

WEBVTT

NOTE duration:"00:28:23.8530000"

NOTE language:en-us

NOTE Confidence: 0.894401907920837

00:00:00.030 --> 00:00:06.840 Oh, that's true that's why I'm having so much trouble, OK, they all look the same with the same.

NOTE Confidence: 0.93316650390625

00:00:07.580 --> 00:00:41.760 All right here alright so high I'm Kristen Knowlton. I'm radiation. Oncologist here at Yale. My primary practices in Hamden CT. I know some of you in the audience as my patience. It's nice to see you and thanks for coming so cancer as you can see from this whole group here is really a multidisciplinary approach. It's not just the surgeon, not just the medical Oncologist. There's a lot of people working together to help patients achieve cure and have good quality of life.

NOTE Confidence: 0.929582059383392

00:00:41.760 --> 00:00:45.570 And I probably am even missing some people on this page.

NOTE Confidence: 0.932578802108765

00:00:46.120 --> 00:01:21.130 And even in our office for radiation oncology. It's not just the physician. There's a medical physicist who is helping to calibrate the machines and make sure that treatment is delivered accurately every day and every time there's the medical dosimetrist? Who is someone who has a degree. In designing radiation plans. That's marry one of our medical dosimetrist, so she and I work closely to design the radiation plans therapists are the ones who run the machines and set the patients up each day and they really other ones communicating each day with the patients, as well.

NOTE Confidence: 0.939613163471222

00:01:21.160 --> 00:01:48.810 We have a registered nurse an advanced practice provider medical assistant, not in my office. But some do a clinical social worker a registered dietitian and I realized I left out our clerical staff. You know our receptionist needs to answer the phone and greet patients and keep everything organized and medical secretary needs to be doing all the scheduling and make sure that patients needs are being addressed so it's really a team approach on many levels.

NOTE Confidence: 0.923765480518341

00:01:49.840 --> 00:02:20.350 So a lot of people I mean, many of you are patients at an may know more about radiation that I do from the patient's perspective, but people come into our office very nervous and not really understanding what radiation is so it's a field of medicine that uses ionizing radiation to treat a

lot of medical conditions. We actually treat. Some benign diseases, too. But most of our patients do have a cancer diagnosis, so ionizing radiation is basically radiation that has enough.

NOTE Confidence: 0.905714392662048

00:02:20.350 --> 00:02:51.060 Energy to remove an electron from an Atom enough energy to cause damage to cells because for example, when you go get a chest X Ray that's not ionizing radiation. That's not enough doesn't have enough energy to really kill the cancer cells are stuck us. This is the linear accelerator. It's the workhorse of our field so the patient as you can see here and we do have stained glass on the ceiling to try to make it a little bit.

NOTE Confidence: 0.895382940769196

00:02:52.070 --> 00:03:17.850 Palatable to be there and the machine you can see is not really near the patient where the patient playing the machine moves around the patient so most patients, even who have cluster cluster phobic still are able to do pretty well on the linear accelerator and the therapists who are delivering the radiation. They can see you and hear you the whole time, so any problems they would stop the machine immediately and come right in to help.

NOTE Confidence: 0.922194540500641

00:03:19.060 --> 00:03:54.070 Not that we ever having any problems. But so I know that the previous positions and those coming up. We're going to talk about this too. But the general principles for treatment of breast cancer surgery is usually not necessarily 1st in the list of treatment modalities. Some patients might receive chemotherapy first, but it is really considered the mainstay for most patients of their cancer. Treatment and some patients have breast conserving therapy, which doctor Adelson talked about how that's part of the Deescalate.

NOTE Confidence: 0.905307292938232

00:03:54.070 --> 00:04:24.240 Mission of treatment, meaning that the breast is preserved, but some patients have mastectomy an that's each patient is different each cancer is different and that's really a very personal. Decision made you know, one on one talking with your surgeon and the rest of your team too. And then some patients receive chemotherapy. Remember this is not necessarily an order that chemotherapy can come first, and doctor. Adelson talked about how now we're using word judicious and refined ways to help determine.

