01:05:11.428 already have very advanced stage,

NOTE Confidence: 0.85353688

01:05:11.428 --> 01:05:13.346 whether you should treat them or you

NOTE Confidence: 0.85353688

01:05:13.346 --> 01:05:15.045 should take them straight to transplant

NOTE Confidence: 0.85353688

01:05:15.045 --> 01:05:16.610 all those issues will come up.

NOTE Confidence: 0.85353688

01:05:16.610 --> 01:05:18.444 Because as we saw in our study,

NOTE Confidence: 0.85353688

01:05:18.450 --> 01:05:20.286 when their patients with hepatitis C

NOTE Confidence: 0.85353688

01:05:20.286 --> 01:05:22.266 are very advanced, the regression.

NOTE Confidence: 0.85353688

01:05:22.266 --> 01:05:25.334 Is very little or minimal as

NOTE Confidence: 0.85353688

01:05:25.334 --> 01:05:26.606 I mentioned earlier,

NOTE Confidence: 0.85353688

01:05:26.606 --> 01:05:28.302 even patients who have

NOTE Confidence: 0.85353688

01:05:28.302 --> 01:05:29.150 hepatocellular carcinoma,

NOTE Confidence: 0.85353688

01:05:29.150 --> 01:05:31.694 for example the selection of patients

NOTE Confidence: 0.85353688

01:05:31.694 --> 01:05:34.840 based on early versus advanced cirrhosis,

NOTE Confidence: 0.85353688

01:05:34.840 --> 01:05:35.578 could be critical.

NOTE Confidence: 0.85353688

01:05:35.578 --> 01:05:37.300 And we don't do it right now.

NOTE Confidence: 0.85353688

01:05:37.300 --> 01:05:39.518 But I have tried this indirectly

NOTE Confidence: 0.85353688

01:05:39.518 --> 01:05:42.206 on some patients and I think

NOTE Confidence: 0.85353688

01:05:42.206 --> 01:05:44.040 that system does work.

NOTE Confidence: 0.85353688

01:05:44.040 --> 01:05:44.640 OK,

NOTE Confidence: 0.85353688

01:05:44.640 --> 01:05:46.280 well we'll wait for your cue.

NOTE Confidence: 0.915415508888889

01:05:48.040 --> 01:05:49.416 There's there's a couple

NOTE Confidence: 0.915415508888889

01:05:49.416 --> 01:05:51.136 of comments in the chat.

NOTE Confidence: 0.915415508888889

01:05:51.140 --> 01:05:53.190 Doctor Boyer is saying the

NOTE Confidence: 0.915415508888889

01:05:53.190 --> 01:05:54.830 reversibility of fibrosis depends

NOTE Confidence: 0.915415508888889

01:05:54.830 --> 01:05:57.617 to a certain extent on the degree

NOTE Confidence: 0.915415508888889

01:05:57.617 --> 01:05:59.153 of crosslinking of collagen.

NOTE Confidence: 0.915415508888889

01:05:59.160 --> 01:06:01.290 Is there any way to assess

NOTE Confidence: 0.915415508888889

01:06:01.290 --> 01:06:03.089 this histologically and how we

NOTE Confidence: 0.915415508888889

01:06:03.089 --> 01:06:04.949 all get to your question next?

NOTE Confidence: 0.888902995714286

01:06:05.660 --> 01:06:07.116 Sure, I think that's a great question.

NOTE Confidence: 0.888902995714286

01:06:07.120 --> 01:06:10.504 I think one of the things that people

NOTE Confidence: 0.888902995714286

01:06:10.504 --> 01:06:13.928 talk about the irreversible fibrosis is

NOTE Confidence: 0.888902995714286

01:06:13.928 --> 01:06:16.426 based on the fact that the the early

NOTE Confidence: 0.888902995714286

01:06:16.426 --> 01:06:18.904 fibrosis have less crosslinking and the

NOTE Confidence: 0.888902995714286

01:06:18.904 --> 01:06:20.970 advanced fibrosis more cross linking,

NOTE Confidence: 0.888902995714286

01:06:20.970 --> 01:06:22.674 which is probably indirectly

NOTE Confidence: 0.888902995714286

01:06:22.674 --> 01:06:24.378 reflected in our studies.

NOTE Confidence: 0.888902995714286

01:06:24.380 --> 01:06:27.997 As you know, more thick SEPTA, but.

