WEBVTT

NOTE duration:"01:22:22"

NOTE recognizability:0.854

NOTE language:en-us

NOTE Confidence: 0.83776292

00:00:00.000 --> 00:00:01.050 So welcome everyone,

NOTE Confidence: 0.83776292

00:00:01.050 --> 00:00:03.150 my name is Doctor Pamela Koons

NOTE Confidence: 0.83776292

00:00:03.150 --> 00:00:05.419 and I am a GI medical oncologist.

NOTE Confidence: 0.83776292

00:00:05.420 --> 00:00:08.516 I am the director of the Center for

NOTE Confidence: 0.83776292

00:00:08.516 --> 00:00:10.542 Gastrointestinal Cancers at Yale Cancer

NOTE Confidence: 0.83776292

00:00:10.542 --> 00:00:12.517 Center and Smilow Cancer Hospital.

NOTE Confidence: 0.83776292

00:00:12.520 --> 00:00:14.805 This is our kickoff for

NOTE Confidence: 0.83776292

00:00:14.805 --> 00:00:16.633 our spring CME series.

NOTE Confidence: 0.83776292

00:00:16.640 --> 00:00:19.240 For the Center for GI cancers we are

NOTE Confidence: 0.83776292

00:00:19.240 --> 00:00:20.894 starting tonight on neuroendocrine tumors

NOTE Confidence: 0.83776292

00:00:20.894 --> 00:00:23.700 and I will be your host on Thursday,

NOTE Confidence: 0.83776292

00:00:23.700 --> 00:00:24.300 April 21st.

NOTE Confidence: 0.83776292

00:00:24.300 --> 00:00:26.700 We will have a CME on rectal cancer

NOTE Confidence: 0.83776292

00:00:26.767 --> 00:00:28.937 hosted by Doctor Michael Cicchini,

NOTE Confidence: 0.83776292

00:00:28.940 --> 00:00:31.090 and on Thursday, May 19th.

NOTE Confidence: 0.83776292

00:00:31.090 --> 00:00:33.176 We will have a CME on gastric

NOTE Confidence: 0.83776292

00:00:33.176 --> 00:00:35.220 cancers hosted by Doctor Jill Lacy.

NOTE Confidence: 0.92255316

00:00:37.530 --> 00:00:41.345 So this evening I have the pleasure

NOTE Confidence: 0.92255316

00:00:41.345 --> 00:00:43.858 of hosting and moderating this

NOTE Confidence: 0.92255316

00:00:43.858 --> 00:00:45.826 talk on neuroendocrine tumors.

NOTE Confidence: 0.92255316

00:00:45.830 --> 00:00:49.304 I will be giving a brief overview of Nets

NOTE Confidence: 0.92255316

00:00:49.310 --> 00:00:51.518 101 and then we'll help moderate the Q&A.

NOTE Confidence: 0.92255316

00:00:51.520 --> 00:00:53.430 I'm joined by Doctor Miriam,

NOTE Confidence: 0.92255316

00:00:53.430 --> 00:00:55.560 a boy and an assistant professor

NOTE Confidence: 0.92255316

00:00:55.560 --> 00:00:57.610 of radiology and nuclear medicine,

NOTE Confidence: 0.92255316

00:00:57.610 --> 00:00:59.590 and she will be speaking about

NOTE Confidence: 0.92255316

00:00:59.590 --> 00:01:01.721 the role of molecular imaging and

NOTE Confidence: 0.92255316

00:01:01.721 --> 00:01:03.935 theranostics in care of patients with

NOTE Confidence: 0.92255316

00:01:03.935 --> 00:01:06.772 Nets and doctor Saj Khan and associate

NOTE Confidence: 0.92255316

00:01:06.772 --> 00:01:08.807 professor of surgery and surgical.

NOTE Confidence: 0.92255316

00:01:08.810 --> 00:01:10.638 Allergy and Section chief

NOTE Confidence: 0.92255316

00:01:10.638 --> 00:01:12.009 of Hepato Pancreato,

NOTE Confidence: 0.92255316

00:01:12.010 --> 00:01:14.266 biliary and mixed tumors will be

NOTE Confidence: 0.92255316

00:01:14.266 --> 00:01:16.688 joining us this evening and talking

NOTE Confidence: 0.92255316

00:01:16.688 --> 00:01:18.380 about the surgical management

NOTE Confidence: 0.92255316

00:01:18.380 --> 00:01:20.750 of pancreas and small foulness.

NOTE Confidence: 0.92255316

00:01:20.750 --> 00:01:22.649 So I will just go ahead and get started,

NOTE Confidence: 0.92255316

00:01:22.650 --> 00:01:24.786 so I'm just for our audience.

NOTE Confidence: 0.92255316

00:01:24.790 --> 00:01:27.166 Each of our talks will be about 20 minutes.

NOTE Confidence: 0.92255316

00:01:27.170 --> 00:01:28.994 Please feel free to put questions

NOTE Confidence: 0.92255316

00:01:28.994 --> 00:01:32.060 in the chat or Q&A throughout.

NOTE Confidence: 0.92255316

00:01:32.060 --> 00:01:34.130 We will try to respond with

NOTE Confidence: 0.92255316

00:01:34.130 --> 00:01:35.510 a typed response throughout,

NOTE Confidence: 0.92255316

00:01:35.510 --> 00:01:38.759 but we will also have time at the end

NOTE Confidence: 0.92255316

00:01:38.759 --> 00:01:42.288 for a through Q&A and you can ask them.

NOTE Confidence: 0.92255316

00:01:42.290 --> 00:01:44.818 These are my disclosures,

NOTE Confidence: 0.92255316

00:01:44.820 --> 00:01:47.196 so I'm going to talk briefly about the

NOTE Confidence: 0.92255316

00:01:47.196 --> 00:01:48.990 epidemiology and nomenclature of Nets.

NOTE Confidence: 0.92255316

00:01:48.990 --> 00:01:51.355 Talk about characteristics that I

NOTE Confidence: 0.92255316

00:01:51.355 --> 00:01:53.720 think really impact treatment selection

NOTE Confidence: 0.92255316

00:01:53.792 --> 00:01:56.048 for patients and then talk about

NOTE Confidence: 0.92255316

00:01:56.048 --> 00:01:58.529 treatment for hormone and tumor control.

NOTE Confidence: 0.92255316

00:01:58.530 --> 00:02:00.805 I usually like starting with a little

NOTE Confidence: 0.92255316

00:02:00.805 --> 00:02:02.415 bit of history so neuroendocrine

NOTE Confidence: 0.92255316

00:02:02.415 --> 00:02:04.640 tumors and the description of

NOTE Confidence: 0.92255316

00:02:04.640 --> 00:02:07.570 Nets goes back to the late 1800s,

NOTE Confidence: 0.92255316

00:02:07.570 --> 00:02:10.900 and it was really in the early 1900s that.

NOTE Confidence: 0.92255316

00:02:10.900 --> 00:02:13.990 Doctor Urban door for a German

NOTE Confidence: 0.92255316

00:02:13.990 --> 00:02:16.718 pathologist coined the term carcinoid.

NOTE Confidence: 0.92255316

00:02:16.720 --> 00:02:18.904 It meant cancer like and he described

NOTE Confidence: 0.92255316

00:02:18.904 --> 00:02:21.475 and felt that there were five key

NOTE Confidence: 0.92255316

00:02:21.475 --> 00:02:23.039 characteristics that they were.

NOTE Confidence: 0.92255316

00:02:23.040 --> 00:02:26.262 These tumors were small and multifocal

NOTE Confidence: 0.92255316

00:02:26.262 --> 00:02:28.410 had undifferentiated cellular formations,

NOTE Confidence: 0.92255316

00:02:28.410 --> 00:02:30.058 had well defined borders,

NOTE Confidence: 0.92255316

00:02:30.058 --> 00:02:31.294 no metastatic potential,

NOTE Confidence: 0.92255316

00:02:31.300 --> 00:02:33.376 and were slow growing and harmless,

NOTE Confidence: 0.92255316

00:02:33.380 --> 00:02:36.230 and though he contributed really important

NOTE Confidence: 0.92255316

00:02:36.230 --> 00:02:38.760 early knowledge about this disease,

NOTE Confidence: 0.92255316

00:02:38.760 --> 00:02:41.294 we now know that many of these

NOTE Confidence: 0.92255316

00:02:41.300 --> 00:02:43.020 characteristics are not true.

NOTE Confidence: 0.92255316

00:02:43.020 --> 00:02:45.600 And I think the term carcinoid

NOTE Confidence: 0.92255316

00:02:45.681 --> 00:02:47.240 and cancer like, unfortunately,

NOTE Confidence: 0.92255316

00:02:47.240 --> 00:02:50.520 really slowed the field in terms of our

NOTE Confidence: 0.92255316

00:02:50.520 --> 00:02:52.920 recognition that these are in fact cancers.

NOTE Confidence: 0.92255316

00:02:52.920 --> 00:02:55.278 The term carcinoid is really fallen

NOTE Confidence: 0.92255316

00:02:55.278 --> 00:02:58.276 out of favor and instead we are

NOTE Confidence: 0.92255316

00:02:58.276 --> 00:03:00.546 using the term neuroendocrine tumor

NOTE Confidence: 0.92255316

00:03:00.546 --> 00:03:03.199 and then by which primary site.

NOTE Confidence: 0.92255316

00:03:03.200 --> 00:03:06.360 So we have seen an explosion of advances,

NOTE Confidence: 0.92255316

00:03:06.360 --> 00:03:08.548 both therapeutics and diagnostics

NOTE Confidence: 0.92255316

00:03:08.548 --> 00:03:10.189 really since 2011.

NOTE Confidence: 0.92255316

00:03:10.190 --> 00:03:12.731 So in the 1980s we had strept

NOTE Confidence: 0.92255316

00:03:12.731 --> 00:03:15.339 Zosyn and Ivy alkylating agent,

NOTE Confidence: 0.92255316

00:03:15.340 --> 00:03:17.780 and octreotide that was initially

NOTE Confidence: 0.92255316

00:03:17.780 --> 00:03:19.732 approved for hormone control,

NOTE Confidence: 0.92255316

00:03:19.740 --> 00:03:23.198 and then since 2011 we have had

NOTE Confidence: 0.92255316

00:03:23.198 --> 00:03:25.958 therapeutic advances in the areas

NOTE Confidence: 0.92255316

00:03:25.958 --> 00:03:29.516 of biologics of everolimus and snib

NOTE Confidence: 0.92255316

00:03:29.516 --> 00:03:31.960 somatostatin analogs of lanreotide

NOTE Confidence: 0.92255316

00:03:31.960 --> 00:03:33.586 to look just at for carcinoid.

NOTE Confidence: 0.92255316

00:03:33.590 --> 00:03:36.670 Syndrome, Ludo date in 2018.

NOTE Confidence: 0.92255316

00:03:36.670 --> 00:03:39.316 We'll talk about some of the.

NOTE Confidence: 0.92255316

00:03:39.320 --> 00:03:41.552 Other systemic agents and then also

NOTE Confidence: 0.92255316

00:03:41.552 --> 00:03:43.919 some of the imaging agents that

NOTE Confidence: 0.92255316

00:03:43.919 --> 00:03:45.944 are listed above the timeline.

NOTE Confidence: 0.92255316

00:03:45.950 --> 00:03:49.182 I like also sort of nailing down the

NOTE Confidence: 0.92255316

00:03:49.182 --> 00:03:52.665 point that Nets are really not that rare,

NOTE Confidence: 0.92255316

00:03:52.670 --> 00:03:54.428 so they are rare by incidents,

NOTE Confidence: 0.92255316

00:03:54.430 --> 00:03:57.196 so incidents being the number of

NOTE Confidence: 0.92255316

00:03:57.196 --> 00:03:59.793 patients diagnosed per year and for

NOTE Confidence: 0.92255316

00:03:59.793 --> 00:04:02.497 this is based on a large Sears study

NOTE Confidence: 0.905978501333333

00:04:02.575 --> 00:04:04.969 conducted in 2017 and the incidence

NOTE Confidence: 0.905978501333333

00:04:04.969 --> 00:04:07.646 rate for Nets is about 7 per 100,000

NOTE Confidence: 0.905978501333333

00:04:07.646 --> 00:04:10.214 and this is in the yellow line on the

NOTE Confidence: 0.905978501333333

00:04:10.214 --> 00:04:12.002 figure compared to the blue line,

NOTE Confidence: 0.905978501333333

00:04:12.010 --> 00:04:14.044 which is the incidence of all

NOTE Confidence: 0.905978501333333

00:04:14.044 --> 00:04:15.400 malignant neoplasms which has

NOTE Confidence: 0.905978501333333

00:04:15.465 --> 00:04:17.019 remained relatively stable.

NOTE Confidence: 0.905978501333333

00:04:17.020 --> 00:04:19.465 However, the the prevalence of

NOTE Confidence: 0.905978501333333

00:04:19.465 --> 00:04:21.910 neuroendocrine tumors is actually the

NOTE Confidence: 0.905978501333333

00:04:21.991 --> 00:04:24.881 second highest prevalent GI malignancy.

NOTE Confidence: 0.905978501333333

00:04:24.881 --> 00:04:28.016 It exceeds stomach and pancreatic

NOTE Confidence: 0.905978501333333

00:04:28.016 --> 00:04:29.270 adenocarcinoma combined,

NOTE Confidence: 0.905978501333333

00:04:29.270 --> 00:04:31.930 and that's likely because this is a

NOTE Confidence: 0.905978501333333

00:04:31.930 --> 00:04:33.847 more indolent disease and patients

NOTE Confidence: 0.905978501333333

00:04:33.847 --> 00:04:36.788 live for many years more commonly with

NOTE Confidence: 0.905978501333333

00:04:36.788 --> 00:04:39.318 the low grade neuroendocrine tumors.

NOTE Confidence: 0.905978501333333

00:04:39.320 --> 00:04:41.196 Nets are epithelial neoplasms

NOTE Confidence: 0.905978501333333

00:04:41.196 --> 00:04:43.072 derived from neuroendocrine cells

NOTE Confidence: 0.905978501333333

00:04:43.072 --> 00:04:44.380 throughout the body,

NOTE Confidence: 0.905978501333333

00:04:44.380 --> 00:04:46.375 most commonly found in the GI tract,

NOTE Confidence: 0.905978501333333

00:04:46.380 --> 00:04:48.860 but also in the lungs and other sites,

NOTE Confidence: 0.905978501333333

00:04:48.860 --> 00:04:51.450 and most grow slowly in comparison with

NOTE Confidence: 0.905978501333333

00:04:51.450 --> 00:04:52.560 their adenocarcinoma counterparts.

NOTE Confidence: 0.905978501333333

00:04:52.560 --> 00:04:54.852 The majority are sporadic and the

NOTE Confidence: 0.905978501333333

00:04:54.852 --> 00:04:56.784 minority are associated with familial

NOTE Confidence: 0.905978501333333

00:04:56.784 --> 00:04:59.508 syndromes such as me and 1,000,000 two.

NOTE Confidence: 0.905978501333333

00:04:59.508 --> 00:05:00.536 Von Hippel,

NOTE Confidence: 0.905978501333333

00:05:00.536 --> 00:05:02.078 Lindau and Neurofibromatosis

NOTE Confidence: 0.905978501333333

00:05:02.078 --> 00:05:04.502 pathognomonic for this disease is

NOTE Confidence: 0.905978501333333

00:05:04.502 --> 00:05:06.542 the fact that somatostatin receptors

NOTE Confidence: 0.905978501333333

00:05:06.542 --> 00:05:08.710 are present on the cell surface

NOTE Confidence: 0.905978501333333

00:05:08.710 --> 00:05:10.443 in about 80 to 90%.

NOTE Confidence: 0.905978501333333

00:05:10.443 --> 00:05:11.569 Of netson,

NOTE Confidence: 0.905978501333333

00:05:11.569 --> 00:05:14.384 this is typically with somatostatin

NOTE Confidence: 0.905978501333333

00:05:14.384 --> 00:05:15.770 receptor type 2.

NOTE Confidence: 0.905978501333333

00:05:15.770 --> 00:05:17.464 The diagnostic work up and I will

NOTE Confidence: 0.905978501333333

00:05:17.464 --> 00:05:19.544 say if you take away one thing from

NOTE Confidence: 0.905978501333333

00:05:19.544 --> 00:05:21.213 this is that the cross sectional

NOTE Confidence: 0.905978501333333

00:05:21.213 --> 00:05:23.446 imaging is really the mainstay of how

NOTE Confidence: 0.905978501333333

00:05:23.446 --> 00:05:25.874 we monitor the patients with Nets.

NOTE Confidence: 0.905978501333333

00:05:25.874 --> 00:05:28.550 Either a multiphasic CT and that

NOTE Confidence: 0.905978501333333

00:05:28.636 --> 00:05:30.826 arterial phase is critical if

NOTE Confidence: 0.905978501333333

00:05:30.826 --> 00:05:33.580 you're ordering a CT scan or an

NOTE Confidence: 0.905978501333333

00:05:33.580 --> 00:05:34.546 MRI somatostatin receptor.

NOTE Confidence: 0.905978501333333

00:05:34.546 --> 00:05:36.724 Imaging is important but is not

NOTE Confidence: 0.905978501333333

00:05:36.724 --> 00:05:38.546 the primary modality with which

NOTE Confidence: 0.905978501333333

00:05:38.546 --> 00:05:39.930 we image these patients.

NOTE Confidence: 0.905978501333333

00:05:39.930 --> 00:05:41.946 These are done commonly at time of

NOTE Confidence: 0.905978501333333

00:05:41.946 --> 00:05:43.540 diagnosis and for patients with

NOTE Confidence: 0.905978501333333

00:05:43.540 --> 00:05:45.538 metastatic disease we may do them.

NOTE Confidence: 0.905978501333333

00:05:45.540 --> 00:05:47.650 Annually or every two years,

NOTE Confidence: 0.905978501333333

00:05:47.650 --> 00:05:49.204 somatostatin receptor imaging

NOTE Confidence: 0.905978501333333

00:05:49.204 --> 00:05:52.180 is now used with gallium 68,

NOTE Confidence: 0.905978501333333

00:05:52.180 --> 00:05:53.980 dotatate pet or copper 64,

NOTE Confidence: 0.905978501333333

00:05:53.980 --> 00:05:55.380 and I'm going to actually.

NOTE Confidence: 0.905978501333333

00:05:55.380 --> 00:05:56.856 This will be a little bit of a teaser.

NOTE Confidence: 0.905978501333333

00:05:56.860 --> 00:05:58.603 I'm going to let doctor a boy

NOTE Confidence: 0.905978501333333

00:05:58.603 --> 00:06:00.380 and talk more about somatostatin

NOTE Confidence: 0.905978501333333

00:06:00.380 --> 00:06:01.838 receptor based imaging.

NOTE Confidence: 0.905978501333333

00:06:01.840 --> 00:06:03.856 The tissue diagnosis we like to

NOTE Confidence: 0.905978501333333

00:06:03.856 --> 00:06:06.182 know the primary site if we can

NOTE Confidence: 0.905978501333333

00:06:06.182 --> 00:06:08.006 identify it and four key data

NOTE Confidence: 0.905978501333333

00:06:08.006 --> 00:06:09.963 elements are important when you're

NOTE Confidence: 0.905978501333333

00:06:09.963 --> 00:06:11.938 looking at a pathology report.

NOTE Confidence: 0.905978501333333

00:06:11.940 --> 00:06:16.357 The Who grade Ki 67 mitotic index.

NOTE Confidence: 0.905978501333333

00:06:16.360 --> 00:06:17.371 Degree of differentiation.

NOTE Confidence: 0.905978501333333

00:06:17.371 --> 00:06:19.730 We'll talk about that in a moment.