NOTE Confidence: 0.911111414432526

00:04:24.240 --> 00:04:56.930 If patients need chemotherapy, then you know radiation an usually we do treat patients with radiation if they preserve the breast and that's because in that setting the radiation markedly reduces the risk of the cancer coming back locally, but it's also been shown to reduce the risk of the cancer coming back elsewhere. And there's a survival advantage. That puts it on part puts the lumpectomy on part of having had a mastectomy

with less perioperative risk. Obviously you are taking on the radiation side effects.

NOTE Confidence: 0.924292922019959

00:04:56.930 --> 00:05:24.390 But in general because it's less invasive if a patient can have breast conserving surgery that may be the best choice for some and sometimes we do. Follow Mastectomy with radiation. That's for typically for tumors that are larger than 5 centimeters or patients who have involved nodes and then Doctor Adelson talked about how there is hormonal modulation for patients certain patients that can be taken for 5:00 or even 10 years.

NOTE Confidence: 0.0325602926313877

00:05:25.210 --> 00:05:25.660 I.

NOTE Confidence: 0.913533508777618

00:05:26.180 --> 00:05:58.150 So surgical options, so the breast surgeon as I said, will make the ultimate recommendation. You know working with the patient an his or her. You know desires and what's the stage of the cancer and what's the best for outcomes and quality of life, but the primary tumor is typically addressed with lump ectomy, which is where the breast is preserved. Another word for lumpectomy is partial mastectomy. If you Google, it. They some some places try to put a difference. But I don't know pretty much everyone. I know uses these words.

NOTE Confidence: 0.901513934135437

00:05:58.150 --> 00:06:15.510 Interchangeably, an as I said usually that's followed by radiation or mastectomy and then the axillary lymph nodes. I think the Doctor Avraham will talk more about it, but Doctor Adelson did talk about the Sentinel Lymph node biopsy or the axillary lymph node dissection.

NOTE Confidence: 0.906252145767212

00:06:16.410 --> 00:06:41.060 Kyle it'll be a little repetitive, but here's just some some graphics to look at the difference for the primary tumor lumpectomy. The breast is preserved a simple mastectomy and it doesn't really make sense to me, but a simple mastectomy and a total mastectomy are the same thing just removal of the breast or the modified radical which includes removal of all of the well. Not all but of the axillary lymph nodes along with the breast.

NOTE Confidence: 0.91285115480423

00:06:41.580 --> 00:07:12.540 Um so if women are going to have breast conservation to save the breast remember most of the time. It's followed by radiation except for there's some unique cases, which will get to at the end, but just to kind of do a little spoiler alert if women are over 70. They have a small cancer less than 2 centimeters. It's estrogen. Receptor positive margins are negative live. Nodes are clinically are pathologically negative and they're willing to take the endocrine therapy those patients can.

NOTE Confidence: 0.918229222297668

00:07:12.540 --> 00:07:46.320 Uh can can go without the radiation if they choose to. But that's not everybody. In fact that's not the majority of patients who might say so. Patients if they're going to agree to, if they're going to undergo breast conservation. They shouldn't have the door open for radiation. That means that they shouldn't be pregnant. They shouldn't have diffuse calcifications in the breast, meaning that it would be very hard to remove these areas and still have a good cosmetic outcome. Same thing with the next one. You know widespread disease that you cannot be removed and still have a good cosmetic.

NOTE Confidence: 0.909035325050354

00:07:46.320 --> 00:08:16.470 Outcome because we really if you're going to preserve the breast that's one of the goals. Anna diffusely positive margins, especially if a if the surgeon needs to go back in more than once, to get a negative margin than that patient should probably consider mastectomy relative contraindications for breast conservation would be previous a radiation to the breast or chest wall. It doesn't and that would that patient should probably meet with the radiation. Oncologist upfront having a connective tissue disorder.