NOTE Confidence: 0.888902995714286

01:06:27.997 --> 01:06:30.799 Truly, the functional assessment or the

NOTE Confidence: 0.888902995714286

01:06:30.799 --> 01:06:33.022 chemical assessment of this fibrosis

NOTE Confidence: 0.888902995714286

01:06:33.022 --> 01:06:35.626 has to be done by other techniques

NOTE Confidence: 0.888902995714286

01:06:35.630 --> 01:06:37.430 you know about histologically,

NOTE Confidence: 0.888902995714286

01:06:37.430 --> 01:06:40.130 people have used darker blue staining

NOTE Confidence: 0.888902995714286

01:06:40.203 --> 01:06:42.298 on trichrome stains as indirect

NOTE Confidence: 0.888902995714286

01:06:42.298 --> 01:06:44.477 measure of cross crosslet collagen,

NOTE Confidence: 0.888902995714286

01:06:44.477 --> 01:06:47.956 but that is a crude method only,

NOTE Confidence: 0.888902995714286

01:06:47.960 --> 01:06:51.257 so when I was showing about the

NOTE Confidence: 0.888902995714286

01:06:51.257 --> 01:06:52.410 chemical molecular pathology,

NOTE Confidence: 0.888902995714286

01:06:52.410 --> 01:06:54.790 I think these are some of the

NOTE Confidence: 0.888902995714286

01:06:54.790 --> 01:06:56.555 things that one can certainly

NOTE Confidence: 0.888902995714286

01:06:56.555 --> 01:06:58.595 assess to understand the you know.

NOTE Confidence: 0.888902995714286

01:06:58.600 --> 01:06:59.850 The whole nature of process.

NOTE Confidence: 0.912226538

01:07:02.570 --> 01:07:03.580 In the interest of time,

NOTE Confidence: 0.912226538

01:07:03.580 --> 01:07:07.500 I'll read how we use question patients

NOTE Confidence: 0.912226538

01:07:07.500 --> 01:07:10.250 with a paddle portal sclerosis.

NOTE Confidence: 0.912226538

01:07:10.250 --> 01:07:13.286 Can have bad clinical portal hypertension.

NOTE Confidence: 0.912226538

01:07:13.290 --> 01:07:15.800 And Pathologic exam often shows

NOTE Confidence: 0.912226538

01:07:15.800 --> 01:07:17.306 nodular regenerative hyperplasia,

NOTE Confidence: 0.912226538

01:07:17.310 --> 01:07:20.747 but not that many thick fiber spans.

NOTE Confidence: 0.912226538

01:07:20.750 --> 01:07:23.210 If any, how does your model

NOTE Confidence: 0.912226538

01:07:23.210 --> 01:07:24.850 tease out this population?

NOTE Confidence: 0.912226538

01:07:24.850 --> 01:07:27.244 How does fibrosis regression and then this

NOTE Confidence: 0.912226538

01:07:27.244 --> 01:07:30.020 might be a separate or same question?

NOTE Confidence: 0.912226538

01:07:30.020 --> 01:07:34.154 How does fibrosis regression correlate with

NOTE Confidence: 0.912226538

01:07:34.154 --> 01:07:38.290 HVPG slash clinical portal hypertension?

NOTE Confidence: 0.912226538

01:07:38.290 --> 01:07:39.450 And then a third. Also,

NOTE Confidence: 0.912226538

01:07:39.450 --> 01:07:41.418 how does it correlate with elastography,

NOTE Confidence: 0.912226538

01:07:41.420 --> 01:07:43.748 which is a global assessment so

NOTE Confidence: 0.912226538

01:07:43.750 --> 01:07:47.380 NRH in Portola Peppers, chlorosis?

NOTE Confidence: 0.912226538

01:07:47.380 --> 01:07:49.552 And then on aisle can repeat

NOTE Confidence: 0.912226538

01:07:49.552 --> 01:07:51.690 those questions so you can see it.

NOTE Confidence: 0.892877975

01:07:52.040 --> 01:07:54.456 Yeah, so I think that's a great question.

NOTE Confidence: 0.892877975

01:07:54.460 --> 01:07:55.824 So first thing conceptually,

NOTE Confidence: 0.892877975

01:07:55.824 --> 01:07:58.629 when you're talking about a part of portal

NOTE Confidence: 0.892877975

01:07:58.629 --> 01:08:00.723 sclerosis or non static profile process.

NOTE Confidence: 0.892877975

01:08:00.730 --> 01:08:02.920 In that setting you have portal

NOTE Confidence: 0.892877975

01:08:02.920 --> 01:08:04.920 hypertension even without five process.

NOTE Confidence: 0.892877975

01:08:04.920 --> 01:08:06.428 So it's all hemodynamics.