NOTE Confidence: 0.905978501333333

00:06:19.730 --> 00:06:21.686 And then tumor markers or hormones

NOTE Confidence: 0.905978501333333

00:06:21.686 --> 00:06:23.510 are important for this disease,

NOTE Confidence: 0.905978501333333

00:06:23.510 --> 00:06:27.062 but I will say that tumor markers such

NOTE Confidence: 0.905978501333333

00:06:27.062 --> 00:06:29.623 as chromogranin or neuron specific

NOTE Confidence: 0.905978501333333

00:06:29.623 --> 00:06:32.245 enolase or pancreas statin often

NOTE Confidence: 0.905978501333333

00:06:32.245 --> 00:06:35.275 fluctuate and may not actually track

NOTE Confidence: 0.905978501333333

00:06:35.275 --> 00:06:38.220 with what's happening radiographically.

NOTE Confidence: 0.905978501333333

00:06:38.220 --> 00:06:41.166 The field has swung away from

NOTE Confidence: 0.905978501333333

00:06:41.166 --> 00:06:43.645 using these and I often don't use

NOTE Confidence: 0.905978501333333

00:06:43.645 --> 00:06:45.546 chroma granite a now because really

NOTE Confidence: 0.905978501333333

00:06:45.546 --> 00:06:47.598 the gold standard is the imaging.

NOTE Confidence: 0.905978501333333

00:06:47.600 --> 00:06:48.177 Hormones,

NOTE Confidence: 0.905978501333333

00:06:48.177 --> 00:06:48.754 however,

NOTE Confidence: 0.905978501333333

00:06:48.754 --> 00:06:54.000 such as serotonin or 24 hour urine 5 hiaa,

NOTE Confidence: 0.905978501333333

00:06:54.000 --> 00:06:56.219 which is a byproduct or a metabolite

NOTE Confidence: 0.905978501333333

00:06:56.219 --> 00:06:56.853 of serotonin.

NOTE Confidence: 0.905978501333333

00:06:56.860 --> 00:07:00.486 Those can be useful and should be

NOTE Confidence: 0.905978501333333

00:07:00.486 --> 00:07:01.522 tracked overtime.

NOTE Confidence: 0.905978501333333

00:07:01.530 --> 00:07:05.193 So I find that there are really six key

NOTE Confidence: 0.905978501333333

00:07:05.193 --> 00:07:07.104 characteristics that impact treatment

NOTE Confidence: 0.905978501333333

00:07:07.104 --> 00:07:09.948 hormone status stage and burden of

NOTE Confidence: 0.905978501333333

00:07:09.948 --> 00:07:12.428 disease grade and differentiation.

NOTE Confidence: 0.905978501333333

00:07:12.430 --> 00:07:13.642 Pace of growth,

NOTE Confidence: 0.905978501333333

00:07:13.642 --> 00:07:15.258 primary site and somatostatin

NOTE Confidence: 0.905978501333333

00:07:15.258 --> 00:07:16.066 receptor status.

NOTE Confidence: 0.905978501333333

00:07:16.070 --> 00:07:17.967 I'll spend just a moment on each

NOTE Confidence: 0.905978501333333

00:07:17.967 --> 00:07:19.583 of these just to really set

NOTE Confidence: 0.905978501333333

00:07:19.583 --> 00:07:21.312 the stage in terms of how we

NOTE Confidence: 0.926439371785714

00:07:21.378 --> 00:07:23.108 talk about and think about

NOTE Confidence: 0.926439371785714

00:07:23.108 --> 00:07:24.146 treatments for nuts.

NOTE Confidence: 0.926439371785714

00:07:24.150 --> 00:07:27.246 So a functional neuroendocrine tumor is

NOTE Confidence: 0.926439371785714

00:07:27.246 --> 00:07:30.348 defined as a patient who has symptoms

NOTE Confidence: 0.926439371785714

00:07:30.348 --> 00:07:32.078 from a measurable hormone that's

NOTE Confidence: 0.926439371785714

00:07:32.078 --> 00:07:34.188 in either the urine or the blood.

NOTE Confidence: 0.926439371785714

00:07:34.190 --> 00:07:35.950 Carcinoid syndrome is a

NOTE Confidence: 0.926439371785714

00:07:35.950 --> 00:07:37.710 classic example of that.

NOTE Confidence: 0.926439371785714

00:07:37.710 --> 00:07:39.858 10% of patients with small intestine

NOTE Confidence: 0.926439371785714

00:07:39.858 --> 00:07:41.290 Nets have carcinoid syndrome,

NOTE Confidence: 0.926439371785714

00:07:41.290 --> 00:07:44.274 and it's due to production of peptides and

NOTE Confidence: 0.926439371785714

00:07:44.274 --> 00:07:47.367 am means such as serotonin or five hiaa,

NOTE Confidence: 0.926439371785714

00:07:47.370 --> 00:07:49.884 and it can cause Flushing Venus

NOTE Confidence: 0.926439371785714

00:07:49.884 --> 00:07:52.023 telangiectasis as shown in this

NOTE Confidence: 0.926439371785714

00:07:52.023 --> 00:07:54.315 picture on on the left diarrhea.

NOTE Confidence: 0.926439371785714

00:07:54.320 --> 00:07:56.768 Bronchospasm, valvular fibrosis,

NOTE Confidence: 0.926439371785714

00:07:56.768 --> 00:07:58.400 and hypotension.

NOTE Confidence: 0.926439371785714

00:07:58.400 --> 00:08:00.928 This is also a picture of a of

NOTE Confidence: 0.926439371785714

00:08:00.928 --> 00:08:02.540 the pulmonary and tricuspid

NOTE Confidence: 0.926439371785714

00:08:02.540 --> 00:08:04.800 valves that are very fibrotic.

NOTE Confidence: 0.926439371785714

00:08:04.800 --> 00:08:07.425 Pancreatic neuroendocrine tumors can also

NOTE Confidence: 0.926439371785714

00:08:07.425 --> 00:08:11.078 secrete hormones in about 40% of patients,

NOTE Confidence: 0.926439371785714

00:08:11.078 --> 00:08:12.626 most commonly insulin,

NOTE Confidence: 0.926439371785714

00:08:12.630 --> 00:08:14.580 followed by gastrin,

NOTE Confidence: 0.926439371785714

00:08:14.580 --> 00:08:17.830 Glucagon and vaso intestinal polypeptide,

NOTE Confidence: 0.926439371785714

00:08:17.830 --> 00:08:20.154 and the symptoms are really defined by

NOTE Confidence: 0.926439371785714

00:08:20.154 --> 00:08:21.978 the hormones secreted and nonfunctional.

NOTE Confidence: 0.926439371785714

00:08:21.978 --> 00:08:24.876 Nets are defined as patients who are

NOTE Confidence: 0.926439371785714

00:08:24.876 --> 00:08:27.049 either asymptomatic or have symptoms

NOTE Confidence: 0.926439371785714

00:08:27.049 --> 00:08:29.575 that are not from hormone access.

NOTE Confidence: 0.878234082727273

00:08:31.610 --> 00:08:33.162 So stage and grade.

NOTE Confidence: 0.878234082727273

00:08:33.162 --> 00:08:36.150 I think this is I really try to

NOTE Confidence: 0.878234082727273

00:08:36.150 --> 00:08:37.650 describe this to patients 'cause

NOTE Confidence: 0.878234082727273

00:08:37.650 --> 00:08:39.537 I think for patients in particular

NOTE Confidence: 0.878234082727273

00:08:39.537 --> 00:08:41.107 this can be very confusing.

NOTE Confidence: 0.878234082727273

00:08:41.110 --> 00:08:43.710 So to this audience however,

NOTE Confidence: 0.878234082727273

00:08:43.710 --> 00:08:45.910 stage is very familiar term.

NOTE Confidence: 0.878234082727273

00:08:45.910 --> 00:08:47.870 What's interesting is that

NOTE Confidence: 0.878234082727273

00:08:47.870 --> 00:08:50.320 the AJC staging criteria have

NOTE Confidence: 0.878234082727273

00:08:50.320 --> 00:08:52.907 only included Nets since 2010.

NOTE Confidence: 0.878234082727273

00:08:52.910 --> 00:08:55.182 This is a really nice picture here

NOTE Confidence: 0.878234082727273

00:08:55.182 --> 00:08:57.287 of a localized pancreatic net,

NOTE Confidence: 0.878234082727273

00:08:57.290 --> 00:08:59.971 which will show in the video and

NOTE Confidence: 0.878234082727273

00:08:59.971 --> 00:09:01.919 a metastatic pancreatic net with

NOTE Confidence: 0.878234082727273

00:09:01.919 --> 00:09:03.729 high degree of liver burden.

NOTE Confidence: 0.878234082727273

00:09:03.730 --> 00:09:05.430 As you can see here,

NOTE Confidence: 0.878234082727273

00:09:05.430 --> 00:09:06.828 grade is really what the cells

NOTE Confidence: 0.878234082727273

00:09:06.828 --> 00:09:08.320 look like under the microscope.

NOTE Confidence: 0.878234082727273

00:09:08.320 --> 00:09:09.624 Low grade is slower,

NOTE Confidence: 0.878234082727273

00:09:09.624 --> 00:09:11.580 growing higher grade is faster growing.

NOTE Confidence: 0.878234082727273

00:09:11.580 --> 00:09:14.016 We really base this on the Ki

NOTE Confidence: 0.878234082727273

00:09:14.016 --> 00:09:15.630 67 in mitotic index.

NOTE Confidence: 0.878234082727273

00:09:15.630 --> 00:09:17.842 The 2019 digestive WHO

NOTE Confidence: 0.878234082727273

00:09:17.842 --> 00:09:20.607 classification is the most recent.

NOTE Confidence: 0.878234082727273

00:09:20.610 --> 00:09:22.706 I'm next to the Red Arrow is a.

NOTE Confidence: 0.878234082727273

00:09:22.710 --> 00:09:25.188 New change that was made to this

NOTE Confidence: 0.878234082727273

00:09:25.190 --> 00:09:27.310 so we have well differentiated.

NOTE Confidence: 0.878234082727273

00:09:27.310 --> 00:09:30.914 Net grade 1/2 and three and poorly

NOTE Confidence: 0.878234082727273

00:09:30.914 --> 00:09:32.510 differentiated nurkin carcinoma

NOTE Confidence: 0.878234082727273

00:09:32.510 --> 00:09:35.655 grade 3 and that's divided into

NOTE Confidence: 0.878234082727273

00:09:35.655 --> 00:09:37.650 small cell and large cell.

NOTE Confidence: 0.878234082727273

00:09:37.650 --> 00:09:39.295 When I didn't put on this slide

NOTE Confidence: 0.878234082727273

00:09:39.295 --> 00:09:41.158 is kind of the breakdown of the

NOTE Confidence: 0.878234082727273

00:09:41.158 --> 00:09:42.528 Ki 67 in mitotic index,

NOTE Confidence: 0.878234082727273

00:09:42.530 --> 00:09:44.558 but really the take away from

NOTE Confidence: 0.878234082727273

00:09:44.558 --> 00:09:46.679 this is that clinically we treat

NOTE Confidence: 0.878234082727273

00:09:46.679 --> 00:09:48.785 the grade one and two well

NOTE Confidence: 0.878234082727273

00:09:48.785 --> 00:09:50.510 differentiated Nets very similarly.

NOTE Confidence: 0.878234082727273

00:09:50.510 --> 00:09:52.760 This well differentiated grade 3

NOTE Confidence: 0.878234082727273

00:09:52.760 --> 00:09:55.890 net is a relatively new category.

NOTE Confidence: 0.878234082727273

00:09:55.890 --> 00:09:57.941 I think that we have to treat

NOTE Confidence: 0.878234082727273

00:09:57.941 --> 00:09:59.919 based on the individual patients

NOTE Confidence: 0.878234082727273

00:09:59.919 --> 00:10:01.967 biology bulk of disease.

NOTE Confidence: 0.878234082727273

00:10:01.970 --> 00:10:03.870 The poorly differentiated nerdacon

NOTE Confidence: 0.878234082727273

00:10:03.870 --> 00:10:06.245 carcinomas are treated very differently.

NOTE Confidence: 0.878234082727273

00:10:06.250 --> 00:10:08.714 That will not be the primary topic of.

NOTE Confidence: 0.878234082727273

00:10:08.720 --> 00:10:10.694 Kind of the subsequent slides on treatment.

NOTE Confidence: 0.878234082727273

00:10:10.700 --> 00:10:12.805 That's typically those patients are

NOTE Confidence: 0.878234082727273

00:10:12.805 --> 00:10:15.520 typically treated with platinum at openside.

NOTE Confidence: 0.878234082727273

00:10:15.520 --> 00:10:16.536 So pace of growth,

NOTE Confidence: 0.878234082727273

00:10:16.536 --> 00:10:17.904 something I was getting to really

NOTE Confidence: 0.878234082727273

00:10:17.904 --> 00:10:19.380 does inform our treatment selection.

NOTE Confidence: 0.878234082727273

00:10:19.380 --> 00:10:21.396 We may need a patient with a

NOTE Confidence: 0.878234082727273

00:10:21.396 --> 00:10:23.677 metastatic low grade net who has very

NOTE Confidence: 0.878234082727273

00:10:23.677 --> 00:10:25.372 stable disease or slow progression,

NOTE Confidence: 0.878234082727273

00:10:25.380 --> 00:10:27.336 or may have more rapid progression.

NOTE Confidence: 0.878234082727273

00:10:27.340 --> 00:10:29.482 Some of those patients may not

NOTE Confidence: 0.878234082727273

00:10:29.482 --> 00:10:30.553 need treatment initially.

NOTE Confidence: 0.878234082727273

00:10:30.560 --> 00:10:32.568 Observation may be appropriate,

NOTE Confidence: 0.878234082727273

00:10:32.568 --> 00:10:35.580 whereas others may have high burden

NOTE Confidence: 0.878234082727273

00:10:35.657 --> 00:10:37.949 of disease or symptoms from tumor

NOTE Confidence: 0.878234082727273

00:10:37.949 --> 00:10:40.680 bulk and they may need treatment.

NOTE Confidence: 0.878234082727273

00:10:40.680 --> 00:10:41.874 Primary site matters,

NOTE Confidence: 0.878234082727273

00:10:41.874 --> 00:10:45.150 I know this is a GI focused talk,

NOTE Confidence: 0.878234082727273

00:10:45.150 --> 00:10:47.173 but Nets can happen in almost any

NOTE Confidence: 0.878234082727273

00:10:47.173 --> 00:10:49.120 organ in the small intestine.

NOTE Confidence: 0.878234082727273

00:10:49.120 --> 00:10:52.056 Most commonly that is one of the most

NOTE Confidence: 0.878234082727273

00:10:52.056 --> 00:10:54.998 common sites we see commonly in the ilium,

NOTE Confidence: 0.878234082727273

00:10:55.000 --> 00:10:57.250 but we will also see pancreatic

NOTE Confidence: 0.878234082727273

00:10:57.250 --> 00:11:00.000 Nets and other Nets in the GI tract,

NOTE Confidence: 0.878234082727273

00:11:00.000 --> 00:11:02.280 and many clinical trials and treatments

NOTE Confidence: 0.878234082727273

00:11:02.280 --> 00:11:04.799 are really tailored based on primary site.

NOTE Confidence: 0.878234082727273

00:11:04.800 --> 00:11:05.296 Therefore,

NOTE Confidence: 0.878234082727273

00:11:05.296 --> 00:11:07.776 FDA approvals are sometimes limited

NOTE Confidence: 0.878234082727273

00:11:07.776 --> 00:11:09.760 specifically to primary sites.

NOTE Confidence: 0.878234082727273

00:11:09.760 --> 00:11:12.212 One example of that.

NOTE Confidence: 0.878234082727273

00:11:12.212 --> 00:11:15.277 Is synonym for pancreatic Nets.

NOTE Confidence: 0.878234082727273

00:11:15.280 --> 00:11:17.165 We now know that somatostatin

NOTE Confidence: 0.878234082727273

00:11:17.165 --> 00:11:19.050 receptor status is critical both

NOTE Confidence: 0.878234082727273

00:11:19.117 --> 00:11:20.697 for diagnosis and therapy.

NOTE Confidence: 0.878234082727273

00:11:20.700 --> 00:11:20.953 Again,

NOTE Confidence: 0.878234082727273

00:11:20.953 --> 00:11:23.560 I'm going to let Doctor boy and go into this.

NOTE Confidence: 0.878234082727273

00:11:23.560 --> 00:11:25.205 This is an interesting picture

NOTE Confidence: 0.878234082727273

00:11:25.205 --> 00:11:27.286 just to show an octreoscan which

NOTE Confidence: 0.878234082727273

00:11:27.286 --> 00:11:29.136 has now really completely been

NOTE Confidence: 0.878234082727273

00:11:29.136 --> 00:11:30.616 replaced by gallium dotate.

NOTE Confidence: 0.878234082727273

00:11:30.620 --> 00:11:33.892 This is the same patient image with an

NOTE Confidence: 0.878234082727273

00:11:33.892 --> 00:11:36.638 octreoscan and a gallium 68 dotate pet,

NOTE Confidence: 0.878234082727273

00:11:36.640 --> 00:11:39.608 and you can see that the resolution is

NOTE Confidence: 0.878234082727273

00:11:39.608 --> 00:11:42.396 far superior with the pet based imaging.

NOTE Confidence: 0.776700743043478

00:11:42.400 --> 00:11:44.560 So now we're going to launch in the next

NOTE Confidence: 0.776700743043478

00:11:44.560 --> 00:11:46.984 sort of the final half of my presentation

NOTE Confidence: 0.776700743043478

00:11:46.984 --> 00:11:49.020 on general treatment categories for nuts.

NOTE Confidence: 0.776700743043478

00:11:49.020 --> 00:11:50.812 I will go into some of the specifics

NOTE Confidence: 0.776700743043478

00:11:50.812 --> 00:11:52.795 just so that you have access to this.

NOTE Confidence: 0.776700743043478

00:11:52.800 --> 00:11:55.558 If you choose to watch this again,

NOTE Confidence: 0.776700743043478

00:11:55.560 --> 00:11:57.660 so we have 4 main categories,

NOTE Confidence: 0.776700743043478

00:11:57.660 --> 00:12:00.660 somatostatin analogs, peptide receptor,

NOTE Confidence: 0.776700743043478

00:12:00.660 --> 00:12:02.727 radionuclide therapy, biologics,

NOTE Confidence: 0.776700743043478

00:12:02.727 --> 00:12:04.428 and cytotoxic chemotherapy,

NOTE Confidence: 0.776700743043478

00:12:04.428 --> 00:12:10.008 I am going to really focus my conversation or

NOTE Confidence: 0.776700743043478

00:12:10.008 --> 00:12:13.493 presentation tonight on antitumor treatments.

NOTE Confidence: 0.776700743043478

00:12:13.500 --> 00:12:15.110 Just a brief comment that we know.

NOTE Confidence: 0.776700743043478

00:12:15.110 --> 00:12:16.418 So not a statin.

NOTE Confidence: 0.776700743043478

00:12:16.418 --> 00:12:18.053 Analogs were really initially developed

NOTE Confidence: 0.776700743043478

00:12:18.053 --> 00:12:20.451 for a hormone control and remain as the

NOTE Confidence: 0.776700743043478

00:12:20.451 --> 00:12:22.848 primary tool that we use for hormone control,

NOTE Confidence: 0.776700743043478

00:12:22.850 --> 00:12:24.110 but I'm not going to go

NOTE Confidence: 0.776700743043478

00:12:24.110 --> 00:12:25.410 into just for sake of time.

NOTE Confidence: 0.776700743043478

00:12:25.410 --> 00:12:28.070 Details on hormone control tonight,

NOTE Confidence: 0.776700743043478

00:12:28.070 --> 00:12:29.696 so somatostatin receptors

NOTE Confidence: 0.776700743043478

00:12:29.696 --> 00:12:31.864 and and theranostics again,

NOTE Confidence: 0.776700743043478

00:12:31.870 --> 00:12:33.417 I'm going to just use this to

NOTE Confidence: 0.776700743043478

00:12:33.417 --> 00:12:34.970 talk about some of the therapies.