NOTE Confidence: 0.926737368106842

00:08:16.470 --> 00:08:47.090 We've really gotten away from recommending against radiation for patients who have lupus or rheumatoid arthritis. But the one connective tissue disorder that still it's ideal to avoid radiation. If one can is Scleroderma because the skin side effects can be very intense a single positive margin or a low volume positive margin. Sometimes we could get away with that and then certain genetic mutations is doctor, Hofstadter talked about some women with certain genetic mutations May.

NOTE Confidence: 0.925524830818176

00:08:47.090 --> 00:09:02.970 Prefer to have mastectomy everything is allowed in May and maybe it's because you know, everybody is an individual. In each cancer is so unique in each person is so unique that it's hard to ever speak in absolutes anymore about treating breast cancer.

NOTE Confidence: 0.922286510467529

00:09:04.200 --> 00:09:20.170 So this is a this is a picture of the regional lymph nodes so and over 75% and typically more than that of the lymph node. The lymph drainage from the breast. It goes to the axilla, which is a fancy way of saying the underarm.

NOTE Confidence: 0.954490661621094

00:09:20.730 --> 00:09:24.790 There are 3 levels number one two and 3, you know.

NOTE Confidence: 0.524734258651733

00:09:26.050 --> 00:09:27.140 Going up the

NOTE Confidence: 0.848671853542328

00:09:27.960 --> 00:09:35.610 That one two and 3 and then you get above the collarbone into what we call the Super particular area that would be excellent.

NOTE Confidence: 0.872584879398346

00:09:36.400 --> 00:10:06.560 Those are some other lymph node areas that we think about progress cancer is the Super Curricular area because that would be the next echelon for lymph node drainage and cancer cells do like to follow that lymph node drainage as their first mechanism of spreading to elsewhere in the body if they're going to spread another area is the internal mammary lymph nodes which would be just medial or just inside to where the breast is so that's what that other 5025 to 1010 to 25% of.

NOTE Confidence: 0.848021984100342

00:10:06.590 --> 00:10:10.270 Drainage from the breasts would go to those internal mammary lymph nodes.

NOTE Confidence: 0.910600066184998

00:10:11.050 --> 00:10:42.060 So Doctor Adelson talked a little bit about the Sentinel Lymph node biopsy as part of the deescalation for treatment. I liked this picture from the JAMA Oncology patient pages made for patients so I figured we could share it here and they shows how to do a Sentinel Lymph node biopsy so traditionally an axillary lymph node dissection was performed for all patients. When that the traditional definition of that is removal of the axilla. Airy one and 2 level lymph nodes.

NOTE Confidence: 0.917737722396851

00:10:42.070 --> 00:11:14.930 But that can result in high risk for Lymphoedema and some mobility issues of the arm, so trials that are too much to get into here. I've shown that for many patients. Not all the Sentinel Lymph node biopsy is adequate an excellent treatment. An excellent forgiving prognosis. It's really more to give prognosis and So what that entails is instead of removing all those lymph nodes and injection is performed in the breast sometimes of a blue or colored. I sometimes have a radioactive material.

NOTE Confidence: 0.894296526908875

00:11:14.930 --> 00:11:46.360 Sometimes both and then that will travel along the lymph drainage of the breast to the Sentinel or the central meaning like the guard. The first lymph node there and now the surgeon using a probe in his or her eyes as well. 'cause if it's a color dye. You could see it and using a gamma probe to look for the radiation can remove the Sentinel node or nodes and those would be the most important nodes to remove and then avoiding that full axilla. Airy surgery in the morbidity that I can come along with it.

NOTE Confidence: 0.914736449718475

00:11:47.560 --> 00:12:21.570 Axillary lymph node dissection still has a place, however, for some women, it is becoming less common as I said, but it might be performed. I don't want people to think I'll shoot I had actually lymph node dissection. I should've had. The Sentinel Lymph node biopsy. But if you have if women have a palpable lymph node up front and it's biopsied and found to be cancer. Some of those women should still have the axillary lymph node dissection. If there's a suspicion of high lymph node involvement. Then you might just want to skip the Sentinel Lymph node and go right there.