NOTE Confidence: 0.892877975

01:08:06.428 --> 01:08:08.964 So in that setting you know certainly

NOTE Confidence: 0.892877975

01:08:08.964 --> 01:08:11.156 we cannot apply what I was saying in

NOTE Confidence: 0.892877975

01:08:11.156 --> 01:08:13.359 terms of the five receptor or the nodule

NOTE Confidence: 0.892877975

01:08:13.359 --> 01:08:15.281 size because you don't see them and

NOTE Confidence: 0.892877975

01:08:15.281 --> 01:08:17.528 there's the whole thing about liver that.

NOTE Confidence: 0.892877975

01:08:17.530 --> 01:08:20.338 Deliver the hemodynamics is sticky feature

NOTE Confidence: 0.892877975

01:08:20.338 --> 01:08:22.660 and inhibited portal closes because

NOTE Confidence: 0.892877975

01:08:22.660 --> 01:08:25.387 of variety of things you have already

NOTE Confidence: 0.892877975

01:08:25.387 --> 01:08:27.432 deranged hemodynamics that leads to

NOTE Confidence: 0.892877975

01:08:27.432 --> 01:08:29.429 clinical significant portal hypertension,

NOTE Confidence: 0.892877975

01:08:29.430 --> 01:08:31.278 and the complications, however,

NOTE Confidence: 0.892877975

01:08:31.278 --> 01:08:33.126 was mentioning is that.

NOTE Confidence: 0.892877975

01:08:33.130 --> 01:08:34.630 In advanced Digital helper to

NOTE Confidence: 0.892877975

01:08:34.630 --> 01:08:35.230 portal sclerosis,

NOTE Confidence: 0.892877975

01:08:35.230 --> 01:08:37.180 you develop some partial modularity

NOTE Confidence: 0.892877975

01:08:37.180 --> 01:08:39.566 and what people call complete

NOTE Confidence: 0.892877975

01:08:39.566 --> 01:08:42.216 septic services in that setting.

NOTE Confidence: 0.892877975

01:08:42.216 --> 01:08:44.208 How one can apply this system?

NOTE Confidence: 0.892877975

01:08:44.210 --> 01:08:45.212 I don't know.

NOTE Confidence: 0.892877975

01:08:45.212 --> 01:08:47.550 It'll be an interesting thing to study,

NOTE Confidence: 0.892877975

01:08:47.550 --> 01:08:50.690 but it's also clear that once

NOTE Confidence: 0.892877975

01:08:50.690 --> 01:08:51.770 you develop fibrosis,

NOTE Confidence: 0.892877975

01:08:51.770 --> 01:08:53.870 even in that subgroup of patients,

NOTE Confidence: 0.892877975

01:08:53.870 --> 01:08:56.398 your progression is faster.

NOTE Confidence: 0.892877975

01:08:56.400 --> 01:08:58.768 So that's about the the the question of.

NOTE Confidence: 0.892877975

01:08:58.770 --> 01:09:02.198 You know a application of fibrosis and non

NOTE Confidence: 0.892877975

01:09:02.198 --> 01:09:04.046 static portal fibrosis or high particles.

NOTE Confidence: 0.892877975

01:09:04.050 --> 01:09:04.511 Closest.

NOTE Confidence: 0.892877975

01:09:04.511 --> 01:09:07.738 The other issue is how do these

NOTE Confidence: 0.892877975

01:09:07.738 --> 01:09:09.880 things you know?

NOTE Confidence: 0.892877975

01:09:09.880 --> 01:09:12.496 Oh behave or or assist on a clinical

NOTE Confidence: 0.892877975

01:09:12.496 --> 01:09:14.345 non invasive methods of fibrosis

NOTE Confidence: 0.892877975

01:09:14.345 --> 01:09:16.963 and these are the limitations of non

NOTE Confidence: 0.892877975

01:09:17.034 --> 01:09:19.239 invasive methods of high process.

NOTE Confidence: 0.892877975

01:09:19.240 --> 01:09:23.320 However again this is a whole

NOTE Confidence: 0.892877975

01:09:23.320 --> 01:09:24.220 separate discussion.

NOTE Confidence: 0.892877975

01:09:24.220 --> 01:09:26.920 In these patients there is evidence,

NOTE Confidence: 0.892877975

01:09:26.920 --> 01:09:27.356 support,

NOTE Confidence: 0.892877975

01:09:27.356 --> 01:09:29.533 hypertension which you can access

NOTE Confidence: 0.892877975

01:09:29.533 --> 01:09:32.997 by many means by other tests and the

NOTE Confidence: 0.892877975

01:09:32.997 --> 01:09:35.978 key thing is that both by clinical

NOTE Confidence: 0.892877975

01:09:35.978 --> 01:09:37.973 assessment as well as imaging

NOTE Confidence: 0.892877975

01:09:37.973 --> 01:09:40.250 assessment they don't have high costs.