NOTE Confidence: 0.776700743043478

00:12:34.970 --> 00:12:37.554 Dr Abovyan will go into this as well,

NOTE Confidence: 0.776700743043478

00:12:37.560 --> 00:12:39.590 but in terms of my cartoon here,

NOTE Confidence: 0.776700743043478

00:12:39.590 --> 00:12:41.704 imagine you have a patient in population

NOTE Confidence: 0.776700743043478

00:12:41.704 --> 00:12:44.098 for whom you would like to select out.

NOTE Confidence: 0.776700743043478

00:12:44.100 --> 00:12:46.018 Do they have a receptor on the

NOTE Confidence: 0.776700743043478

00:12:46.018 --> 00:12:47.250 surface of their cells?

NOTE Confidence: 0.776700743043478

00:12:47.250 --> 00:12:48.726 We do in fact have that.

NOTE Confidence: 0.776700743043478

00:12:48.730 --> 00:12:51.658 So with the gallium 68 or copper 64 pets,

NOTE Confidence: 0.776700743043478

00:12:51.658 --> 00:12:52.994 we select out those

NOTE Confidence: 0.776700743043478

00:12:52.994 --> 00:12:54.330 patients using that imaging,

NOTE Confidence: 0.776700743043478

00:12:54.330 --> 00:12:56.378 and then we in fact have a targeted

NOTE Confidence: 0.776700743043478

00:12:56.378 --> 00:12:58.007 therapy that goes to that target.

NOTE Confidence: 0.776700743043478

00:12:58.010 --> 00:12:59.326 So that's theranostics Dr.

NOTE Confidence: 0.776700743043478

00:12:59.326 --> 00:13:01.300 Boy and will focus on that.

NOTE Confidence: 0.776700743043478

00:13:01.300 --> 00:13:03.148 When I described this to patients,

NOTE Confidence: 0.776700743043478

00:13:03.150 --> 00:13:05.376 I used the lock and key

NOTE Confidence: 0.776700743043478

00:13:05.376 --> 00:13:06.489 description or analogy.

NOTE Confidence: 0.776700743043478

00:13:06.490 --> 00:13:08.938 I think that helps them understand

NOTE Confidence: 0.776700743043478

00:13:08.938 --> 00:13:11.210 why we use somatostatin analogs,

NOTE Confidence: 0.776700743043478

00:13:11.210 --> 00:13:13.464 why we use the Dota Tate imaging.

NOTE Confidence: 0.776700743043478

00:13:13.470 --> 00:13:15.300 So think of the somatostatin

NOTE Confidence: 0.776700743043478

00:13:15.300 --> 00:13:17.376 receptor as the lock, the.

NOTE Confidence: 0.776700743043478

00:13:17.376 --> 00:13:19.800 Key is the peptide,

NOTE Confidence: 0.776700743043478

00:13:19.800 --> 00:13:22.116 and then there's a reporting unit.

NOTE Confidence: 0.776700743043478

00:13:22.120 --> 00:13:23.940 So for somatostatin analogs,

NOTE Confidence: 0.776700743043478

00:13:23.940 --> 00:13:26.670 we actually have two trials that

NOTE Confidence: 0.776700743043478

00:13:26.750 --> 00:13:28.988 demonstrated antitumor effect.

NOTE Confidence: 0.776700743043478

00:13:28.990 --> 00:13:31.564 The Pro MID study demonstrated the

NOTE Confidence: 0.776700743043478

00:13:31.564 --> 00:13:33.910 effect of octreotide versus placebo,

NOTE Confidence: 0.776700743043478

00:13:33.910 --> 00:13:36.826 and the clarinet study demonstrated the

NOTE Confidence: 0.776700743043478

00:13:36.826 --> 00:13:39.370 effectiveness of lanreotide versus placebo.

NOTE Confidence: 0.776700743043478

00:13:39.370 --> 00:13:43.142 Both had a primary endpoint of of

NOTE Confidence: 0.776700743043478

00:13:43.142 --> 00:13:45.046 the permits that it was time to

NOTE Confidence: 0.776700743043478

00:13:45.046 --> 00:13:46.657 progression and that the clarinet

NOTE Confidence: 0.776700743043478

00:13:46.657 --> 00:13:48.342 study was progression free survival

NOTE Confidence: 0.776700743043478

00:13:48.342 --> 00:13:50.416 and they both should have benefit

NOTE Confidence: 0.776700743043478

00:13:50.416 --> 00:13:51.540 over placebo octreotide.

NOTE Confidence: 0.776700743043478

00:13:51.540 --> 00:13:54.690 Is not formally does not have a

NOTE Confidence: 0.776700743043478

00:13:54.690 --> 00:13:57.930 formal FDA label for antitumor effect.

NOTE Confidence: 0.776700743043478

00:13:57.930 --> 00:13:59.766 It is primarily in hormone control,

NOTE Confidence: 0.776700743043478

00:13:59.770 --> 00:14:00.793 but it is.

NOTE Confidence: 0.776700743043478

00:14:00.793 --> 00:14:02.498 These two agents are often

NOTE Confidence: 0.776700743043478

00:14:02.498 --> 00:14:03.180 used interchangeably.

NOTE Confidence: 0.776700743043478

00:14:03.180 --> 00:14:05.010 Landry Tide was FDA approved

NOTE Confidence: 0.776700743043478

00:14:05.010 --> 00:14:07.340 in 2014 as an antitumor agent.

NOTE Confidence: 0.939434646153846

00:14:09.650 --> 00:14:11.106 I'd like to put this up because I

NOTE Confidence: 0.939434646153846

00:14:11.106 --> 00:14:13.206 get asked this a lot. So how do we

NOTE Confidence: 0.939434646153846

00:14:13.206 --> 00:14:15.030 think about dosing for tumor control?

NOTE Confidence: 0.939434646153846

00:14:15.030 --> 00:14:17.844 Octreotide LARC is usually used at the

NOTE Confidence: 0.939434646153846

00:14:17.844 --> 00:14:20.795 30 milligram I am monthly dose and

NOTE Confidence: 0.939434646153846

00:14:20.795 --> 00:14:23.334 lanreotide at 120 milligrams deep. Subq.

NOTE Confidence: 0.939434646153846

00:14:23.334 --> 00:14:26.871 There is no need to overlap with short

NOTE Confidence: 0.939434646153846

00:14:26.871 --> 00:14:28.930 acting unless it's a functional tumor.

NOTE Confidence: 0.939434646153846

00:14:28.930 --> 00:14:31.396 I think there was data years ago that we

NOTE Confidence: 0.939434646153846

00:14:31.396 --> 00:14:33.946 needed to do a test dose to test for allergy.

NOTE Confidence: 0.939434646153846

00:14:33.950 --> 00:14:36.250 That's not generally needed in

NOTE Confidence: 0.939434646153846

00:14:36.250 --> 00:14:38.290 practice and there is little data

NOTE Confidence: 0.939434646153846

00:14:38.290 --> 00:14:39.870 to support the routine use.

NOTE Confidence: 0.939434646153846

00:14:39.870 --> 00:14:42.255 Above standard dose of somatostatin

NOTE Confidence: 0.939434646153846

00:14:42.255 --> 00:14:44.163 analogues for tumor control.

NOTE Confidence: 0.939434646153846

00:14:44.170 --> 00:14:47.217 The side effects include nausha, diarrhea,

NOTE Confidence: 0.939434646153846

00:14:47.217 --> 00:14:50.958 cholelithiasis, and hyperglycemia.

NOTE Confidence: 0.939434646153846

00:14:50.960 --> 00:14:52.500 I'm going to go through these quickly.

NOTE Confidence: 0.939434646153846

00:14:52.500 --> 00:14:54.276 I have them just kind of as placeholders,

NOTE Confidence: 0.939434646153846

00:14:54.280 --> 00:14:56.275 but Doctor Brian will talk about these,

NOTE Confidence: 0.939434646153846

00:14:56.280 --> 00:14:59.640 but we've had incredible advances in

NOTE Confidence: 0.939434646153846

00:14:59.640 --> 00:15:02.075 the diagnostics for Nets as well and

NOTE Confidence: 0.939434646153846

00:15:02.075 --> 00:15:04.611 there is a very handy paper and I have

NOTE Confidence: 0.939434646153846

00:15:04.611 --> 00:15:07.275 this here just as a reference on the

NOTE Confidence: 0.939434646153846

00:15:07.275 --> 00:15:09.440 appropriate use criteria for somatostatin

NOTE Confidence: 0.939434646153846

00:15:09.440 --> 00:15:12.512 receptor PET imaging and new under consumers.

NOTE Confidence: 0.939434646153846

00:15:12.512 --> 00:15:14.284 That's a great reference.

NOTE Confidence: 0.939434646153846

00:15:14.290 --> 00:15:16.922 And then in the therapy is something that

NOTE Confidence: 0.939434646153846

00:15:16.922 --> 00:15:19.486 also Doctor Boy and will discuss and

NOTE Confidence: 0.939434646153846

00:15:19.486 --> 00:15:21.760 specifically around the Netter one phase,

NOTE Confidence: 0.939434646153846

00:15:21.760 --> 00:15:22.681 three clinical trial.

NOTE Confidence: 0.939434646153846

00:15:22.681 --> 00:15:24.830 So I'll mention it just in passing

NOTE Confidence: 0.939434646153846

00:15:24.888 --> 00:15:26.904 that this was a study I had the

NOTE Confidence: 0.939434646153846

00:15:26.904 --> 00:15:28.287 opportunity to serve as a key.

NOTE Confidence: 0.939434646153846

00:15:28.290 --> 00:15:29.526 I when I was at Stanford.

NOTE Confidence: 0.939434646153846

00:15:29.530 --> 00:15:31.708 It's a randomized study that really

NOTE Confidence: 0.939434646153846

00:15:31.708 --> 00:15:34.596 set the stage for using their Gnostics

NOTE Confidence: 0.939434646153846

00:15:34.596 --> 00:15:36.866 and and specifically alluded it,

NOTE Confidence: 0.939434646153846

00:15:36.870 --> 00:15:37.836 and that's it.

NOTE Confidence: 0.939434646153846

00:15:37.836 --> 00:15:39.124 Was a positive study.

NOTE Confidence: 0.939434646153846

00:15:39.130 --> 00:15:40.021 I will give.

NOTE Confidence: 0.939434646153846

00:15:40.021 --> 00:15:41.803 I will give that punchline away

NOTE Confidence: 0.939434646153846

00:15:41.803 --> 00:15:43.090 for Doctor O'Brien.

NOTE Confidence: 0.939434646153846

00:15:43.090 --> 00:15:44.700 But moving on to some of the

NOTE Confidence: 0.939434646153846

00:15:44.700 --> 00:15:45.390 other systemic therapies,

NOTE Confidence: 0.939434646153846

00:15:45.390 --> 00:15:47.550 I will spend a few minutes on so.

NOTE Confidence: 0.939434646153846

00:15:47.550 --> 00:15:49.860 Everolimus is approved for pancreatic

NOTE Confidence: 0.939434646153846

00:15:49.860 --> 00:15:53.269 net and non functional GI and lung Nets.

NOTE Confidence: 0.939434646153846

00:15:53.270 --> 00:15:55.540 This is an inventory inhibitor.

NOTE Confidence: 0.939434646153846

00:15:55.540 --> 00:15:57.965 There were sister studies Radiant

NOTE Confidence: 0.939434646153846

00:15:57.965 --> 00:16:01.580 three and Radiant four and.

NOTE Confidence: 0.939434646153846

00:16:01.580 --> 00:16:03.536 Both of them showed a progression

NOTE Confidence: 0.939434646153846

00:16:03.536 --> 00:16:04.840 free survival benefit in

NOTE Confidence: 0.939434646153846

00:16:04.898 --> 00:16:06.359 these patient populations,

NOTE Confidence: 0.939434646153846

00:16:06.360 --> 00:16:08.000 and they were both approved.

NOTE Confidence: 0.939434646153846

00:16:08.000 --> 00:16:10.793 So for pancreatic net in 2011 and

NOTE Confidence: 0.939434646153846

00:16:10.793 --> 00:16:13.718 for GI and lung Nets in 2016.

NOTE Confidence: 0.939434646153846

00:16:13.720 --> 00:16:15.710 And tyrosine kinase inhibitors also

NOTE Confidence: 0.939434646153846

00:16:15.710 --> 00:16:18.200 have a role in neuroendocrine tumors.

NOTE Confidence: 0.939434646153846

00:16:18.200 --> 00:16:20.576 Sonett nib was approved on the

NOTE Confidence: 0.939434646153846

00:16:20.576 --> 00:16:23.063 basis of this randomized study in

NOTE Confidence: 0.939434646153846

00:16:23.063 --> 00:16:24.915 patients with well differentiated

NOTE Confidence: 0.939434646153846

00:16:24.915 --> 00:16:26.304 advanced pancreatic Nets.

NOTE Confidence: 0.939434646153846

00:16:26.310 --> 00:16:28.443 So that's the one that I said we don't

NOTE Confidence: 0.939434646153846

00:16:28.443 --> 00:16:30.520 yet have a tyrosine kinase inhibitor

NOTE Confidence: 0.939434646153846

00:16:30.520 --> 00:16:32.300 approved for small bowel Nets.

NOTE Confidence: 0.939434646153846

00:16:32.300 --> 00:16:34.070 This was also approved on the

NOTE Confidence: 0.939434646153846

00:16:34.070 --> 00:16:35.860 basis of a PFS benefit.

NOTE Confidence: 0.939434646153846

00:16:35.860 --> 00:16:38.085 You'll notice that most neuroendocrine

NOTE Confidence: 0.939434646153846

00:16:38.085 --> 00:16:40.310 tumor clinical trials have progression

NOTE Confidence: 0.939434646153846

00:16:40.369 --> 00:16:42.445 free survival as a primary endpoint,

NOTE Confidence: 0.939434646153846

00:16:42.450 --> 00:16:44.550 and that's because OS.

NOTE Confidence: 0.939434646153846

00:16:44.550 --> 00:16:47.114 Is an impractical endpoint given

NOTE Confidence: 0.939434646153846

00:16:47.114 --> 00:16:49.898 that patients tend to receive many

NOTE Confidence: 0.939434646153846

00:16:49.898 --> 00:16:51.739 subsequent therapies after these

NOTE Confidence: 0.939434646153846

00:16:51.739 --> 00:16:53.983 clinical trials and it be given

NOTE Confidence: 0.939434646153846

00:16:53.983 --> 00:16:56.010 the indolence of the disease,

NOTE Confidence: 0.939434646153846

00:16:56.010 --> 00:16:57.270 it would be too difficult,

NOTE Confidence: 0.939434646153846

00:16:57.270 --> 00:16:58.202 practically speaking,

NOTE Confidence: 0.939434646153846

00:16:58.202 --> 00:17:00.066 to use overall survival.

NOTE Confidence: 0.939434646153846

00:17:00.070 --> 00:17:03.790 So this was approved in 2011.

NOTE Confidence: 0.939434646153846

00:17:03.790 --> 00:17:06.198 Sir Afatinib is not yet FDA approved.

NOTE Confidence: 0.939434646153846

00:17:06.200 --> 00:17:08.540 It is under FDA review.

NOTE Confidence: 0.939434646153846

00:17:08.540 --> 00:17:09.090 At present,

NOTE Confidence: 0.939434646153846

00:17:09.090 --> 00:17:11.015 this was on the basis of two

NOTE Confidence: 0.939434646153846

00:17:11.015 --> 00:17:12.622 large studies conducted in China

NOTE Confidence: 0.939434646153846

00:17:12.622 --> 00:17:14.212 and then a phase one.

NOTE Confidence: 0.939434646153846

00:17:14.220 --> 00:17:15.900 Two study that has been

NOTE Confidence: 0.939434646153846

00:17:15.900 --> 00:17:17.580 conducted in the United States

NOTE Confidence: 0.953139839166667

00:17:17.651 --> 00:17:20.004 in a more traditionally Western population.

NOTE Confidence: 0.953139839166667

00:17:20.004 --> 00:17:23.160 But this was positive in both

NOTE Confidence: 0.953139839166667

00:17:23.238 --> 00:17:26.098 pancreatic and extra pancreatic Nets.

NOTE Confidence: 0.953139839166667

00:17:26.100 --> 00:17:28.410 And is, I suspect that at some

NOTE Confidence: 0.953139839166667

00:17:28.410 --> 00:17:30.160 point this spring or summer,

NOTE Confidence: 0.953139839166667

00:17:30.160 --> 00:17:33.576 we will have a decision from the FDA.

NOTE Confidence: 0.953139839166667

00:17:33.580 --> 00:17:35.932 I'd like to mention a study on

NOTE Confidence: 0.953139839166667

00:17:35.932 --> 00:17:38.220 chemotherapy that I had the opportunity

NOTE Confidence: 0.953139839166667

00:17:38.220 --> 00:17:40.235 to lead for pancreatic Nets,

NOTE Confidence: 0.953139839166667

00:17:40.240 --> 00:17:43.848 so this was a study of temozolomide versus

NOTE Confidence: 0.953139839166667

00:17:43.848 --> 00:17:46.162 capecitabine intimas Olumide for grade

NOTE Confidence: 0.953139839166667

00:17:46.162 --> 00:17:48.832 one or two metastatic pancreatic Nets.

NOTE Confidence: 0.953139839166667

00:17:48.840 --> 00:17:51.438 This was a study that ultimately

NOTE Confidence: 0.953139839166667

00:17:51.438 --> 00:17:54.870 demonstrated that Caped M was superior to

NOTE Confidence: 0.953139839166667

00:17:54.870 --> 00:17:57.575 temozolomide alone and median progression.

NOTE Confidence: 0.953139839166667

00:17:57.580 --> 00:18:00.808 Free survival was about 23 months

NOTE Confidence: 0.953139839166667

00:18:00.808 --> 00:18:03.949 for the combination versus 14 months.

NOTE Confidence: 0.953139839166667

00:18:03.950 --> 00:18:06.392 For Thomas Olumide at the time

NOTE Confidence: 0.953139839166667

00:18:06.392 --> 00:18:08.020 of the initial analysis,

NOTE Confidence: 0.953139839166667

00:18:08.020 --> 00:18:10.799 it appeared as if there was an

NOTE Confidence: 0.953139839166667

00:18:10.799 --> 00:18:12.650 overall survival benefit benefit.

NOTE Confidence: 0.953139839166667

00:18:12.650 --> 00:18:13.538 Stay tuned.

NOTE Confidence: 0.953139839166667

00:18:13.538 --> 00:18:16.202 We have the final analysis submitted

NOTE Confidence: 0.953139839166667

00:18:16.202 --> 00:18:19.918 to ASCO for an updated analysis.

NOTE Confidence: 0.953139839166667

00:18:19.920 --> 00:18:21.691 I think one of the key takeaways

NOTE Confidence: 0.953139839166667

00:18:21.691 --> 00:18:23.984 of this is that we see a higher

NOTE Confidence: 0.953139839166667

00:18:23.984 --> 00:18:25.840 response rate than we've seen really

NOTE Confidence: 0.953139839166667

00:18:25.840 --> 00:18:27.760 for any of the other therapies.

NOTE Confidence: 0.953139839166667

00:18:27.760 --> 00:18:29.158 I did not go into that,

NOTE Confidence: 0.953139839166667

00:18:29.160 --> 00:18:32.840 but somatostatin analogues, mtor inhibitors,

NOTE Confidence: 0.953139839166667

00:18:32.840 --> 00:18:35.582 tyrosine kinase inhibitors all have a

NOTE Confidence: 0.953139839166667

00:18:35.582 --> 00:18:39.250 you know 5% or less objective response rate.