NOTE Confidence: 0.906758904457092

00:12:21.570 --> 00:12:51.660 For some patients of chemo if they have suspicion of lymph node involvement in chemotherapy is given first for some of those patients. We do axillary lymph node dissection if more than 2. Sentinel lymph nodes are found it contained cancer. It is standard to do axillary dissection for those patients or if you can't find the Sentinel Lymph node then what are you going to do you gotta do axillary lymph node dissection but remember lots of handwaving underlining of the May because each patient is such an individual.

NOTE Confidence: 0.926126062870026

00:12:53.390 --> 00:13:26.600 So why do we give radiation for breast cancer? I thought Doctor Hofstadter told us that chest wall radiation increases the risk of getting a breast cancer, but what she was talking about really is. She did make it clear was some women when they're Young. They need need radiation for treatment of lymphoma in the chest area. This is very different. This is radiation designed to actually treat the breast cancer an it really does for the well chosen patient. The patient who needs it markedly reduced the risk of the cancer coming back. It's a 50 to 75 relative.

NOTE Confidence: 0.909453094005585

00:13:26.600 --> 00:13:56.610 Risk reduction an IT support its use when we recommend it. We are very much in TuneIn. Most radiation Oncologist, who I met being evidenced based everything that we do being based on trials that have shown that radiation in this setting is safe and effective so typically. We talked about it following lumpectomy and then following mastectomy for those certain patients with the higher risk disease and it's designed to treat the breasts plus or minus the lymph nodes, depending on if that's needed.

NOTE Confidence: 0.912260770797729

00:13:56.610 --> 00:14:27.720 And when we design, the plan. We want to design the radiation to stay off of the healthy tissues really, meaning the heart and the lung and it says here it is true that a small amount of radiation to these organs is safe. We always give the lowest amount possible an we follow well established safety constraints and if we can go lower to those healthy tissues. We can, but

it is. It is been shown to be very low risk. The modern radiation techniques and exposure to the Hardin alone.

NOTE Confidence: 0.878900587558746

00:14:28.370 --> 00:14:59.720 I'm so if you're a patient in our Department. The first step if you're going to have radiation if you have a see T scan to help us plan, the radiation. That's the actual see T scanner in my office in Hamden and so we put you in the treatment position to do this. Can 'cause If you think about it. That's the scan that we're doing. That's what we're using to design the radiation. So we need you in the treatment position and I'll show you some treatment positions here, I will in a minute so this is.

NOTE Confidence: 0.838029384613037

00:14:59.720 --> 00:15:32.360 This is our best Ford in Hamden on so we will lay on the breast board and the arm scope over their head and there's arm supports on either side. And we adjust the bar to your comfort level. There's ahead Cup. It's often suggest your comfort level. There's a small bar at the bottom called the Buck stops. They won't keep sliding and we put a pillow in their deeds for comfort and we do put some wires around the breast and not any surgical scars that we want to wire out so that we can see, those when we're designing the radiation plan.

NOTE Confidence: 0.920183300971985

00:15:32.860 --> 00:16:03.110 When were you don't typically use any Ivy contrast or oral contrast, especially when we're treating breast cancer when you leave after that day. You will either have tattoos or temporary marks that help our therapist to set you up in the perfect position each day because everything's gotten so precise now that if you think about it. The planning is designed with you in that position or the patient in that position. We need to be able to get the patient back in the exact same position each day.

NOTE Confidence: 0.866732060909271

00:16:03.110 --> 00:16:18.420 So we do use tattoos and marks as well to help with that and then the cat scan is brought over to the treatment planning software. An I spend time and I have to draw every slice the breast tissue.