NOTE Confidence: 0.892877975

01:09:40.250 --> 01:09:43.072 I really don't have fibrosis so this

NOTE Confidence: 0.892877975

01:09:43.072 --> 01:09:45.520 is one area where certainly there's

NOTE Confidence: 0.892877975

01:09:45.520 --> 01:09:48.068 a discordance between the fibrosis

NOTE Confidence: 0.892877975

01:09:48.068 --> 01:09:50.044 stage and clinical presentation

NOTE Confidence: 0.892877975

01:09:50.044 --> 01:09:51.526 of portal hypertension,

NOTE Confidence: 0.892877975

01:09:51.530 --> 01:09:53.650 but there's also a key towards the diagnosis,

NOTE Confidence: 0.892877975

01:09:53.650 --> 01:09:57.258 so I don't know if there are other

NOTE Confidence: 0.892877975

01:09:57.258 --> 01:09:59.378 limitations of elastography in the

NOTE Confidence: 0.892877975

01:09:59.378 --> 01:10:01.408 setting of idiopathic portal hypertension,

NOTE Confidence: 0.892877975

01:10:01.410 --> 01:10:03.024 but maybe Doctor boy or somebody

NOTE Confidence: 0.892877975

01:10:03.024 --> 01:10:04.728 else who knows more about this

NOTE Confidence: 0.892877975

01:10:04.728 --> 01:10:06.438 than me can answer this question.

NOTE Confidence: 0.928414394285714

01:10:07.960 --> 01:10:11.019 How I don't know if if we

NOTE Confidence: 0.928414394285714

01:10:11.020 --> 01:10:12.620 answered all your questions,

NOTE Confidence: 0.928414394285714

01:10:12.620 --> 01:10:14.760 but any further, how are any others?

NOTE Confidence: 0.928414394285714

01:10:14.760 --> 01:10:15.935 How you want to comment?

NOTE Confidence: 0.928414394285714

01:10:15.940 --> 01:10:18.990 Or are there any other further questions?

NOTE Confidence: 0.745453969

01:10:20.620 --> 01:10:23.644 Yes. So I I do see a comment by

NOTE Confidence: 0.745453969

01:10:23.644 --> 01:10:27.075 Joe Metric that the MALDI TOF or

NOTE Confidence: 0.745453969

01:10:27.075 --> 01:10:29.381 the multi technique can identify

NOTE Confidence: 0.745453969

01:10:29.381 --> 01:10:30.284 the crosslinking collagen,

NOTE Confidence: 0.745453969

01:10:30.284 --> 01:10:32.090 and that's what exactly I was

NOTE Confidence: 0.745453969

01:10:32.144 --> 01:10:33.874 mentioning that these techniques

NOTE Confidence: 0.745453969

01:10:33.874 --> 01:10:36.976 of mass spectrometry or or Rahman

NOTE Confidence: 0.745453969

01:10:36.976 --> 01:10:39.694 spectrometry will be able to answer

NOTE Confidence: 0.745453969

01:10:39.694 --> 01:10:42.106 the question of the actual chemical

NOTE Confidence: 0.745453969

01:10:42.191 --> 01:10:45.460 alteration that taking place at that level.

NOTE Confidence: 0.745453969

01:10:45.460 --> 01:10:46.584 So thank you Joe,

NOTE Confidence: 0.745453969

01:10:46.584 --> 01:10:47.926 I think you know that's

NOTE Confidence: 0.745453969

01:10:47.926 --> 01:10:49.006 absolutely right what you say.

NOTE Confidence: 0.84012485

01:10:52.180 --> 01:10:55.060 Well Dan pat. I want to

NOTE Confidence: 0.956630183333333

01:10:55.060 --> 01:10:58.558 thank you again for this really

NOTE Confidence: 0.956630183333333

01:10:58.558 --> 01:11:01.020 informative and engaging grand rounds

NOTE Confidence: 0.956630183333333

01:11:01.020 --> 01:11:03.860 and I know there was a very large

NOTE Confidence: 0.956630183333333

01:11:03.940 --> 01:11:06.761 audience and the vast majority of whom

NOTE Confidence: 0.956630183333333

01:11:06.761 --> 01:11:09.694 are hung out to the very end here.

NOTE Confidence: 0.956630183333333

01:11:09.694 --> 01:11:12.122 Thank you again, thank you everybody for

NOTE Confidence: 0.956630183333333

01:11:12.122 --> 01:11:14.000 attending and have a nice afternoon.

NOTE Confidence: 0.830546846

01:11:14.910 --> 01:11:16.260 Thank you all. Bye bye.