NOTE Confidence: 0.953139839166667

00:18:39.250 --> 00:18:41.776 So for patients with pancreatic Nets

NOTE Confidence: 0.953139839166667

00:18:41.776 --> 00:18:44.220 who need objective tumor shrinkage,

NOTE Confidence: 0.953139839166667

00:18:44.220 --> 00:18:46.385 these are actually very good

NOTE Confidence: 0.953139839166667

00:18:46.385 --> 00:18:48.117 therapies to think about.

NOTE Confidence: 0.953139839166667

00:18:48.120 --> 00:18:49.560 So let's wrap this up.

NOTE Confidence: 0.953139839166667

00:18:49.560 --> 00:18:50.600 I think I have.

NOTE Confidence: 0.953139839166667

00:18:50.600 --> 00:18:51.380 Two slides left.

NOTE Confidence: 0.953139839166667

00:18:51.380 --> 00:18:53.109 So how do we really think about

NOTE Confidence: 0.953139839166667

00:18:53.109 --> 00:18:54.420 sequencing that these treatments?

NOTE Confidence: 0.953139839166667

00:18:54.420 --> 00:18:55.281 It's very confusing.

NOTE Confidence: 0.953139839166667

00:18:55.281 --> 00:18:57.003 We're actually in a fortunate place

NOTE Confidence: 0.953139839166667

00:18:57.003 --> 00:18:58.875 now of having a number of therapies,

NOTE Confidence: 0.953139839166667

00:18:58.880 --> 00:19:00.490 but it gets very difficult to know

NOTE Confidence: 0.953139839166667

00:19:00.490 --> 00:19:02.437 what order in which we should use them,

NOTE Confidence: 0.953139839166667

00:19:02.440 --> 00:19:04.928 so this is adapted from Nancy CN guidelines,

NOTE Confidence: 0.953139839166667

00:19:04.930 --> 00:19:07.380 so I would say commonly a first

NOTE Confidence: 0.953139839166667

00:19:07.380 --> 00:19:09.620 line treatment is either observation

NOTE Confidence: 0.953139839166667

00:19:09.620 --> 00:19:11.856 or octreotide or lanreotide,

NOTE Confidence: 0.953139839166667

00:19:11.860 --> 00:19:14.044 but where it gets very confusing as

NOTE Confidence: 0.953139839166667

00:19:14.044 --> 00:19:15.860 thinking about second line therapies.

NOTE Confidence: 0.953139839166667

00:19:15.860 --> 00:19:17.673 So I have a handy table to

NOTE Confidence: 0.953139839166667

00:19:17.673 --> 00:19:19.219 help you think about that,

NOTE Confidence: 0.953139839166667

00:19:19.220 --> 00:19:20.370 and I've put them in.

NOTE Confidence: 0.953139839166667

00:19:20.370 --> 00:19:22.708 Order of how I generally will think

NOTE Confidence: 0.953139839166667

00:19:22.708 --> 00:19:23.710 about using them.

NOTE Confidence: 0.953139839166667

00:19:23.710 --> 00:19:27.158 I often will consider using PRT or Ludo

NOTE Confidence: 0.953139839166667

00:19:27.158 --> 00:19:30.610 tape or lutathera as the as it's also

NOTE Confidence: 0.953139839166667

00:19:30.610 --> 00:19:32.650 called in the second line setting.

NOTE Confidence: 0.953139839166667

00:19:32.650 --> 00:19:35.191 It has a modest response rate of

NOTE Confidence: 0.953139839166667

00:19:35.191 --> 00:19:38.110 about 18% along PFS and is well

NOTE Confidence: 0.953139839166667

00:19:38.110 --> 00:19:40.734 tolerated and we do have to take care

NOTE Confidence: 0.953139839166667

00:19:40.734 --> 00:19:43.286 if patients GFR is less than 30 but

NOTE Confidence: 0.953139839166667

00:19:43.286 --> 00:19:46.408 we are developing more experience with them.

NOTE Confidence: 0.953139839166667

00:19:46.410 --> 00:19:48.875 The chemotherapy tamela mining capecitabine

NOTE Confidence: 0.953139839166667

00:19:48.875 --> 00:19:51.340 has the highest response rate.

NOTE Confidence: 0.953139839166667

00:19:51.340 --> 00:19:53.170 And should be considered for

NOTE Confidence: 0.953139839166667

00:19:53.170 --> 00:19:55.000 patients with pancreatic Nets who

NOTE Confidence: 0.953139839166667

00:19:55.064 --> 00:19:56.660 need an objective response.

NOTE Confidence: 0.953139839166667

00:19:56.660 --> 00:19:58.280 It does have higher adverse

NOTE Confidence: 0.953139839166667

00:19:58.280 --> 00:19:59.576 events for older patients.

NOTE Confidence: 0.953139839166667

00:19:59.580 --> 00:20:03.006 I will sometimes consider temozolomide alone.

NOTE Confidence: 0.953139839166667

00:20:03.010 --> 00:20:04.530 Forever Elemicin soon if they

NOTE Confidence: 0.953139839166667

00:20:04.530 --> 00:20:06.430 both have very low response rates,

NOTE Confidence: 0.953139839166667

00:20:06.430 --> 00:20:09.150 the PFS is about a year best for

NOTE Confidence: 0.953139839166667

00:20:09.150 --> 00:20:10.050 low volume disease,

NOTE Confidence: 0.953139839166667

00:20:10.050 --> 00:20:12.738 but I find that the adverse event

NOTE Confidence: 0.953139839166667

00:20:12.738 --> 00:20:15.359 profile is tough for both of these.

NOTE Confidence: 0.953139839166667

00:20:15.360 --> 00:20:17.125 Everyone ever really miss in

NOTE Confidence: 0.953139839166667

00:20:17.125 --> 00:20:18.890 particular is good for insulinoma

NOTE Confidence: 0.953139839166667

00:20:18.954 --> 00:20:20.949 because it can cause hyperglycemia,

NOTE Confidence: 0.953139839166667

00:20:20.950 --> 00:20:23.578 but it's tough and can cause

NOTE Confidence: 0.953139839166667

00:20:23.578 --> 00:20:25.330 pneumonitis and the hyperglycemia

NOTE Confidence: 0.953139839166667

00:20:25.407 --> 00:20:27.927 can be difficult for patients

NOTE Confidence: 0.953139839166667

00:20:27.927 --> 00:20:29.439 with uncontrolled diabetes.

NOTE Confidence: 0.953139839166667

00:20:29.440 --> 00:20:30.880 So takeaways I hope you've

NOTE Confidence: 0.953139839166667

00:20:30.880 --> 00:20:32.320 learned that Nets are not

NOTE Confidence: 0.859887359166667

00:20:32.384 --> 00:20:33.924 that rare. They are deserving

NOTE Confidence: 0.859887359166667

00:20:33.924 --> 00:20:35.236 of high quality basic,

NOTE Confidence: 0.859887359166667

00:20:35.240 --> 00:20:37.190 translational and clinical research efforts.

NOTE Confidence: 0.859887359166667

00:20:37.190 --> 00:20:38.670 We've had incredible advances

NOTE Confidence: 0.859887359166667

00:20:38.670 --> 00:20:40.520 in the last 10 years.

NOTE Confidence: 0.859887359166667

00:20:40.520 --> 00:20:42.218 PRT is really a game changer

NOTE Confidence: 0.859887359166667

00:20:42.218 --> 00:20:44.405 and I expect the next decade of

NOTE Confidence: 0.859887359166667

00:20:44.405 --> 00:20:46.050 clinical trials to be looking

NOTE Confidence: 0.859887359166667

00:20:46.050 --> 00:20:48.105 at better patient selection,

NOTE Confidence: 0.859887359166667

00:20:48.105 --> 00:20:50.405 minimizing toxicities and increasing

NOTE Confidence: 0.859887359166667

00:20:50.405 --> 00:20:52.219 efficacy and multidisciplinary care

NOTE Confidence: 0.859887359166667

00:20:52.219 --> 00:20:55.584 and team science is really key for this

NOTE Confidence: 0.859887359166667

00:20:55.584 --> 00:20:57.740 disease so I am going to stop share.

NOTE Confidence: 0.859887359166667

00:20:57.740 --> 00:20:59.486 I think I'm close to time.

NOTE Confidence: 0.859887359166667

00:20:59.490 --> 00:21:01.674 I am going to pass the baton to

NOTE Confidence: 0.859887359166667

00:21:01.674 --> 00:21:03.376 Doctor Abovyan and then Doctor Boyd

NOTE Confidence: 0.859887359166667

00:21:03.376 --> 00:21:05.368 if you can then pass that baton

NOTE Confidence: 0.859887359166667

00:21:05.368 --> 00:21:07.405 when you're done to Doctor Khan and

NOTE Confidence: 0.859887359166667

00:21:07.405 --> 00:21:09.656 then we will do a Q and a great.

NOTE Confidence: 0.597898

00:21:15.590 --> 00:21:19.460 Thank you doctor Kuntz. This was fantastic.

NOTE Confidence: 0.334057785

00:21:19.460 --> 00:21:20.969 Sam my screen.

NOTE Confidence: 0.875899366363636

00:21:31.900 --> 00:21:34.161 So I'm going to talk about the

NOTE Confidence: 0.875899366363636

00:21:34.161 --> 00:21:35.740 role of molecular imaging,

NOTE Confidence: 0.875899366363636

00:21:35.740 --> 00:21:38.012 and there are Gnostics in the care of

NOTE Confidence: 0.875899366363636

00:21:38.012 --> 00:21:40.236 patients with neural neoplasms I'm in.

NOTE Confidence: 0.875899366363636

00:21:40.236 --> 00:21:42.768 I'm at Yale Department of Radiology

NOTE Confidence: 0.875899366363636

00:21:42.768 --> 00:21:45.668 and I am in a nuclear medicine

NOTE Confidence: 0.875899366363636

00:21:45.668 --> 00:21:47.268 and new radiology sections.

NOTE Confidence: 0.734698471842105

00:21:49.750 --> 00:21:52.558 For disclosures, I have a research

NOTE Confidence: 0.734698471842105

00:21:52.558 --> 00:21:55.699 collaboration with vistage imaging and I do

NOTE Confidence: 0.734698471842105

00:21:55.699 --> 00:21:58.093 clinical trials with Blue Earth diagnostics.

NOTE Confidence: 0.734698471842105

00:21:58.100 --> 00:22:00.088 We're going to start a little bit

NOTE Confidence: 0.734698471842105

00:22:00.088 --> 00:22:01.993 with standard imaging, CT, and MRI,

NOTE Confidence: 0.734698471842105

00:22:01.993 --> 00:22:05.153 but we're not going to focus on this

NOTE Confidence: 0.734698471842105

00:22:05.153 --> 00:22:08.030 imaging modalities because they're pretty

NOTE Confidence: 0.734698471842105

00:22:08.030 --> 00:22:11.428 well understood in the community and just

NOTE Confidence: 0.734698471842105

00:22:11.428 --> 00:22:14.132 kind of going over the basics of it.

NOTE Confidence: 0.734698471842105

00:22:14.140 --> 00:22:17.178 For carcinoid tumors, we can do very

NOTE Confidence: 0.734698471842105

00:22:17.178 --> 00:22:20.217 nice chest imaging with CT of the chest.

NOTE Confidence: 0.734698471842105

00:22:20.220 --> 00:22:22.768 We can do contrast and noncontrast imaging,

NOTE Confidence: 0.734698471842105

00:22:22.770 --> 00:22:25.350 and here is an example of

NOTE Confidence: 0.734698471842105

00:22:25.350 --> 00:22:27.070 a lung carcinoid lesion.

NOTE Confidence: 0.734698471842105

00:22:27.070 --> 00:22:29.374 For pancreatic neuroendocrine

NOTE Confidence: 0.734698471842105

00:22:29.374 --> 00:22:33.982 tumors we can do CT imaging.

NOTE Confidence: 0.734698471842105

00:22:33.990 --> 00:22:35.139 Enhance CT imaging,

NOTE Confidence: 0.734698471842105

00:22:35.139 --> 00:22:38.841 but we can also do MRI and here you

NOTE Confidence: 0.734698471842105

00:22:38.841 --> 00:22:41.643 see actually a patient with pancreatic

NOTE Confidence: 0.734698471842105

00:22:41.643 --> 00:22:45.100 tail or entropy neoplasm that is

NOTE Confidence: 0.734698471842105

00:22:45.100 --> 00:22:46.840 heterogeneous solid and partially cystic

NOTE Confidence: 0.734698471842105

00:22:46.840 --> 00:22:49.380 and you can see that it's actually

NOTE Confidence: 0.734698471842105

00:22:49.380 --> 00:22:52.620 sometimes difficult to evaluate.

NOTE Confidence: 0.734698471842105

00:22:52.620 --> 00:22:55.742 We can also do MRI imaging with

NOTE Confidence: 0.734698471842105

00:22:55.742 --> 00:22:56.634 abdominal MRI.

NOTE Confidence: 0.734698471842105

00:22:56.640 --> 00:22:58.344 You can do it with contrast

NOTE Confidence: 0.734698471842105

00:22:58.344 --> 00:22:59.196 and without contrast,

NOTE Confidence: 0.734698471842105

00:22:59.200 --> 00:23:03.736 and you can evaluate in this particular

NOTE Confidence: 0.734698471842105

00:23:03.736 --> 00:23:07.620 patient static liver lesions within the.

NOTE Confidence: 0.734698471842105

00:23:07.620 --> 00:23:09.454 This MRI pretty well and this actually

NOTE Confidence: 0.734698471842105

00:23:09.454 --> 00:23:11.178 is same patient that progressed in

NOTE Confidence: 0.734698471842105

00:23:11.178 --> 00:23:12.954 development has to season the liver.

NOTE Confidence: 0.84837526125

00:23:14.970 --> 00:23:18.645 But we want to also start imaging

NOTE Confidence: 0.84837526125

00:23:18.645 --> 00:23:20.988 beyond standard anatomical imaging

NOTE Confidence: 0.84837526125

00:23:20.988 --> 00:23:23.562 with molecular imaging and with

NOTE Confidence: 0.84837526125

00:23:23.562 --> 00:23:25.066 standard and understandable imaging

NOTE Confidence: 0.84837526125

00:23:25.066 --> 00:23:28.028 we can see a lot of the basics of

NOTE Confidence: 0.84837526125

00:23:28.028 --> 00:23:30.574 the of of the anatomy you can see

NOTE Confidence: 0.84837526125

00:23:30.574 --> 00:23:32.389 actually delineate the borders of

NOTE Confidence: 0.84837526125

00:23:32.389 --> 00:23:34.708 the tumor and where they're located,

NOTE Confidence: 0.84837526125

00:23:34.708 --> 00:23:38.025 but it's really hard to say what is

NOTE Confidence: 0.84837526125

00:23:38.025 --> 00:23:40.175 the characteristics of the tumor,

NOTE Confidence: 0.84837526125

00:23:40.180 --> 00:23:42.280 so we're very good at defining the

NOTE Confidence: 0.84837526125

00:23:42.280 --> 00:23:44.536 anatomy and the location and the extent

NOTE Confidence: 0.84837526125

00:23:44.536 --> 00:23:47.020 of the disease and location of disease.

NOTE Confidence: 0.84837526125

00:23:47.020 --> 00:23:49.100 But not so much in terms of is

NOTE Confidence: 0.84837526125

00:23:49.100 --> 00:23:51.099 the same neuroendocrine tumor.

NOTE Confidence: 0.84837526125

00:23:51.100 --> 00:23:52.276 If you just look at the lover?

NOTE Confidence: 0.84837526125

00:23:52.280 --> 00:23:55.070 Or is this something else?

NOTE Confidence: 0.84837526125

00:23:55.070 --> 00:23:57.996 What's really nice is that you can

NOTE Confidence: 0.84837526125

00:23:57.996 --> 00:24:00.645 actually use targeted imaging to describe

NOTE Confidence: 0.84837526125

00:24:00.645 --> 00:24:03.725 the receptors on the surface of tumors,

NOTE Confidence: 0.84837526125

00:24:03.730 --> 00:24:05.810 and you can characterize these.

NOTE Confidence: 0.84837526125

00:24:05.810 --> 00:24:07.898 Reset these unjust imaging

NOTE Confidence: 0.84837526125

00:24:07.898 --> 00:24:11.030 without having to do a biopsy.

NOTE Confidence: 0.84837526125

00:24:11.030 --> 00:24:12.914 And this is an example of

NOTE Confidence: 0.84837526125

00:24:12.914 --> 00:24:14.170 a gallium dotatate PET,

NOTE Confidence: 0.84837526125

00:24:14.170 --> 00:24:16.210 which I'll describe this little alphabet.

NOTE Confidence: 0.84837526125

00:24:16.210 --> 00:24:18.905 So soup in the next few slides,

NOTE Confidence: 0.84837526125

00:24:18.910 --> 00:24:22.354 but what it allows you to do

NOTE Confidence: 0.84837526125

00:24:22.354 --> 00:24:24.397 is to visualize semantics.

NOTE Confidence: 0.84837526125

00:24:24.397 --> 00:24:27.232 Some of some analog binding

NOTE Confidence: 0.84837526125

00:24:27.232 --> 00:24:29.500 to a somatostatin receptor,

NOTE Confidence: 0.84837526125

00:24:29.500 --> 00:24:31.908 and being able to see it light

NOTE Confidence: 0.84837526125

00:24:31.908 --> 00:24:33.820 up on this Cam.

NOTE Confidence: 0.84837526125

00:24:33.820 --> 00:24:35.854 I'm so glad Doctor Kunz mentioned

NOTE Confidence: 0.84837526125

00:24:35.854 --> 00:24:38.309 that tree a scam that used to be

NOTE Confidence: 0.84837526125

00:24:38.309 --> 00:24:41.336 the standard way of trying to see

NOTE Confidence: 0.84837526125

00:24:41.336 --> 00:24:43.180 some exciting receptor receptor

NOTE Confidence: 0.84837526125

00:24:43.261 --> 00:24:44.848 expression on tumors.

NOTE Confidence: 0.84837526125

00:24:44.850 --> 00:24:45.734 And as you can see,

NOTE Confidence: 0.84837526125

00:24:45.734 --> 00:24:47.256 these are not very good images

NOTE Confidence: 0.84837526125

00:24:47.256 --> 00:24:49.764 and they're very hard to see.

NOTE Confidence: 0.84837526125

00:24:49.770 --> 00:24:51.345 And it's very difficult to

NOTE Confidence: 0.84837526125

00:24:51.345 --> 00:24:52.920 tell where the tumor is,

NOTE Confidence: 0.84837526125

00:24:52.920 --> 00:24:54.318 and this is actually the same

NOTE Confidence: 0.84837526125

00:24:54.318 --> 00:24:55.670 patient I showed you earlier.

NOTE Confidence: 0.84837526125

00:24:55.670 --> 00:24:58.058 With pancreatic tail tumor,

NOTE Confidence: 0.84837526125

00:24:58.058 --> 00:25:01.043 and you can barely see

NOTE Confidence: 0.84837526125

00:25:01.050 --> 00:25:02.598 where this illusion is,

NOTE Confidence: 0.84837526125

00:25:02.598 --> 00:25:04.920 and this is a planar imaging,

NOTE Confidence: 0.84837526125

00:25:04.920 --> 00:25:06.570 and if we did SPECT,

NOTE Confidence: 0.84837526125

00:25:06.570 --> 00:25:09.450 we could localize it to

NOTE Confidence: 0.84837526125

00:25:09.450 --> 00:25:10.966 the left upper quadrant,

NOTE Confidence: 0.84837526125

00:25:10.966 --> 00:25:13.665 but it would be very difficult to

NOTE Confidence: 0.84837526125

00:25:13.665 --> 00:25:16.136 localize it to the pancreas very well.