NOTE Confidence: 0.865360915660858

00:16:19.150 --> 00:16:39.760 The tumor bed, the heart the long and then if needed. The lymph node regions. Here's an example. Vaccinator levels 1, two and 3. Whatever we want to target we have to draw out there, so we can analyze the dose to it, and whatever we want to avoid we have to dry out there because we have to analyze the dose to it as well.

NOTE Confidence: 0.902570724487305

00:16:40.920 --> 00:16:54.020 So some patients for breast cancer. I treated prone. Some are treated supine uhm so an we choose the treatment position.

That's going to be best for you to treat? What needs to be treated and keep the radiation off of the healthy tissues.

NOTE Confidence: 0.903136849403381

00:16:54.760 --> 00:17:27.000 We use different beam angles to avoid the heart in the lung, we use a technique called field and feel that I'm not going to get too much into in the other slides, but it's used to create better dose homogeneity. It's the most modern way to treat as far as delivering the actual dose and what it does is it allows us to give a more even dose to the breast than we used to be able to so there's less hot spots and cold spots and there's multiple studies showing that gives the best cosmetic outcome to use a field and field technique. We can make custom blocking in the software that's

NOTE Confidence: 0.882974207401276

00:17:27.000 --> 00:17:59.330 Custom blocking in the head of the machine to to block the heart in the lung from the direct beam and then deep inspiration breath hold is the most modern way to perform cardiac Sparing. Although I did use it. The other day for liver sparing on the right side. So it has a lot of good uses so here's the typical patient position if she's laying on her back talked about the breast for and that's what it would look like in those are some wires that we might put on the patient just for the planning scan. You don't have to wear them all the time.

NOTE Confidence: 0.873406589031219

00:18:00.010 --> 00:18:23.430 Here's a right breast radiation plan. So when you look at a cat scan. This is a cross section of the patient. It's as though their head is in the screen in their feet are coming out to you so this would be the right lung in the left lung right breast and the left breast. So you can see how they come in with beam angles, so that the radiation does not spill deep into the lung unnecessarily.

NOTE Confidence: 0.851078391075134

00:18:23.940 --> 00:18:33.010 And up here on the planning software. I made a little black they keep the radiation off of the liver to keep the direct beam off of the liver.

NOTE Confidence: 0.850821495056152

00:18:33.870 --> 00:19:04.140 Um here's an example of a heart block so this is the level. Where are made the heart block you can see to keep the radiation directly off of off of the heart? Here's a little light, rendering of what the radiation field look like you could see how we made a little black there because the therapist will look at a light field on the patient skin each day help make sure that her position is absolutely perfect. And here's another example of we can see what the plan and you help me block the radiation from the.

NOTE Confidence: 0.918979227542877

00:19:04.140 --> 00:19:06.050 From going directly to the heart.

NOTE Confidence: 0.935580015182495

00:19:07.090 --> 00:19:17.060 Some patients are treated in the prone position. It's a little bit less common. But it is a really great position. I think you know if the patient is a good candidate for it.

NOTE Confidence: 0.878339648246765

00:19:17.740 --> 00:19:21.170 And that's what that would look like for their but here's some plans.

NOTE Confidence: 0.855816781520844

00:19:21.890 --> 00:19:54.500 So here we can see from this moment now this yellow line is the being edge, and we can see for her. You know that radiation is going through the heart. Obviously we would have made a heart block and do a little bit better than that this article in JAMA tried to make a point but still I think there would be much more heart in here. Even with a good command compared to this and see how this woman laying on her stomach. The breast is pulled away from the heart. So we really only use prone if we only have to treat the breasts. We don't use prone.

NOTE Confidence: 0.87630432844162

00:19:54.500 --> 00:19:58.250 If you ever need to have the lymph nodes treated.

NOTE Confidence: 0.92115992307663

00:19:58.930 --> 00:20:09.590 This is this is our new toy, although we've all had it now for about 3 years or so, but the deep inspiration breath hold where patients are treated with while holding their breath.