NOTE Confidence: 0.84837526125

00:25:16.140 --> 00:25:18.198 Also, if there were smaller lesions,

NOTE Confidence: 0.84837526125

00:25:18.200 --> 00:25:20.118 we wouldn't be able to see it.

NOTE Confidence: 0.84837526125

00:25:20.120 --> 00:25:22.843 And here's an example of a trio

NOTE Confidence: 0.84837526125

00:25:22.843 --> 00:25:25.403 scan being lined up right next

NOTE Confidence: 0.84837526125

00:25:25.403 --> 00:25:27.588 to door dotate scan gallium

NOTE Confidence: 0.84837526125

00:25:27.588 --> 00:25:29.686 dotatate pet in the same patient,

NOTE Confidence: 0.84837526125

00:25:29.686 --> 00:25:31.510 and you can see how many

NOTE Confidence: 0.84837526125

00:25:31.580 --> 00:25:33.268 lesions are being missed.

NOTE Confidence: 0.84837526125

00:25:33.270 --> 00:25:35.076 An actress can that can be

NOTE Confidence: 0.84837526125

00:25:35.076 --> 00:25:37.069 clearly seen on the pet C team.

NOTE Confidence: 0.786035933333333

00:25:39.400 --> 00:25:42.955 But going to the dough depart a

NOTE Confidence: 0.786035933333333

00:25:42.955 --> 00:25:45.230 lot of folks ask me Doda what,

NOTE Confidence: 0.786035933333333

00:25:45.230 --> 00:25:49.166 what is this Doda and the alphabet soup

NOTE Confidence: 0.786035933333333

00:25:49.166 --> 00:25:52.908 of gallium dotatate gallium dooda talk

NOTE Confidence: 0.786035933333333

00:25:52.910 --> 00:25:56.270 lutetium dotatate usually confuses folks,

NOTE Confidence: 0.786035933333333

00:25:56.270 --> 00:25:59.222 but there's actually a very nice logic to it.

NOTE Confidence: 0.786035933333333

00:25:59.230 --> 00:26:01.210 So let's go over that,

NOTE Confidence: 0.786035933333333

00:26:01.210 --> 00:26:04.120 because then you will never question

NOTE Confidence: 0.786035933333333

00:26:04.120 --> 00:26:06.890 what what these are. So first,

NOTE Confidence: 0.786035933333333

00:26:06.890 --> 00:26:09.656 let's talk about labeling in chemistry.

NOTE Confidence: 0.786035933333333

00:26:09.656 --> 00:26:12.780 When you're thinking about pet pet

NOTE Confidence: 0.786035933333333

00:26:12.780 --> 00:26:15.510 radionuclides such as gallium and copper,

NOTE Confidence: 0.786035933333333

00:26:15.510 --> 00:26:18.408 which are used for imaging and pet,

NOTE Confidence: 0.786035933333333

00:26:18.410 --> 00:26:20.222 you cannot just attack,

NOTE Confidence: 0.786035933333333

00:26:20.222 --> 00:26:22.120 give them to the patient,

NOTE Confidence: 0.786035933333333

00:26:22.120 --> 00:26:23.110 they're actually toxic,

NOTE Confidence: 0.786035933333333

00:26:23.110 --> 00:26:25.792 so you need to keep them in the cage,

NOTE Confidence: 0.786035933333333

00:26:25.800 --> 00:26:28.170 and this is a doda cage,

NOTE Confidence: 0.786035933333333

00:26:28.170 --> 00:26:30.384 so you would kill 8 the

NOTE Confidence: 0.786035933333333

00:26:30.384 --> 00:26:32.829 gallium 68 in this doda cage,

NOTE Confidence: 0.786035933333333

00:26:32.830 --> 00:26:35.126 and what's really nice about this cage.

NOTE Confidence: 0.786035933333333

00:26:35.130 --> 00:26:36.120 It has a couple of.

NOTE Confidence: 0.786035933333333

00:26:36.120 --> 00:26:39.744 Four different arms and to these arms you

NOTE Confidence: 0.786035933333333

00:26:39.744 --> 00:26:42.659 can actually attach your targeting molecule,

NOTE Confidence: 0.786035933333333

00:26:42.659 --> 00:26:45.497 so in this case it's actually

NOTE Confidence: 0.786035933333333

00:26:45.497 --> 00:26:47.579 a tight analog Tate,

NOTE Confidence: 0.786035933333333

00:26:47.580 --> 00:26:50.240 so you attach this peptide to the

NOTE Confidence: 0.786035933333333

00:26:50.240 --> 00:26:53.043 doda and you have your radionuclide

NOTE Confidence: 0.786035933333333

00:26:53.043 --> 00:26:55.673 chelated inside of the Doda.

NOTE Confidence: 0.786035933333333

00:26:55.680 --> 00:26:58.976 So there's a very logical name to this.

NOTE Confidence: 0.786035933333333

00:26:58.980 --> 00:27:00.780 This value attach it through

NOTE Confidence: 0.786035933333333

00:27:00.780 --> 00:27:03.076 the ARM gallium Doda date.

NOTE Confidence: 0.786035933333333

00:27:03.076 --> 00:27:04.900 Very simple, right?

NOTE Confidence: 0.786035933333333

00:27:04.900 --> 00:27:06.610 So now that you understand.

NOTE Confidence: 0.786035933333333

00:27:06.610 --> 00:27:09.570 This kind of logic it it becomes very

NOTE Confidence: 0.786035933333333

00:27:09.570 --> 00:27:12.707 easy to understand how we mean these

NOTE Confidence: 0.786035933333333

00:27:12.710 --> 00:27:17.092 scans and with the labeling you can

NOTE Confidence: 0.786035933333333

00:27:17.092 --> 00:27:20.810 actually really be able to see this.

NOTE Confidence: 0.786035933333333

00:27:20.810 --> 00:27:24.104 So this is a gallium dotate PET CT in

NOTE Confidence: 0.786035933333333

00:27:24.104 --> 00:27:27.669 a patient with multiple metastases.

NOTE Confidence: 0.786035933333333

00:27:27.670 --> 00:27:29.730 Some medicine receptor positive liver

NOTE Confidence: 0.786035933333333

00:27:29.730 --> 00:27:32.129 metastases and you can actually see

NOTE Confidence: 0.786035933333333

00:27:32.129 --> 00:27:34.033 that there is also a period where

NOTE Confidence: 0.786035933333333

00:27:34.033 --> 00:27:36.190 did metastasis in the lymph node

NOTE Confidence: 0.786035933333333

00:27:36.190 --> 00:27:38.432 that's outside of the liver and

NOTE Confidence: 0.786035933333333

00:27:38.432 --> 00:27:42.110 here you have kidneys and bladder.

NOTE Confidence: 0.786035933333333

00:27:42.110 --> 00:27:44.702 So it really helps you evaluate

NOTE Confidence: 0.786035933333333

00:27:44.702 --> 00:27:47.078 the patients in terms of the

NOTE Confidence: 0.786035933333333

00:27:47.078 --> 00:27:48.209 appropriate use criteria.

NOTE Confidence: 0.786035933333333

00:27:48.210 --> 00:27:51.364 I'm so glad Doctor Kunz had a full

NOTE Confidence: 0.786035933333333

00:27:51.364 --> 00:27:53.590 slide on this in terms of evaluating.

NOTE Confidence: 0.786035933333333

00:27:53.590 --> 00:27:57.086 Not all patients need to be getting gallium

NOTE Confidence: 0.786035933333333

00:27:57.086 --> 00:28:00.852 daughter take pets and there's there.

NOTE Confidence: 0.786035933333333

00:28:00.852 --> 00:28:03.384 We're still truly evaluating exactly where

NOTE Confidence: 0.786035933333333

00:28:03.384 --> 00:28:06.669 and when we should be doing these scans,

NOTE Confidence: 0.786035933333333

00:28:06.670 --> 00:28:09.885 but there's several indications

NOTE Confidence: 0.786035933333333

00:28:09.885 --> 00:28:12.400 that should that that can.

NOTE Confidence: 0.786035933333333

00:28:12.400 --> 00:28:15.400 That are appropriate and some of

NOTE Confidence: 0.786035933333333

00:28:15.400 --> 00:28:18.056 the most most indicative are the

NOTE Confidence: 0.786035933333333

00:28:18.056 --> 00:28:19.712 initial staging after histologic

NOTE Confidence: 0.786035933333333

00:28:19.712 --> 00:28:21.488 diagnosis of neuroendocrine tumor

NOTE Confidence: 0.786035933333333

00:28:21.488 --> 00:28:23.708 and localization of primary tumor

NOTE Confidence: 0.786035933333333

00:28:23.708 --> 00:28:25.760 and patients 'cause there this.

NOTE Confidence: 0.786035933333333

00:28:25.760 --> 00:28:28.190 This skin is so sensitive form

NOTE Confidence: 0.786035933333333

00:28:28.190 --> 00:28:29.138 for for lesions,

NOTE Confidence: 0.786035933333333

00:28:29.138 --> 00:28:31.794 so you'll be able to see it and

NOTE Confidence: 0.786035933333333

00:28:31.794 --> 00:28:33.649 then the other very common.

NOTE Confidence: 0.786035933333333

00:28:33.650 --> 00:28:35.695 Very important point is selection

NOTE Confidence: 0.786035933333333

00:28:35.695 --> 00:28:38.240 of patients for some meta stat

NOTE Confidence: 0.786035933333333

00:28:38.240 --> 00:28:39.956 and receptive targeted therapy

NOTE Confidence: 0.786035933333333

00:28:39.956 --> 00:28:42.101 which we'll talk about it.

NOTE Confidence: 0.786035933333333

00:28:42.110 --> 00:28:45.463 Later now what's really nice about this

NOTE Confidence: 0.786035933333333

00:28:45.463 --> 00:28:48.975 therapy and this is where it's really

NOTE Confidence: 0.786035933333333

00:28:48.975 --> 00:28:51.951 revolutionary in medicine is that you

NOTE Confidence: 0.786035933333333

00:28:52.042 --> 00:28:55.304 can use this method to image your tumor,

NOTE Confidence: 0.786035933333333

00:28:55.304 --> 00:28:57.464 so you have your radionuclide.

NOTE Confidence: 0.786035933333333

00:28:57.470 --> 00:28:59.774 You have your cage and you

NOTE Confidence: 0.786035933333333

00:28:59.774 --> 00:29:01.310 have your targeting peptide,

NOTE Confidence: 0.786035933333333

00:29:01.310 --> 00:29:03.984 but then after you image the tumor,

NOTE Confidence: 0.786035933333333

00:29:03.990 --> 00:29:07.050 all you have to do is to pop this one

NOTE Confidence: 0.786035933333333

00:29:07.141 --> 00:29:12.265 out and pop lutetium 177 in so you keep.

NOTE Confidence: 0.786035933333333

00:29:12.265 --> 00:29:13.325 A molecule the same.

NOTE Confidence: 0.786035933333333

00:29:13.330 --> 00:29:17.649 You keep the targeting the same but.

NOTE Confidence: 0.767840264

00:29:17.650 --> 00:29:21.484 The radionuclide now is actually emitting

NOTE Confidence: 0.767840264

00:29:21.484 --> 00:29:26.688 beta particles that can can act as a

NOTE Confidence: 0.767840264

00:29:26.688 --> 00:29:29.336 therapeutic for neuroendocrine tumors.

NOTE Confidence: 0.767840264

00:29:29.340 --> 00:29:31.839 So this would be called very logically.

NOTE Confidence: 0.767840264

00:29:31.840 --> 00:29:33.674 I know you're you're thinking about this.

NOTE Confidence: 0.767840264

00:29:33.680 --> 00:29:36.480 Lu teach to Doda tape.

NOTE Confidence: 0.767840264

00:29:36.480 --> 00:29:38.560 There you go. Very simple.

NOTE Confidence: 0.767840264

00:29:38.560 --> 00:29:40.594 So we imaged with gallium dotatate

NOTE Confidence: 0.767840264

00:29:40.594 --> 00:29:42.806 and we treat it with lutetium

NOTE Confidence: 0.767840264

00:29:42.806 --> 00:29:45.164 dotatate and the only thing that

NOTE Confidence: 0.767840264

00:29:45.164 --> 00:29:47.648 changed was the radionuclide inside.

NOTE Confidence: 0.767840264

00:29:47.650 --> 00:29:50.778 So you know this drop whatever we imaged.

NOTE Confidence: 0.767840264

00:29:50.780 --> 00:29:54.218 That's exactly where the treatment went.

NOTE Confidence: 0.767840264

00:29:54.220 --> 00:29:56.660 Now we don't just have to do lutetium,

NOTE Confidence: 0.767840264

00:29:56.660 --> 00:30:00.648 we can also use other radionuclides

NOTE Confidence: 0.767840264

00:30:00.648 --> 00:30:03.902 such as alpha emitters and here

NOTE Confidence: 0.767840264

00:30:03.902 --> 00:30:06.079 at Yale we're now are approved to

NOTE Confidence: 0.767840264

00:30:06.079 --> 00:30:08.342 start doing this and it's very

NOTE Confidence: 0.767840264

00:30:08.342 --> 00:30:10.222 exciting new development to start

NOTE Confidence: 0.767840264

00:30:10.292 --> 00:30:12.497 doing these therapies in patients.

NOTE Confidence: 0.767840264

00:30:12.500 --> 00:30:16.496 So how do these alpha and beta emitters work?

NOTE Confidence: 0.767840264

00:30:16.500 --> 00:30:20.307 Well for lutetium and this is an image from.

NOTE Confidence: 0.7648798

00:30:22.880 --> 00:30:27.245 AAA a website where basically describes

NOTE Confidence: 0.7648798

00:30:27.245 --> 00:30:30.860 the mechanism of luthera and you

NOTE Confidence: 0.7648798

00:30:30.860 --> 00:30:33.620 administer the drug intravenously.

NOTE Confidence: 0.7648798

00:30:33.620 --> 00:30:36.560 The drug gets taken up into the

NOTE Confidence: 0.7648798

00:30:36.560 --> 00:30:37.820 neuroendocrine tumor sides.

NOTE Confidence: 0.7648798

00:30:37.820 --> 00:30:39.992 The drug binds to the receptors

NOTE Confidence: 0.7648798

00:30:39.992 --> 00:30:42.365 on the tumor sides and gets

NOTE Confidence: 0.7648798

00:30:42.365 --> 00:30:44.485 internalized inside of the cell.

NOTE Confidence: 0.7648798

00:30:44.490 --> 00:30:47.725 Through endocytosis and the radionuclide

NOTE Confidence: 0.7648798

00:30:47.725 --> 00:30:50.960 emits its particles beta particles,

NOTE Confidence: 0.7648798

00:30:50.960 --> 00:30:55.656 or if using that actinium type of therapy.

NOTE Confidence: 0.7648798

00:30:55.660 --> 00:30:57.900 Luther, it's really the beta

NOTE Confidence: 0.7648798

00:30:57.900 --> 00:30:59.692 particles because it's lutetium

NOTE Confidence: 0.7648798

00:30:59.700 --> 00:31:03.060 177 and that can cause DNA damage.

NOTE Confidence: 0.7648798

00:31:03.060 --> 00:31:05.468 And once you have DNA damage you can

NOTE Confidence: 0.7648798

00:31:05.468 --> 00:31:07.807 that can lead to tumor cell death.

NOTE Confidence: 0.7648798

00:31:07.810 --> 00:31:10.869 And that's and that's the main mechanism.

NOTE Confidence: 0.7648798

00:31:10.870 --> 00:31:14.510 So to just kind of overview this again

NOTE Confidence: 0.7648798

00:31:14.510 --> 00:31:16.910 in terms of image guided therapy,

NOTE Confidence: 0.7648798

00:31:16.910 --> 00:31:19.808 you can select patients for whether

NOTE Confidence: 0.7648798

00:31:19.808 --> 00:31:23.263 they are eligible for this kind of

NOTE Confidence: 0.7648798

00:31:23.263 --> 00:31:25.648 therapy with your imaging agent,

NOTE Confidence: 0.7648798

00:31:25.650 --> 00:31:26.506 gallium dotatate.

NOTE Confidence: 0.7648798

00:31:26.506 --> 00:31:29.930 And you can see if the patient expresses

NOTE Confidence: 0.7648798

00:31:30.003 --> 00:31:33.243 this amount of statin receptors in the body,

NOTE Confidence: 0.7648798

00:31:33.250 --> 00:31:34.880 and in this particular patient

NOTE Confidence: 0.7648798

00:31:34.880 --> 00:31:36.510 there are multiple metastatic lesion

NOTE Confidence: 0.7648798

00:31:36.568 --> 00:31:38.080 that can take up the targeting.

NOTE Confidence: 0.7648798

00:31:38.080 --> 00:31:38.539 Molecule,

NOTE Confidence: 0.7648798

00:31:38.539 --> 00:31:41.752 then you bring the patient in and

NOTE Confidence: 0.7648798

00:31:41.752 --> 00:31:44.429 you provide intravenous therapy.

NOTE Confidence: 0.7648798

00:31:44.430 --> 00:31:46.590 And that is basically the same

NOTE Confidence: 0.7648798

00:31:46.590 --> 00:31:48.030 as the imaging agent,

NOTE Confidence: 0.7648798

00:31:48.030 --> 00:31:50.440 except it has the radionuclide

NOTE Confidence: 0.7648798

00:31:50.440 --> 00:31:52.368 that causes DNA damage.

NOTE Confidence: 0.7648798

00:31:52.370 --> 00:31:54.598 And what's really interesting

NOTE Confidence: 0.7648798

00:31:54.598 --> 00:31:59.350 is that lutetium can also emit.

NOTE Confidence: 0.7648798

00:31:59.350 --> 00:32:01.966 Image trace that you can see on camera

NOTE Confidence: 0.7648798

00:32:01.966 --> 00:32:04.647 on gamma camera and you can basically

NOTE Confidence: 0.7648798

00:32:04.650 --> 00:32:07.980 see exactly where lutetium dotatate went.

NOTE Confidence: 0.7648798

00:32:07.980 --> 00:32:09.535 Now it's not as crisp

NOTE Confidence: 0.7648798

00:32:09.535 --> 00:32:11.090 and beautiful as pet CT,

NOTE Confidence: 0.7648798

00:32:11.090 --> 00:32:13.665 but you can actually see

NOTE Confidence: 0.7648798

00:32:13.665 --> 00:32:15.725 where this therapy went.

NOTE Confidence: 0.7648798

00:32:15.730 --> 00:32:18.415 And you can actually start

NOTE Confidence: 0.7648798

00:32:18.415 --> 00:32:20.026 doing those symmetry.

NOTE Confidence: 0.7648798

00:32:20.030 --> 00:32:23.720 These images so this kind of technology

NOTE Confidence: 0.7648798

00:32:23.720 --> 00:32:25.975 allows selection of right patient

NOTE Confidence: 0.7648798

00:32:25.975 --> 00:32:28.742 and providing the right drug for

NOTE Confidence: 0.7648798

00:32:28.742 --> 00:32:30.922 the patient and in neuroendocrine

NOTE Confidence: 0.7648798

00:32:30.922 --> 00:32:33.547 tumors that has really changed how

NOTE Confidence: 0.7648798

00:32:33.547 --> 00:32:35.947 we change how we treat patients.

NOTE Confidence: 0.7648798

00:32:35.950 --> 00:32:38.938 So the indications for lutetium dotatate.

NOTE Confidence: 0.889463958571429

00:32:41.070 --> 00:32:43.898 So these are the GI neuroendocrine tumors

NOTE Confidence: 0.889463958571429

00:32:43.898 --> 00:32:47.100 and they have to be well differentiated.

NOTE Confidence: 0.889463958571429

00:32:47.100 --> 00:32:48.728 G1 and G2 tumors.

NOTE Confidence: 0.889463958571429

00:32:48.728 --> 00:32:51.170 We need to confirm some metastatic

NOTE Confidence: 0.889463958571429

00:32:51.254 --> 00:32:54.164 receptor expression and that can be

NOTE Confidence: 0.889463958571429

00:32:54.164 --> 00:32:56.739 done with gallium dotatate PET CT.