NOTE Confidence: 0.839329302310944

00:20:10.330 --> 00:20:40.600 So you can see here how this is the patient just breathing normally and you could see her heart is so close to the breast. It might be hard to angle. Those beings nicely off with a heart or make a heart block without without you don't want to block the breast tissue when you make the heart block it up there. We can see how the hardest pulled so much better away from the breast breast pulled away from the heart, I guess they pulled away from each other and here we see how the chest.

NOTE Confidence: 0.730730175971985

00:20:40.600 --> 00:20:44.310 Not just out put up from the heart.

NOTE Confidence: 0.927817940711975

00:20:45.350 --> 00:20:49.990 So the hard to sing of the modern era is much lower than in the past.

NOTE Confidence: 0.848190307617188

00:20:50.640 --> 00:20:59.330 Oh, and over here, we could see how this is where the patients holding her breath in but she had a very small threshold that the patient.

NOTE Confidence: 0.855279147624969

00:20:59.960 --> 00:21:30.510 Stop up in that green when the red lines up in the green. The patients holding her breath and the machine is only on with those Gray bars when the patient is holding her breath in the appropriate threshold. The Nano 2nd that the patient stops holding her breath in the appropriate threshold. The machine will turn off the therapist will say OK take your time and when you're ready hold your breath again. And when the patients holding her breath again and it went to the threshold, the machine will pick right back up.

NOTE Confidence: 0.890402257442474

00:21:30.510 --> 00:21:48.110 So the patients can't make a mistake to cause the treatment to not be delivered properly and the patients they were wearing goggles. But we just got it upgrade and there's a nice little iPad screen. 'cause the goggles were kind of uncomfortable so there's iPad screen where the patients can see their own breathing pattern.

NOTE Confidence: 0.835688769817352

00:21:49.020 --> 00:22:23.250 So, sometimes, the deep inspiration breath hold in helpful lot. You can see this is this is a free greeting scan remember those yellow lines are the field ever see. They're going right through the heart here. This same patient could tell by looking at the anatomy of the same patient on holding her breath really pulled up and out from the from the heart with this patient. It didn't really help so much so. I don't some patients might say I do a free breathing in a deep inspiration breath hold scan on everybody.

NOTE Confidence: 0.915696024894714

00:22:23.250 --> 00:22:34.880 'Cause some patients it really doesn't make much of a difference. There long dose in heart doses, essentially the same. So then why cause them to have to worry about following the iPad and stuff, and holding their breath if they don't have to.

NOTE Confidence: 0.8658167719841

00:22:36.160 --> 00:22:48.790 Um so this doctor, Adelson talked a little bit about the D escalation of treatment. This is a little bit of a busy slide, but the Top part shows you that the traditional course of radiation.

NOTE Confidence: 0.820613145828247

00:22:49.300 --> 00:23:15.480 Until maybe 6 years ago, or so was typically 25 treatments to the whole rest. If you're treating just the breast and then 5 to 8 boost treatment so there, you go. You're getting to that 6 and 6, 1/2 weeks

with doctor. Allison was talking about, but 3 really large well done trials that Canadian trial that doctor, Addison talked about in 2 out of England.

NOTE Confidence: 0.868023633956909

00:23:16.130 --> 00:23:50.130 They show the short of course of radiation only 15 to the breast plus or minus four boosts so if we're doing maximum treatment or going from 33, down to 19 is actually a really big difference in the amount of time that people need to take her off from work. Studies have shown that there's less health care costs better patient convenience and actually less financial toxicity to the patients with a shorter course outcomes have been the same and studies have also shown better cosmetic outcome as we follow these patients.

NOTE Confidence: 0.914350092411041

00:23:50.130 --> 00:24:11.990 Overtime with no detriment to their outcome and in fact, a slight trend towards better outcomes with a shorter course. Remember, these right now. This is just reserved for women who only need treatment to the breast. They don't need the regional nodes treated regional node treatment or post. Mastectomy treatment is still going to the 5 or 6 weeks.

NOTE Confidence: 0.843398630619049

00:24:13.570 --> 00:24:44.130 Um so at Yale, there was uh. Uh we typically for our whole breast patients they don't need to have the nodes treated were doing the 15th treatments, plus before boost plus or minus that's a whole lecture in itself. If you need a boost or not, and as I said that's just if you need the breast. No nodal fields. But there are ongoing studies. We actually have open trials here now looking at the shorter course in the post. Mastectomy setting so one day will be there, but that's really its infancy right now.

NOTE Confidence: 0.857999324798584

00:24:46.080 --> 00:25:07.680 Oh, in this so we wanted to what's a boost so most women not all if they can serve the breast we treat the whole rest. For now, the 3 weeks to 15 treatments and for boost treatments just to where the tumor was so this is just the way to boost plan might look like when I'm doing the planning so you see how it's nice and tight just on the tumor bed.

NOTE Confidence: 0.891792714595795

00:25:08.250 --> 00:25:36.650 Um another area of deescalation of treatment is I think the Doctor Addison was kind of talking about you know well avoiding unnecessary radiation, not treating people where you know the treatment is not going to have any benefit so the uh trial. The CLG B9343 is a trial that we all quote a lot at our tumor boards and to be the women on that trial were all 70 or over early stage estrogen receptor positive cancers.

NOTE Confidence: 0.850496888160706

00:25:37.170 --> 00:26:07.580 No evidence of nodal involvement negative margins when the tumor was removed. They all had their breasts conserved and

they were all willing and able to take endocrine therapy for the 5 years, so they were randomized to just the end of a therapy, which is the hormonal modulation. I call it enter conspiracy. They even tamoxifen or they had tamoxifen plus radiation kinda made a mistake here. This is really supposed to say Freedom from local recurrence at 10 years.

NOTE Confidence: 0.879195392131805

00:26:07.580 --> 00:26:40.250 With 90% and the radiation 98% sign me up for that radiation. But if you think about it. If you're 75. That means you could skip the radiation. And when you're 85. You still have 90% chance that this cancer didn't come back. That's pretty good, and you can avoid the toxicity. Potential toxicity of the radiation. And the other thing that's most important is that's the only difference was in this freedom from local recurrence. There is no difference in breast cancer specific survival, which was excellent on both arms.

NOTE Confidence: 0.864611506462097

00:26:40.250 --> 00:27:10.900 There is no difference in the level of distant metastasis, which was very low on both arms, so that's why for these women if they're willing and able to take endocrine therapy for 5 years. They can for go the radiation. What are the patient says to me well. I want that 90% I meet all your criteria and I'm going to take the endocrine therapy. Then I would offer her. The radiation know if that's her preference, but ideally you know this study will provide a platform for people.

NOTE Confidence: 0.888887286186218

00:27:10.900 --> 00:27:14.220 Who fit the criteria who don't want it? You don't have to have?

NOTE Confidence: 0.880046188831329

00:27:15.050 --> 00:27:46.700 I mean, there's other studies for example, the crime 2. That's that's cooking. I think it's going to be out in a year or 2 it's looking at women with Kansas Alittle bit larger going up to 3 centimeters. Now we can support up to 2 centimeters and looking at women going younger with 65. So I'll be out of business soon enough. But that's OK right as long as the outcomes are good. So I'd like to thank some of my partners. MENA Moran and Sue Evans and thank you to doctors Killian Adelson, who really.

NOTE Confidence: 0.863394141197205

00:27:46.700 --> 00:27:58.030 Organize this and the whole smilow breast center in all my partners for you know just I think the smilow breast centers are really wonderful place and thank you to all of you are patients.

NOTE Confidence: 0.912319183349609

00:28:01.200 --> 00:28:23.860 So that was tremendous I learned a ton actually I think my kids are really going to get a kick out of learning that there's actually

a piece of medical equipment called a butt stop our next. Speaker is doctor tomar. Avraham, who is our resident plastic surgeon and I just want to say we are so lucky to have.