NOTE Confidence: 0.889463958571429

00:32:56.740 --> 00:32:58.948 We're still allowed to use octreoscan

NOTE Confidence: 0.889463958571429

00:32:58.948 --> 00:33:01.390 and sometimes we will use it if

NOTE Confidence: 0.889463958571429

00:33:01.390 --> 00:33:03.490 insurance will deny that the pet city,

NOTE Confidence: 0.889463958571429

00:33:03.490 --> 00:33:05.296 but you really want to be

NOTE Confidence: 0.889463958571429

00:33:05.296 --> 00:33:07.069 doing this with a pet CT.

NOTE Confidence: 0.889463958571429

00:33:07.070 --> 00:33:09.476 We also evaluate bone marrow function,

NOTE Confidence: 0.889463958571429

00:33:09.480 --> 00:33:11.260 renal function, and liver function.

NOTE Confidence: 0.889463958571429

00:33:11.260 --> 00:33:15.108 Yes, and this is the point where nuclear

NOTE Confidence: 0.889463958571429

00:33:15.108 --> 00:33:17.644 medicine physicians are starting to

NOTE Confidence: 0.889463958571429

00:33:17.644 --> 00:33:20.038 become partners with oncologists and

NOTE Confidence: 0.889463958571429

00:33:20.038 --> 00:33:22.834 surgeons in treatment of these patients.

NOTE Confidence: 0.889463958571429

00:33:22.840 --> 00:33:24.947 Because we no longer just read the

NOTE Confidence: 0.889463958571429

00:33:24.947 --> 00:33:26.460 images were actually evaluated.

NOTE Confidence: 0.889463958571429

00:33:26.460 --> 00:33:27.915 Whether the patient is eligible

NOTE Confidence: 0.889463958571429

00:33:27.915 --> 00:33:29.940 for the study and we evaluate,

NOTE Confidence: 0.889463958571429

00:33:29.940 --> 00:33:32.580 follow up, and we do those symmetry.

NOTE Confidence: 0.889463958571429

00:33:32.580 --> 00:33:35.744 And this is of patient oriented,

NOTE Confidence: 0.889463958571429

00:33:35.744 --> 00:33:38.704 patient facing role for nuclear

NOTE Confidence: 0.889463958571429

00:33:38.704 --> 00:33:42.336 medicine physicians and radiologists.

NOTE Confidence: 0.889463958571429

00:33:42.336 --> 00:33:43.559 Now.

NOTE Confidence: 0.889463958571429

00:33:43.560 --> 00:33:46.254 Even though the letter one has

NOTE Confidence: 0.889463958571429

00:33:46.254 --> 00:33:48.050 established the parameters for

NOTE Confidence: 0.889463958571429

00:33:48.133 --> 00:33:50.664 treatment of patients with Sarah,

NOTE Confidence: 0.889463958571429

00:33:50.664 --> 00:33:53.120 but we are still,

NOTE Confidence: 0.889463958571429

00:33:53.120 --> 00:33:55.796 we're still figuring out the exact

NOTE Confidence: 0.889463958571429

00:33:55.796 --> 00:33:58.072 guidelines for which patients will

NOTE Confidence: 0.889463958571429

00:33:58.072 --> 00:33:59.846 benefit most, and they're still.

NOTE Confidence: 0.889463958571429

00:33:59.846 --> 00:34:01.718 There's a lot of active research

NOTE Confidence: 0.889463958571429

00:34:01.718 --> 00:34:03.020 going on in this field,

NOTE Confidence: 0.889463958571429

00:34:03.020 --> 00:34:05.388 and it's very exciting to be part of

NOTE Confidence: 0.889463958571429

00:34:05.388 --> 00:34:07.527 this field as we're expanding beyond

NOTE Confidence: 0.889463958571429

00:34:07.527 --> 00:34:09.980 the netter one. Trial indications.

NOTE Confidence: 0.793383492

00:34:12.340 --> 00:34:13.604 But you're probably thinking,

NOTE Confidence: 0.793383492

00:34:13.604 --> 00:34:16.428 well, what about FDG?

NOTE Confidence: 0.793383492

00:34:16.430 --> 00:34:18.932 GS News and pretty much every

NOTE Confidence: 0.793383492

00:34:18.932 --> 00:34:21.070 other oncological indication.

NOTE Confidence: 0.793383492

00:34:21.070 --> 00:34:23.430 How about your endocrine tumors?

NOTE Confidence: 0.793383492

00:34:23.430 --> 00:34:27.548 Well, a lot of the well differentiated

NOTE Confidence: 0.793383492

00:34:27.550 --> 00:34:29.986 G1 on your endocrine tumors are

NOTE Confidence: 0.793383492

00:34:29.986 --> 00:34:31.204 actually not hypermetabolic,

NOTE Confidence: 0.793383492

00:34:31.210 --> 00:34:33.268 so we there's really no no role

NOTE Confidence: 0.793383492

00:34:33.268 --> 00:34:36.362 for our DG in the in the well in

NOTE Confidence: 0.793383492

00:34:36.362 --> 00:34:37.790 the well differentiated once,

NOTE Confidence: 0.793383492

00:34:37.790 --> 00:34:40.405 and there is the spectrum

NOTE Confidence: 0.793383492

00:34:40.405 --> 00:34:44.175 that the tumors will express.

NOTE Confidence: 0.793383492

00:34:44.175 --> 00:34:46.065 A lot of this medicine receptor

NOTE Confidence: 0.793383492

00:34:46.065 --> 00:34:47.676 and will not have as much.

NOTE Confidence: 0.793383492

00:34:47.680 --> 00:34:49.010 Hypermetabolic activity,

NOTE Confidence: 0.793383492

00:34:49.010 --> 00:34:52.335 but the higher grade tumors.

NOTE Confidence: 0.793383492

00:34:52.340 --> 00:34:53.330 Then you're in different parts.

NOTE Confidence: 0.793383492

00:34:53.330 --> 00:34:55.980 Sonoma is Angie 3 tumors.

NOTE Confidence: 0.793383492

00:34:55.980 --> 00:34:59.060 They will have hypermetabolic

NOTE Confidence: 0.793383492

00:34:59.060 --> 00:35:01.560 activity and there's still a lot of

NOTE Confidence: 0.793383492

00:35:01.560 --> 00:35:02.880 Gray area in between them as well,

NOTE Confidence: 0.793383492

00:35:02.880 --> 00:35:04.830 because sometimes they look the

NOTE Confidence: 0.793383492

00:35:04.830 --> 00:35:06.780 lower grade tumors will also

NOTE Confidence: 0.793383492

00:35:06.852 --> 00:35:08.739 have hypermetabolic activity,

NOTE Confidence: 0.793383492

00:35:08.740 --> 00:35:10.535 but in nuclear medicine we

NOTE Confidence: 0.793383492

00:35:10.535 --> 00:35:12.330 have this idea that there's

NOTE Confidence: 0.793383492

00:35:12.398 --> 00:35:14.459 dedifferentiation that happens.

NOTE Confidence: 0.793383492

00:35:14.460 --> 00:35:16.210 So this is a patient with a

NOTE Confidence: 0.793383492

00:35:16.210 --> 00:35:16.960 well differentiated neuron,

NOTE Confidence: 0.793383492

00:35:16.960 --> 00:35:17.982 different tumor.

NOTE Confidence: 0.793383492

00:35:17.982 --> 00:35:20.026 With multiple somatostatin receptor

NOTE Confidence: 0.793383492

00:35:20.026 --> 00:35:23.515 avid lesions and this is a patient

NOTE Confidence: 0.793383492

00:35:23.515 --> 00:35:25.339 that had dedifferentiation that

NOTE Confidence: 0.793383492

00:35:25.339 --> 00:35:27.658 neural different from which the

NOTE Confidence: 0.793383492

00:35:27.658 --> 00:35:29.410 tumor is now hypermetabolic,

NOTE Confidence: 0.793383492

00:35:29.410 --> 00:35:32.154 and this tumor may actually be a

NOTE Confidence: 0.793383492

00:35:32.154 --> 00:35:34.909 photo piknic Ondo Dotate pet as well,

NOTE Confidence: 0.793383492

00:35:34.910 --> 00:35:36.926 or it can actually expect express

NOTE Confidence: 0.793383492

00:35:36.926 --> 00:35:38.270 sounds of medicine receptors,

NOTE Confidence: 0.793383492

00:35:38.270 --> 00:35:39.782 but not as many.

NOTE Confidence: 0.793383492

00:35:39.782 --> 00:35:42.050 So the exact point where we

NOTE Confidence: 0.793383492

00:35:42.145 --> 00:35:44.469 would treat these patients,

NOTE Confidence: 0.793383492

00:35:44.470 --> 00:35:48.138 particularly the ones that have FDG uptake.

NOTE Confidence: 0.793383492

00:35:48.140 --> 00:35:50.180 Is still not fully evaluated,

NOTE Confidence: 0.793383492

00:35:50.180 --> 00:35:51.680 but hypermetabolic activity

NOTE Confidence: 0.793383492

00:35:51.680 --> 00:35:54.680 within these tumors is seen as

NOTE Confidence: 0.793383492

00:35:54.680 --> 00:35:57.180 a poor prognostic marker.

NOTE Confidence: 0.793383492

00:35:57.180 --> 00:36:00.650 So in terms of PRT treatment,

NOTE Confidence: 0.793383492

00:36:00.650 --> 00:36:02.295 the details for this treatment

NOTE Confidence: 0.793383492

00:36:02.295 --> 00:36:03.940 is we do right now.

NOTE Confidence: 0.793383492

00:36:03.940 --> 00:36:06.325 Standard dose of 200 millicuries

NOTE Confidence: 0.793383492

00:36:06.325 --> 00:36:09.800 every eight weeks and we do 8 cycles.

NOTE Confidence: 0.793383492

00:36:09.800 --> 00:36:12.719 During the therapy we do an amino

NOTE Confidence: 0.793383492

00:36:12.719 --> 00:36:15.360 acid infusion for renal protection

NOTE Confidence: 0.793383492

00:36:15.360 --> 00:36:19.590 and we provide antiemetics for nausea

NOTE Confidence: 0.793383492

00:36:19.590 --> 00:36:21.815 and patients usually will continue

NOTE Confidence: 0.793383492

00:36:21.815 --> 00:36:23.924 somatostatin and lock therapy at

NOTE Confidence: 0.793383492

00:36:23.924 --> 00:36:26.076 this during PRT treatment now.

NOTE Confidence: 0.793383492

00:36:26.076 --> 00:36:29.806 None of you are thinking well. What if?

NOTE Confidence: 0.793383492

00:36:29.806 --> 00:36:34.310 How do how do we treat a patient?

NOTE Confidence: 0.793383492

00:36:34.310 --> 00:36:37.236 Every single patient with the same dose?

NOTE Confidence: 0.793383492

00:36:37.240 --> 00:36:39.328 And you're thinking right,

NOTE Confidence: 0.793383492

00:36:39.328 --> 00:36:42.460 the whole field of theranostics right

NOTE Confidence: 0.793383492

00:36:42.551 --> 00:36:45.100 now and treatment PRT treatment

NOTE Confidence: 0.793383492

00:36:45.100 --> 00:36:47.420 is moving towards personalized

NOTE Confidence: 0.793383492

00:36:47.420 --> 00:36:50.524 of symmetry and that is becoming

NOTE Confidence: 0.793383492

00:36:50.524 --> 00:36:53.460 a big talking point with Society

NOTE Confidence: 0.793383492

00:36:53.460 --> 00:36:55.660 of nuclear medicine and molecular

NOTE Confidence: 0.793383492

00:36:55.660 --> 00:36:57.880 imaging and major initiatives.

NOTE Confidence: 0.793383492

00:36:57.880 --> 00:36:59.680 Industry are being taken.

NOTE Confidence: 0.814651204

00:37:01.750 --> 00:37:04.320 And the reason is there,

NOTE Confidence: 0.814651204

00:37:04.320 --> 00:37:07.242 nastix agents are becoming more and

NOTE Confidence: 0.814651204

00:37:07.242 --> 00:37:09.691 more available for different cancers

NOTE Confidence: 0.814651204

00:37:09.691 --> 00:37:12.786 and in prostate cancer will have a

NOTE Confidence: 0.814651204

00:37:12.786 --> 00:37:15.122 new theranostic agent that's very

NOTE Confidence: 0.814651204

00:37:15.122 --> 00:37:18.594 likely to be FDA approved next month.

NOTE Confidence: 0.814651204

00:37:18.600 --> 00:37:21.240 And with that targeted therapy,

NOTE Confidence: 0.814651204

00:37:21.240 --> 00:37:23.337 you want to think about it in a couple

NOTE Confidence: 0.814651204

00:37:23.337 --> 00:37:25.226 different ways and just in terms of

NOTE Confidence: 0.814651204

00:37:25.226 --> 00:37:27.158 global way with with their Gnostics,

NOTE Confidence: 0.814651204

00:37:27.160 --> 00:37:29.449 you can image the targets such as

NOTE Confidence: 0.814651204

00:37:29.449 --> 00:37:31.967 location of the tumors and that way

NOTE Confidence: 0.814651204

00:37:31.967 --> 00:37:33.802 you can provide targeted therapy

NOTE Confidence: 0.814651204

00:37:33.802 --> 00:37:36.310 in terms of location of the tumor,

NOTE Confidence: 0.814651204

00:37:36.310 --> 00:37:38.123 because you can see where the drug

NOTE Confidence: 0.814651204

00:37:38.123 --> 00:37:40.596 is and then you can just exchange the

NOTE Confidence: 0.814651204

00:37:40.596 --> 00:37:42.740 radionuclide and and target that therapy.

NOTE Confidence: 0.814651204

00:37:42.740 --> 00:37:44.896 You can also think of targeted therapy

NOTE Confidence: 0.814651204

00:37:44.896 --> 00:37:47.191 in another way where you target as

NOTE Confidence: 0.814651204

00:37:47.191 --> 00:37:49.147 particular step in the mechanism of.

NOTE Confidence: 0.814651204

00:37:49.150 --> 00:37:52.640 Therapy, and that is targeting

NOTE Confidence: 0.814651204

00:37:52.640 --> 00:37:55.432 a specific pathway step.

NOTE Confidence: 0.814651204

00:37:55.440 --> 00:37:58.430 So for FDA approved radiopharmaceuticals

NOTE Confidence: 0.814651204

00:37:58.430 --> 00:38:01.420 there's really been an explosion

NOTE Confidence: 0.814651204

00:38:01.502 --> 00:38:03.138 in the recent years.

NOTE Confidence: 0.814651204

00:38:03.140 --> 00:38:06.180 So it we really kind of started with

NOTE Confidence: 0.814651204

00:38:06.180 --> 00:38:09.754 a cold see lemon cooling for prostate

NOTE Confidence: 0.814651204

00:38:09.754 --> 00:38:11.992 cancer and gallium dotatate was

NOTE Confidence: 0.814651204

00:38:11.992 --> 00:38:14.107 approved when you're entering tumors

NOTE Confidence: 0.814651204

00:38:14.107 --> 00:38:16.664 in 2016 and then was followed by

NOTE Confidence: 0.814651204

00:38:16.664 --> 00:38:18.783 Gallium Delta talk and the difference

NOTE Confidence: 0.814651204

00:38:18.783 --> 00:38:21.798 between Tate and talk is in the peptide

NOTE Confidence: 0.814651204

00:38:21.798 --> 00:38:24.785 portion of the targeting agent.

NOTE Confidence: 0.814651204

00:38:24.785 --> 00:38:27.550 And in there they work pretty much

NOTE Confidence: 0.814651204

00:38:27.550 --> 00:38:31.450 the same in terms of ability to

NOTE Confidence: 0.814651204

00:38:31.450 --> 00:38:33.222 detect some metastatic receptors.

NOTE Confidence: 0.814651204

00:38:33.222 --> 00:38:36.887 We also now have a copper 64

NOTE Confidence: 0.814651204

00:38:36.887 --> 00:38:39.908 labeled DOTATATE and.

NOTE Confidence: 0.814651204

00:38:39.910 --> 00:38:43.606 The therapy for lutetium builder did was.

NOTE Confidence: 0.814651204

00:38:43.610 --> 00:38:45.822 He has also been FDA approved for

NOTE Confidence: 0.814651204

00:38:45.822 --> 00:38:48.328 quite a while now and it was basically

NOTE Confidence: 0.814651204

00:38:48.328 --> 00:38:50.700 approved based on the meter one trial,

NOTE Confidence: 0.814651204

00:38:50.700 --> 00:38:53.032 which showed improved progression

NOTE Confidence: 0.814651204

00:38:53.032 --> 00:38:57.166 free survival in these patients and I

NOTE Confidence: 0.814651204

00:38:57.166 --> 00:39:00.424 really appreciate Doctor Koontz going over.

NOTE Confidence: 0.814651204

00:39:00.430 --> 00:39:04.451 For this so for future directions we

NOTE Confidence: 0.814651204

00:39:04.451 --> 00:39:07.697 have to evaluate PRT efficacy and

NOTE Confidence: 0.814651204

00:39:07.697 --> 00:39:10.250 higher grade neuroendocrine neoplasms.

NOTE Confidence: 0.814651204

00:39:10.250 --> 00:39:14.186 We're also working on personalized symmetry,

NOTE Confidence: 0.814651204

00:39:14.190 --> 00:39:17.060 so providing the right dose to the

NOTE Confidence: 0.814651204

00:39:17.060 --> 00:39:19.302 patient and hopefully see better

NOTE Confidence: 0.814651204

00:39:19.302 --> 00:39:20.706 outcomes in patients,

NOTE Confidence: 0.814651204

00:39:20.710 --> 00:39:23.356 and we need to evaluate indications

NOTE Confidence: 0.814651204

00:39:23.356 --> 00:39:25.930 for re treatment of patients.

NOTE Confidence: 0.814651204

00:39:25.930 --> 00:39:28.000 So after they completed the four

NOTE Confidence: 0.814651204

00:39:28.000 --> 00:39:29.035 cycles of therapy,

NOTE Confidence: 0.814651204

00:39:29.040 --> 00:39:30.990 what are the indications for repeat?

NOTE Confidence: 0.814651204

00:39:30.990 --> 00:39:33.770 Treatment another cycle of therapy

NOTE Confidence: 0.814651204

00:39:33.770 --> 00:39:37.466 and also of the alpha therapeutics.

NOTE Confidence: 0.814651204

00:39:37.470 --> 00:39:39.588 And another thing that we're working

NOTE Confidence: 0.814651204

00:39:39.588 --> 00:39:43.082 on here at Yale is personalized tumor

NOTE Confidence: 0.814651204

00:39:43.082 --> 00:39:48.503 directed analysis with basically doing

NOTE Confidence: 0.814651204

00:39:48.503 --> 00:39:51.268 volumetric assessment of the different

NOTE Confidence: 0.814651204

00:39:51.270 --> 00:39:53.798 metastases and generating growth

NOTE Confidence: 0.814651204

00:39:53.798 --> 00:39:57.590 curves for each individual lesion in

NOTE Confidence: 0.814651204

00:39:57.681 --> 00:40:01.065 the in volumetric form and following.

NOTE Confidence: 0.814651204

00:40:01.070 --> 00:40:03.794 Physical growth parks and figuring out

NOTE Confidence: 0.814651204

00:40:03.794 --> 00:40:06.682 which lesions are growing and needs

NOTE Confidence: 0.814651204

00:40:06.682 --> 00:40:08.670 targeted therapy through different

NOTE Confidence: 0.814651204

00:40:08.670 --> 00:40:14.550 ways and which ones are not so, so.

NOTE Confidence: 0.814651204

00:40:14.550 --> 00:40:15.390 In conclusion,

NOTE Confidence: 0.814651204

00:40:15.390 --> 00:40:17.910 cross sectional imaging with CT and

NOTE Confidence: 0.814651204

00:40:17.910 --> 00:40:20.462 MRI can can diagnose and follow

NOTE Confidence: 0.814651204

00:40:20.462 --> 00:40:22.522 in your Endocrine meal Plaza.

NOTE Confidence: 0.814651204

00:40:22.530 --> 00:40:26.965 And it's they're really excellent ways

NOTE Confidence: 0.814651204

00:40:26.965 --> 00:40:31.342 to do imaging for these patients, but.

NOTE Confidence: 0.814651204

00:40:31.342 --> 00:40:34.052 And molecular imaging of somatostatin

NOTE Confidence: 0.814651204

00:40:34.052 --> 00:40:37.115 receptor expression allows for better

NOTE Confidence: 0.814651204

00:40:37.115 --> 00:40:40.274 molecular characterization of new rendering.

NOTE Confidence: 0.814651204

00:40:40.274 --> 00:40:41.290 Neil plasm's.

NOTE Confidence: 0.814651204

00:40:41.290 --> 00:40:44.326 Gallium Dotatate pet is very sensitive

NOTE Confidence: 0.814651204

00:40:44.326 --> 00:40:46.900 for detection of metastatic lesions

NOTE Confidence: 0.814651204

00:40:46.900 --> 00:40:49.714 and allows to evaluate whether patient

NOTE Confidence: 0.814651204

00:40:49.714 --> 00:40:53.065 is is eligible for PRT lutetium

NOTE Confidence: 0.814651204

00:40:53.065 --> 00:40:55.365 dotatate therapy is established

NOTE Confidence: 0.814651204

00:40:55.365 --> 00:40:59.030 and allows to treat some medicine

NOTE Confidence: 0.814651204

00:40:59.030 --> 00:41:01.426 and receptor tumors expressing

NOTE Confidence: 0.14260687

00:41:01.430 --> 00:41:02.070 some extra.

NOTE Confidence: 0.3341915168

00:41:04.170 --> 00:41:06.210 Staten receptor expressing neuron doctrine,

NOTE Confidence: 0.3341915168

00:41:06.210 --> 00:41:08.838 neoplasms, and it allows us to

NOTE Confidence: 0.3341915168

00:41:08.838 --> 00:41:11.540 visualize the location of the therapy

NOTE Confidence: 0.3341915168

00:41:11.540 --> 00:41:13.475 and many advances for personalized

NOTE Confidence: 0.3341915168

00:41:13.475 --> 00:41:15.700 therapy are being evaluated right now,

NOTE Confidence: 0.3341915168

00:41:15.700 --> 00:41:18.374 so stay tuned to this field 'cause

NOTE Confidence: 0.3341915168

00:41:18.374 --> 00:41:20.220 it's really changing how we're

NOTE Confidence: 0.3341915168

00:41:20.220 --> 00:41:21.944 managing their endocrine schermers.

NOTE Confidence: 0.3341915168

00:41:21.944 --> 00:41:25.626 I really want to thank you for your time

NOTE Confidence: 0.3341915168

00:41:25.626 --> 00:41:28.430 and pass the Bhutan to doctor Sajid Khan.

NOTE Confidence: 0.810156386

00:41:41.280 --> 00:41:43.010 You're on mute. Doctor Khan.

NOTE Confidence: 0.942148555714286

00:41:57.400 --> 00:42:00.375 OK, OK, I think I'm unmuted now.

NOTE Confidence: 0.942148555714286

00:42:00.380 --> 00:42:01.660 I'm is that right?

NOTE Confidence: 0.942148555714286

00:42:01.660 --> 00:42:03.784 OK, yes, OK, alright.

NOTE Confidence: 0.942148555714286

00:42:03.784 --> 00:42:05.794 Thank you Doctor rebellion that

NOTE Confidence: 0.942148555714286

00:42:05.794 --> 00:42:08.300 was just an outstanding talk.

NOTE Confidence: 0.942148555714286

00:42:08.300 --> 00:42:10.360 I learned a lot from that talk and I'm sure

NOTE Confidence: 0.942148555714286

00:42:10.414 --> 00:42:12.478 other people in the audience learned a lot.

NOTE Confidence: 0.942148555714286

00:42:12.480 --> 00:42:16.224 And Doctor Kunz talk was also at standing.

NOTE Confidence: 0.942148555714286

00:42:16.230 --> 00:42:18.118 So, uh, you know, so I'm going to

NOTE Confidence: 0.942148555714286

00:42:18.118 --> 00:42:20.192 spend the next 20 minutes talking to

NOTE Confidence: 0.942148555714286

00:42:20.192 --> 00:42:22.450 you from a slightly different perspective,

NOTE Confidence: 0.942148555714286

00:42:22.450 --> 00:42:25.600 and one that will include the surgical

NOTE Confidence: 0.942148555714286

00:42:25.600 --> 00:42:27.490 management of neuroendocrine tumors.

NOTE Confidence: 0.942148555714286

00:42:27.490 --> 00:42:30.196 And since just the surgical management

NOTE Confidence: 0.942148555714286

00:42:30.196 --> 00:42:32.300 of neuroendocrine tumors is a

NOTE Confidence: 0.942148555714286

00:42:32.300 --> 00:42:34.550 large topic in and of itself,

NOTE Confidence: 0.942148555714286

00:42:34.550 --> 00:42:36.560 no, over the next 20 minutes,

NOTE Confidence: 0.942148555714286

00:42:36.560 --> 00:42:37.852 I'll focus specifically on

NOTE Confidence: 0.942148555714286

00:42:37.852 --> 00:42:39.144 pancreas and small bowel,

NOTE Confidence: 0.942148555714286

00:42:39.150 --> 00:42:43.195 new render consumers and and I'd love to

NOTE Confidence: 0.942148555714286

00:42:43.195 --> 00:42:45.680 ask answer any questions towards the end.

NOTE Confidence: 0.942148555714286

00:42:45.680 --> 00:42:50.488 First time I have no disclosures.

NOTE Confidence: 0.942148555714286

00:42:50.490 --> 00:42:53.630 So this is a a slide from a paper that

NOTE Confidence: 0.942148555714286

00:42:53.721 --> 00:42:57.274 Doctor Kuhn said side didn't hurt talk for.

NOTE Confidence: 0.942148555714286

00:42:57.274 --> 00:42:59.294 Looking at it from the

NOTE Confidence: 0.942148555714286

00:42:59.294 --> 00:43:02.268 end where they looked at.

NOTE Confidence: 0.942148555714286

00:43:02.270 --> 00:43:05.266 Sear based study of the incidence of

NOTE Confidence: 0.942148555714286

00:43:05.266 --> 00:43:07.834 neuroendocrine tumors over the course of

NOTE Confidence: 0.942148555714286

00:43:07.834 --> 00:43:11.306 time and what's striking about this talk,

NOTE Confidence: 0.942148555714286

00:43:11.310 --> 00:43:12.630 and this is kind of the punch line.

NOTE Confidence: 0.942148555714286

00:43:12.630 --> 00:43:14.597 One of the points that Romans made

NOTE Confidence: 0.942148555714286

00:43:14.597 --> 00:43:16.030 is neuroendocrine tumors are not

NOTE Confidence: 0.942148555714286

00:43:16.030 --> 00:43:17.567 necessarily a rare anymore because

NOTE Confidence: 0.942148555714286

00:43:17.567 --> 00:43:20.715 the incidence of these is rising and

NOTE Confidence: 0.942148555714286

00:43:20.715 --> 00:43:23.550 this includes the focus of this talk,

NOTE Confidence: 0.942148555714286

00:43:23.550 --> 00:43:24.846 which will include pancreas

NOTE Confidence: 0.942148555714286

00:43:24.846 --> 00:43:27.050 neuroendocrine tumors and as you can see,

NOTE Confidence: 0.942148555714286

00:43:27.050 --> 00:43:29.102 there's been a very steady and

NOTE Confidence: 0.942148555714286

00:43:29.102 --> 00:43:30.128 then more recently,

NOTE Confidence: 0.942148555714286

00:43:30.130 --> 00:43:32.538 a steeper rise in the incidence of pancreas.

NOTE Confidence: 0.942148555714286

00:43:32.540 --> 00:43:36.439 Under consumers and in green over here,

NOTE Confidence: 0.942148555714286

00:43:36.440 --> 00:43:38.360 a small bowel or under consumers.

NOTE Confidence: 0.942148555714286

00:43:38.360 --> 00:43:40.835 2 and that'll be the focus of this talk.

NOTE Confidence: 0.942148555714286

00:43:40.840 --> 00:43:42.480 I'm sure many people in

NOTE Confidence: 0.942148555714286

00:43:42.480 --> 00:43:43.792 the audience know that.

NOTE Confidence: 0.942148555714286

00:43:43.800 --> 00:43:46.474 Many of our patients are getting scans.

NOTE Confidence: 0.942148555714286

00:43:46.480 --> 00:43:48.452 A cross sectional imaging,

NOTE Confidence: 0.942148555714286

00:43:48.452 --> 00:43:50.917 and they're often incidental findings.

NOTE Confidence: 0.942148555714286

00:43:50.920 --> 00:43:52.830 And oftentimes these are how

NOTE Confidence: 0.942148555714286

00:43:52.830 --> 00:43:54.358 neuroendocrine tumors are discovered

NOTE Confidence: 0.942148555714286

00:43:54.358 --> 00:43:56.716 as our other kinds of tumors as well,

NOTE Confidence: 0.942148555714286

00:43:56.720 --> 00:43:59.779 and I'm sure that's driving the higher

NOTE Confidence: 0.942148555714286

00:43:59.779 --> 00:44:02.910 incidence that that we're seeing over time.

NOTE Confidence: 0.942148555714286

00:44:02.910 --> 00:44:04.960 So the interesting thing about

NOTE Confidence: 0.942148555714286

00:44:04.960 --> 00:44:07.010 neuroendocrine tumors is that the

NOTE Confidence: 0.942148555714286

00:44:07.075 --> 00:44:09.510 survival for neuroendocrine tumors is,

NOTE Confidence: 0.942148555714286

00:44:09.510 --> 00:44:10.158 generally speaking,

NOTE Confidence: 0.942148555714286

00:44:10.158 --> 00:44:12.102 favorable when we and the focus

NOTE Confidence: 0.942148555714286

00:44:12.102 --> 00:44:13.588 again will be on pancreas.

NOTE Confidence: 0.942148555714286

00:44:13.590 --> 00:44:15.678 Neuroendocrine tumors and small

NOTE Confidence: 0.942148555714286

00:44:15.678 --> 00:44:17.974 bowel neuroendocrine tumors and

NOTE Confidence: 0.942148555714286

00:44:17.974 --> 00:44:22.318 the survival is dependent on grade,

NOTE Confidence: 0.942148555714286

00:44:22.320 --> 00:44:24.322 and we're not going to talk too

NOTE Confidence: 0.942148555714286

00:44:24.322 --> 00:44:26.463 much about grade three grade 4 door

NOTE Confidence: 0.942148555714286

00:44:26.463 --> 00:44:28.287 under consumers and much of what

NOTE Confidence: 0.942148555714286

00:44:28.353 --> 00:44:30.785 we see are grade one and grade tuna

NOTE Confidence: 0.942148555714286

00:44:30.785 --> 00:44:32.996 under consumers and the survival.

NOTE Confidence: 0.942148555714286

00:44:32.996 --> 00:44:37.978 Is is usually favorable and that leads to.

NOTE Confidence: 0.942148555714286

00:44:37.980 --> 00:44:40.332 That the perspective of how these new

NOTE Confidence: 0.942148555714286

00:44:40.332 --> 00:44:42.660 entrants should be managed and you know,

NOTE Confidence: 0.942148555714286

00:44:42.660 --> 00:44:45.540 and you know I'm going to give you my

NOTE Confidence: 0.942148555714286

00:44:45.540 --> 00:44:47.559 perspective as a surgical oncologist.

NOTE Confidence: 0.942148555714286

00:44:47.560 --> 00:44:49.016 And I think we all have our

NOTE Confidence: 0.942148555714286

00:44:49.016 --> 00:44:50.000 own perspectives on things.

NOTE Confidence: 0.942148555714286

00:44:50.000 --> 00:44:53.360 And as a surgical oncologist at

NOTE Confidence: 0.942148555714286

00:44:53.360 --> 00:44:55.165 longer progression free survivals,

NOTE Confidence: 0.942148555714286

00:44:55.165 --> 00:44:57.240 the longer survivals impact how?

NOTE Confidence: 0.942148555714286

00:44:57.240 --> 00:44:58.360 What kind of surgical management

NOTE Confidence: 0.942148555714286

00:44:58.360 --> 00:44:59.480 we offer to our patients.

NOTE Confidence: 0.88028361

00:45:01.550 --> 00:45:03.510 So for the talk, we'll break it up

NOTE Confidence: 0.88028361

00:45:03.510 --> 00:45:05.309 into the remainder of the talk.

NOTE Confidence: 0.88028361

00:45:05.310 --> 00:45:08.397 Will break it up into three different.

NOTE Confidence: 0.88028361

00:45:08.400 --> 00:45:10.248 Sessions one will be the pink

NOTE Confidence: 0.88028361

00:45:10.248 --> 00:45:11.172 richner endocrine tumors,

NOTE Confidence: 0.88028361

00:45:11.180 --> 00:45:12.920 which I'll talk about first.

NOTE Confidence: 0.88028361

00:45:12.920 --> 00:45:14.564 I'll follow that with the small

NOTE Confidence: 0.88028361

00:45:14.564 --> 00:45:16.260 bowel and are under consumers.

NOTE Confidence: 0.88028361

00:45:16.260 --> 00:45:19.212 And lastly, we talk about metastatic

NOTE Confidence: 0.88028361

00:45:19.212 --> 00:45:21.180 neuroendocrine tumors as well.

NOTE Confidence: 0.88028361

00:45:21.180 --> 00:45:23.260 These are common surgical scenarios

NOTE Confidence: 0.88028361

00:45:23.260 --> 00:45:26.425 that maybe some of your patients

NOTE Confidence: 0.88028361

00:45:26.425 --> 00:45:29.170 have experienced and and hopefully

NOTE Confidence: 0.88028361

00:45:29.261 --> 00:45:31.826 this will provide some types.

NOTE Confidence: 0.88028361

00:45:31.830 --> 00:45:34.596 So in regards to the pancreas

NOTE Confidence: 0.88028361

00:45:34.596 --> 00:45:35.518 narender consumers.

NOTE Confidence: 0.88028361

00:45:35.520 --> 00:45:36.264 So you know,

NOTE Confidence: 0.88028361

00:45:36.264 --> 00:45:37.752 I think in order to understand

NOTE Confidence: 0.88028361

00:45:37.752 --> 00:45:39.517 if someone needs an operation,

NOTE Confidence: 0.88028361

00:45:39.520 --> 00:45:41.122 one needs to just understand the

NOTE Confidence: 0.88028361

00:45:41.122 --> 00:45:42.540 basics of the neuroendocrine tumors.

NOTE Confidence: 0.88028361

00:45:42.540 --> 00:45:44.043 And you know these are some of the points

NOTE Confidence: 0.88028361

00:45:44.043 --> 00:45:45.667 that are important to a surgical oncologist.

NOTE Confidence: 0.88028361

00:45:45.670 --> 00:45:47.830 When we see patients who think

NOTE Confidence: 0.88028361

00:45:47.830 --> 00:45:48.910 christner under consumers.

NOTE Confidence: 0.88028361

00:45:48.910 --> 00:45:50.584 I'm I'm very interested in tumor

NOTE Confidence: 0.88028361

00:45:50.584 --> 00:45:52.628 biology and I could tell that to

NOTE Confidence: 0.88028361

00:45:52.628 --> 00:45:54.368 rebooting is also from her very

NOTE Confidence: 0.88028361

00:45:54.368 --> 00:45:55.894 elaborate talk and pink Krishna

NOTE Confidence: 0.88028361

00:45:55.894 --> 00:45:57.664 render from rumors arise from the

NOTE Confidence: 0.88028361

00:45:57.670 --> 00:45:59.550 endocrine cells of the pancreas,

NOTE Confidence: 0.88028361

00:45:59.550 --> 00:46:03.270 which are important to understand

NOTE Confidence: 0.88028361

00:46:03.270 --> 00:46:06.312 and they account for 3% of

NOTE Confidence: 0.88028361

00:46:06.312 --> 00:46:07.938 pancreas tumors altogether.

NOTE Confidence: 0.88028361

00:46:07.938 --> 00:46:10.106 So still pancreatic ductal

NOTE Confidence: 0.88028361

00:46:10.106 --> 00:46:12.135 adenocarcinomas and other kinds

NOTE Confidence: 0.88028361

00:46:12.135 --> 00:46:14.679 of tumors comprise majority but 3%

NOTE Confidence: 0.88028361

00:46:14.679 --> 00:46:16.574 of pink christner under consumers

NOTE Confidence: 0.88028361

00:46:16.574 --> 00:46:18.700 are comprised of by peanuts.

NOTE Confidence: 0.88028361

00:46:18.700 --> 00:46:21.549 The median age at diagnosis is 60

NOTE Confidence: 0.88028361

00:46:21.549 --> 00:46:24.435 years and the survival is longer

NOTE Confidence: 0.88028361

00:46:24.435 --> 00:46:26.415 than that anchors adenocarcinoma,

NOTE Confidence: 0.88028361

00:46:26.420 --> 00:46:27.935 so that's very important point

NOTE Confidence: 0.88028361

00:46:27.935 --> 00:46:30.018 to understand is as all of us

NOTE Confidence: 0.88028361

00:46:30.018 --> 00:46:31.030 in the audience have.

NOTE Confidence: 0.88028361

00:46:31.030 --> 00:46:32.880 I'm sure I can understand,

NOTE Confidence: 0.88028361

00:46:32.880 --> 00:46:34.724 and they're obviously people.

NOTE Confidence: 0.88028361

00:46:34.724 --> 00:46:37.490 Some celebrities over the years that

NOTE Confidence: 0.88028361

00:46:37.561 --> 00:46:39.134 we have observed that have been

NOTE Confidence: 0.88028361

00:46:39.134 --> 00:46:40.760 diagnosed with these kinds of tumors.

NOTE Confidence: 0.88028361

00:46:40.760 --> 00:46:41.980 Both adenocarcinoma.

NOTE Confidence: 0.88028361

00:46:41.980 --> 00:46:45.030 I think Christina render consumers.

NOTE Confidence: 0.88028361

00:46:45.030 --> 00:46:47.070 The note status is very important,

NOTE Confidence: 0.88028361

00:46:47.070 --> 00:46:49.685 so patients with node negative

NOTE Confidence: 0.88028361

00:46:49.685 --> 00:46:50.600 peanuts tend to

NOTE Confidence: 0.672960371666667

00:46:50.610 --> 00:46:52.590 have them. Sorry to interrupt you,

NOTE Confidence: 0.672960371666667

00:46:52.590 --> 00:46:56.944 your slide is not projecting it maybe.

NOTE Confidence: 0.672960371666667

00:46:56.950 --> 00:46:58.680 Yep, there you go. Perfect, thanks.

NOTE Confidence: 0.918569646666667

00:47:00.720 --> 00:47:02.796 Sorry, so the survival is very

NOTE Confidence: 0.918569646666667

00:47:02.796 --> 00:47:05.100 important based on the nodal status.

NOTE Confidence: 0.918569646666667

00:47:05.100 --> 00:47:08.614 So patients with no negative peanuts have

NOTE Confidence: 0.918569646666667

00:47:08.614 --> 00:47:12.206 a very favorable survival at 136 months.

NOTE Confidence: 0.918569646666667

00:47:12.206 --> 00:47:14.821 The addition of noteworthy metastasis

NOTE Confidence: 0.918569646666667

00:47:14.821 --> 00:47:17.867 to lymph nodes decreases at survival

NOTE Confidence: 0.918569646666667

00:47:17.867 --> 00:47:20.646 to 77 months and one patient

NOTE Confidence: 0.918569646666667

00:47:20.646 --> 00:47:22.494 present with distant metastases.

NOTE Confidence: 0.918569646666667

00:47:22.500 --> 00:47:25.780 This survival is 24 months and

NOTE Confidence: 0.918569646666667

00:47:25.780 --> 00:47:28.230 you know that's important to

NOTE Confidence: 0.918569646666667

00:47:28.230 --> 00:47:30.356 understand because 60% of patients

NOTE Confidence: 0.918569646666667

00:47:30.356 --> 00:47:32.266 do present with distant metastases.

NOTE Confidence: 0.918569646666667

00:47:32.270 --> 00:47:34.094 And I think that plays into

NOTE Confidence: 0.918569646666667

00:47:34.094 --> 00:47:35.310 the decision making process.

NOTE Confidence: 0.918569646666667

00:47:35.310 --> 00:47:37.718 So for how to treat the patient

NOTE Confidence: 0.918569646666667

00:47:37.718 --> 00:47:39.642 to optimally and as doctor Kunz

NOTE Confidence: 0.918569646666667

00:47:39.642 --> 00:47:41.182 had mentioned during her talk,

NOTE Confidence: 0.918569646666667

00:47:41.190 --> 00:47:42.580 majority of cases are sporadic

NOTE Confidence: 0.918569646666667

00:47:42.580 --> 00:47:43.692 and some are familiar.

NOTE Confidence: 0.7983114075

00:47:47.950 --> 00:47:50.265 Pink Reisner under consumers are

NOTE Confidence: 0.7983114075

00:47:50.265 --> 00:47:52.117 nonfunctioning tumors and and

NOTE Confidence: 0.7983114075

00:47:52.117 --> 00:47:54.834 functioning tumors and and by this what

NOTE Confidence: 0.7983114075

00:47:54.834 --> 00:47:57.180 I mean is that nonfunctioning tumors

NOTE Confidence: 0.7983114075

00:47:57.255 --> 00:47:59.690 do not produce clinical symptoms,

NOTE Confidence: 0.7983114075

00:47:59.690 --> 00:48:01.175 even though the tumors can't

NOTE Confidence: 0.7983114075

00:48:01.175 --> 00:48:02.066 still produce hormones,

NOTE Confidence: 0.7983114075

00:48:02.070 --> 00:48:03.780 but they don't produce enough

NOTE Confidence: 0.7983114075

00:48:03.780 --> 00:48:05.490 hormones that cause clinical symptoms.

NOTE Confidence: 0.7983114075

00:48:05.490 --> 00:48:07.548 The nonfunctioning tumors,

NOTE Confidence: 0.7983114075

00:48:07.548 --> 00:48:10.978 now in the updated literature,

NOTE Confidence: 0.7983114075

00:48:10.980 --> 00:48:12.700 revealed account for about

NOTE Confidence: 0.7983114075

00:48:12.700 --> 00:48:13.652 75% of these tumors.

NOTE Confidence: 0.7983114075

00:48:13.652 --> 00:48:15.394 I think some of this has to do with

NOTE Confidence: 0.7983114075

00:48:15.394 --> 00:48:16.604 these smaller new render consumers,

NOTE Confidence: 0.7983114075

00:48:16.610 --> 00:48:17.104 the child.

NOTE Confidence: 0.7983114075

00:48:17.104 --> 00:48:19.114 Talk a little bit about that are

NOTE Confidence: 0.7983114075

00:48:19.114 --> 00:48:21.049 diagnosed more and more frequently

NOTE Confidence: 0.7983114075

00:48:21.049 --> 00:48:23.638 in that number has increased over

NOTE Confidence: 0.7983114075

00:48:23.638 --> 00:48:25.574 overtime and then functioning tumors,

NOTE Confidence: 0.7983114075

00:48:25.574 --> 00:48:27.446 so functioning tumors are tumors

NOTE Confidence: 0.7983114075

00:48:27.446 --> 00:48:29.376 that have hormone hypersecretion that

NOTE Confidence: 0.7983114075

00:48:29.376 --> 00:48:31.800 does lead to clinical manifestation.

NOTE Confidence: 0.7983114075

00:48:31.800 --> 00:48:33.906 The six types are listed here,

NOTE Confidence: 0.7983114075

00:48:33.910 --> 00:48:35.390 which are insulinomas most

NOTE Confidence: 0.7983114075

00:48:35.390 --> 00:48:37.240 commonly that we see Glucagon,

NOTE Confidence: 0.7983114075

00:48:37.240 --> 00:48:37.708 omas,

NOTE Confidence: 0.7983114075

00:48:37.708 --> 00:48:38.644 gastrinomas VIP,

NOTE Confidence: 0.7983114075

00:48:38.644 --> 00:48:40.984 omas Mathis adenomas and others

NOTE Confidence: 0.7983114075

00:48:40.984 --> 00:48:43.315 as well functioning tumors tend

NOTE Confidence: 0.7983114075

00:48:43.315 --> 00:48:45.640 to have better survival than

NOTE Confidence: 0.7983114075

00:48:45.640 --> 00:48:47.754 nonfunctioning tumors and part of this.

NOTE Confidence: 0.7983114075

00:48:47.754 --> 00:48:49.234 Probably is patient present symptom

NOTE Confidence: 0.7983114075

00:48:49.234 --> 00:48:50.663 with symptomatology earlier than

NOTE Confidence: 0.7983114075

00:48:50.663 --> 00:48:52.453 non functioning tumors and that

NOTE Confidence: 0.7983114075

00:48:52.453 --> 00:48:54.425 might lead to a better survival

NOTE Confidence: 0.7983114075

00:48:54.425 --> 00:48:55.930 ultimately because it was diagnosed

NOTE Confidence: 0.7983114075

00:48:55.930 --> 00:48:57.620 or earlier on in the process.

NOTE Confidence: 0.75222638

00:48:59.780 --> 00:49:01.960 So when a surgical oncologist,

NOTE Confidence: 0.75222638

00:49:01.960 --> 00:49:03.423 if you come to Yale Surgical and

NOTE Confidence: 0.75222638

00:49:03.423 --> 00:49:05.274 I see one of the Yale surgical

NOTE Confidence: 0.75222638

00:49:05.274 --> 00:49:06.739 oncologists you know there are

NOTE Confidence: 0.75222638

00:49:06.739 --> 00:49:08.335 certain things that we think are

NOTE Confidence: 0.75222638

00:49:08.335 --> 00:49:09.898 important to to guide our principles

NOTE Confidence: 0.75222638

00:49:09.898 --> 00:49:12.124 of of sort of surgical management of

NOTE Confidence: 0.75222638

00:49:12.124 --> 00:49:13.880 patients for assessing a patient.

NOTE Confidence: 0.75222638

00:49:13.880 --> 00:49:16.184 For that and our goals for surgery are

NOTE Confidence: 0.75222638

00:49:16.184 --> 00:49:18.560 the first is to maximize local control,

NOTE Confidence: 0.75222638

00:49:18.560 --> 00:49:20.072 so I think that's a very important point

NOTE Confidence: 0.75222638

00:49:20.072 --> 00:49:21.877 for not just bankers neuroendocrine tumors,

NOTE Confidence: 0.75222638

00:49:21.880 --> 00:49:24.736 but in general for other types

NOTE Confidence: 0.75222638

00:49:24.736 --> 00:49:27.140 of neuroendocrine tumors as well.

NOTE Confidence: 0.75222638

00:49:27.140 --> 00:49:28.670 Another goal is to increase ones.

NOTE Confidence: 0.75222638

00:49:28.670 --> 00:49:29.826 Quality of Life OK,

NOTE Confidence: 0.75222638

00:49:29.826 --> 00:49:31.560 so sometimes that even non functioning

NOTE Confidence: 0.75222638

00:49:31.615 --> 00:49:33.409 tumors can have an adverse effect

NOTE Confidence: 0.75222638

00:49:33.409 --> 00:49:35.059 on the individuals quality of life.

NOTE Confidence: 0.75222638

00:49:35.060 --> 00:49:38.378 So surgery can improve, increase funds,

NOTE Confidence: 0.75222638

00:49:38.380 --> 00:49:39.876 quality of life progression.

NOTE Confidence: 0.75222638

00:49:39.876 --> 00:49:42.120 Free survival is an important point

NOTE Confidence: 0.75222638

00:49:42.188 --> 00:49:44.292 as well too given the the the the

NOTE Confidence: 0.75222638

00:49:44.292 --> 00:49:46.670 behavior of these tumors a lot of times

NOTE Confidence: 0.75222638

00:49:46.670 --> 00:49:48.678 we focus on progression free survival

NOTE Confidence: 0.75222638

00:49:48.678 --> 00:49:51.506 and not as much as overall survival.

NOTE Confidence: 0.75222638

00:49:51.510 --> 00:49:53.316 So progression free survival is very

NOTE Confidence: 0.75222638

00:49:53.316 --> 00:49:55.055 important for this kind of tumor.

NOTE Confidence: 0.75222638

00:49:55.055 --> 00:49:56.980 Generally speaking we aim for

NOTE Confidence: 0.75222638

00:49:56.980 --> 00:49:58.952 R0 resection margins and that's

NOTE Confidence: 0.75222638

00:49:58.952 --> 00:50:01.118 something we strive for for many.

NOTE Confidence: 0.75222638

00:50:01.120 --> 00:50:02.512 Kinds of search conchology

NOTE Confidence: 0.75222638

00:50:02.512 --> 00:50:04.600 operations and that just simply means

NOTE Confidence: 0.75222638

00:50:04.663 --> 00:50:06.679 microscopically and grossly negative.

NOTE Confidence: 0.75222638

00:50:06.680 --> 00:50:07.877 We'll talk a little bit more about.

NOTE Confidence: 0.75222638

00:50:07.880 --> 00:50:09.000 There's some different that's

NOTE Confidence: 0.75222638

00:50:09.000 --> 00:50:10.120 not always the case,

NOTE Confidence: 0.75222638

00:50:10.120 --> 00:50:12.416 but that's for some of the metastatic tumors.

NOTE Confidence: 0.75222638

00:50:12.420 --> 00:50:14.712 But we are usually striving for

NOTE Confidence: 0.75222638

00:50:14.712 --> 00:50:16.897 an artist or section and the other

NOTE Confidence: 0.75222638

00:50:16.897 --> 00:50:18.430 final goal is we try to alleviate

NOTE Confidence: 0.75222638

00:50:18.480 --> 00:50:19.320 clinical symptoms,

NOTE Confidence: 0.75222638

00:50:19.320 --> 00:50:21.385 and this is very important for those

NOTE Confidence: 0.75222638

00:50:21.385 --> 00:50:23.419 with the functioning or underprint tumors.

NOTE Confidence: 0.75222638

00:50:23.420 --> 00:50:26.100 And and with the source of the hormone,

NOTE Confidence: 0.75222638

00:50:26.100 --> 00:50:27.426 hypersecretion is removed.

NOTE Confidence: 0.75222638

00:50:27.426 --> 00:50:29.636 It can substantially alleviate ones

NOTE Confidence: 0.75222638

00:50:29.636 --> 00:50:31.580 clinical symptoms in the completely.

NOTE Confidence: 0.75222638

00:50:31.580 --> 00:50:34.319 Address it altogether.

NOTE Confidence: 0.75222638

00:50:34.320 --> 00:50:35.430 And we also, you know,

NOTE Confidence: 0.75222638

00:50:35.430 --> 00:50:37.978 with our surgeries and a lot of

NOTE Confidence: 0.75222638

00:50:37.978 --> 00:50:39.922 these pancreas cases can be major

NOTE Confidence: 0.75222638

00:50:39.922 --> 00:50:40.978 operations and us.

NOTE Confidence: 0.75222638

00:50:40.978 --> 00:50:44.070 But we do try to limit our short

NOTE Confidence: 0.75222638

00:50:44.070 --> 00:50:45.982 term morbidity and the long term

NOTE Confidence: 0.75222638

00:50:45.982 --> 00:50:47.780 morbidity as well too in the few.

NOTE Confidence: 0.75222638

00:50:47.780 --> 00:50:49.780 See one of the surgical oncologists at Yale.

NOTE Confidence: 0.75222638

00:50:49.780 --> 00:50:51.736 We our role is taking this

NOTE Confidence: 0.75222638

00:50:51.736 --> 00:50:52.388 into consideration.

NOTE Confidence: 0.905764988235294

00:50:54.800 --> 00:50:57.635 So, so I'm gonna give you some

NOTE Confidence: 0.905764988235294

00:50:57.635 --> 00:50:59.202 specific surgical scenarios here

NOTE Confidence: 0.905764988235294

00:50:59.202 --> 00:51:01.897 that may be of some use and you know

NOTE Confidence: 0.905764988235294

00:51:01.897 --> 00:51:03.931 one scenario includes a patient that

NOTE Confidence: 0.905764988235294

00:51:03.931 --> 00:51:06.298 presents the localized non metastatic

NOTE Confidence: 0.905764988235294

00:51:06.298 --> 00:51:07.774 pancreas neuroendocrine tumor.

NOTE Confidence: 0.905764988235294

00:51:07.780 --> 00:51:08.683 And generally speaking,

NOTE Confidence: 0.905764988235294

00:51:08.683 --> 00:51:11.438 we respect the for the resection is feasible.

NOTE Confidence: 0.905764988235294

00:51:11.438 --> 00:51:14.678 The meeting survival in the

NOTE Confidence: 0.905764988235294

00:51:14.678 --> 00:51:16.700 literature is 7.1 years,

NOTE Confidence: 0.905764988235294

00:51:16.700 --> 00:51:18.860 but the important thing to understand,

NOTE Confidence: 0.905764988235294

00:51:18.860 --> 00:51:21.870 and is that about half the patients

NOTE Confidence: 0.905764988235294

00:51:21.870 --> 00:51:24.768 do recur at two almost three years.

NOTE Confidence: 0.905764988235294

00:51:24.770 --> 00:51:26.620 So recurrence free survival is

NOTE Confidence: 0.905764988235294

00:51:26.620 --> 00:51:28.850 important to consider here as well,

NOTE Confidence: 0.905764988235294

00:51:28.850 --> 00:51:33.926 so so many patients to recur.

NOTE Confidence: 0.905764988235294

00:51:33.930 --> 00:51:35.772 Another common scenario are these small

NOTE Confidence: 0.905764988235294

00:51:35.772 --> 00:51:37.838 pink trees that are under 15 years,

NOTE Confidence: 0.905764988235294

00:51:37.840 --> 00:51:39.472 so these are pink creature under

NOTE Confidence: 0.905764988235294

00:51:39.472 --> 00:51:40.848 consumers that when we when

NOTE Confidence: 0.905764988235294

00:51:40.848 --> 00:51:42.246 we say that there are small,

NOTE Confidence: 0.905764988235294

00:51:42.250 --> 00:51:44.562 we're thinking 1.5 to 2 centimeters in the

NOTE Confidence: 0.905764988235294

00:51:44.562 --> 00:51:46.946 depends on which studies you're looking at.

NOTE Confidence: 0.905764988235294

00:51:46.950 --> 00:51:48.174 There's a good study out of

NOTE Confidence: 0.905764988235294

00:51:48.174 --> 00:51:48.990 the University of Chicago.

NOTE Confidence: 0.905764988235294

00:51:48.990 --> 00:51:51.426 There's another good study out of

NOTE Confidence: 0.905764988235294

00:51:51.426 --> 00:51:53.026 Massachusetts General and then that's

NOTE Confidence: 0.905764988235294

00:51:53.026 --> 00:51:54.860 where this number of less than two

NOTE Confidence: 0.905764988235294

00:51:54.916 --> 00:51:57.810 centimeters or 1.5 to 2 centimeters comes up,

NOTE Confidence: 0.905764988235294

00:51:57.810 --> 00:51:59.734 because given the behavior

NOTE Confidence: 0.905764988235294

00:51:59.734 --> 00:52:01.177 of neuroendocrine pancreas,

NOTE Confidence: 0.905764988235294

00:52:01.180 --> 00:52:03.140 neuroendocrine tumors in general.

NOTE Confidence: 0.905764988235294

00:52:03.140 --> 00:52:05.100 Sometimes surgery is not

NOTE Confidence: 0.905764988235294

00:52:05.100 --> 00:52:07.179 necessary for these patients,

NOTE Confidence: 0.905764988235294

00:52:07.180 --> 00:52:10.555 but I would recommend careful

NOTE Confidence: 0.905764988235294

00:52:10.555 --> 00:52:13.680 observation and you know each patient

NOTE Confidence: 0.905764988235294

00:52:13.680 --> 00:52:16.880 is an individual and we need to every

NOTE Confidence: 0.905764988235294

00:52:16.880 --> 00:52:19.439 patient should be evaluated individually

NOTE Confidence: 0.905764988235294

00:52:19.439 --> 00:52:22.280 and and but oftentimes patients with

NOTE Confidence: 0.905764988235294

00:52:22.280 --> 00:52:24.560 smaller tumors can be observed,

NOTE Confidence: 0.905764988235294

00:52:24.560 --> 00:52:25.816 you know, and I just want to make

NOTE Confidence: 0.905764988235294

00:52:25.816 --> 00:52:26.900 a quick comment about that.

NOTE Confidence: 0.905764988235294

00:52:26.900 --> 00:52:27.592 And that being said,

NOTE Confidence: 0.905764988235294

00:52:27.592 --> 00:52:28.630 you know if there's a young

NOTE Confidence: 0.905764988235294

00:52:28.674 --> 00:52:29.758 patient that's diagnosed with.

NOTE Confidence: 0.905764988235294

00:52:29.760 --> 00:52:31.788 They say, for example,

NOTE Confidence: 0.905764988235294

00:52:31.788 --> 00:52:33.309 1.8 centimeter neuroendocrine

NOTE Confidence: 0.905764988235294

00:52:33.309 --> 00:52:34.830 tumor that's in.

NOTE Confidence: 0.905764988235294

00:52:34.830 --> 00:52:35.235 Yeah,

NOTE Confidence: 0.905764988235294

00:52:35.235 --> 00:52:37.665 in her late 20s or so,

NOTE Confidence: 0.905764988235294

00:52:37.670 --> 00:52:39.734 you know one can make a reasonable argument

NOTE Confidence: 0.905764988235294

00:52:39.734 --> 00:52:41.766 that with a longer life term expectancy,

NOTE Confidence: 0.905764988235294

00:52:41.770 --> 00:52:43.885 maybe that might not be the person we tried.

NOTE Confidence: 0.905764988235294

00:52:43.890 --> 00:52:46.284 Decide to observe with the small neuron

NOTE Confidence: 0.905764988235294

00:52:46.284 --> 00:52:48.286 consumer and we do survey these patients.

NOTE Confidence: 0.905764988235294

00:52:48.290 --> 00:52:49.682 And if there are changes to

NOTE Confidence: 0.905764988235294

00:52:49.682 --> 00:52:50.610 their cross sectional imaging,

NOTE Confidence: 0.905764988235294

00:52:50.610 --> 00:52:52.660 which is an important point

NOTE Confidence: 0.905764988235294

00:52:52.660 --> 00:52:53.890 for neuroendocrine tumors,

NOTE Confidence: 0.905764988235294

00:52:53.890 --> 00:52:55.618 we will consider them per section.

NOTE Confidence: 0.83844109

00:52:58.130 --> 00:52:59.342 Another scenario that sometimes

NOTE Confidence: 0.83844109

00:52:59.342 --> 00:53:01.495 comes up is a locally advanced and

NOTE Confidence: 0.83844109

00:53:01.495 --> 00:53:04.540 metastatic on fund, resectable.

NOTE Confidence: 0.83844109

00:53:04.540 --> 00:53:06.836 Patient in that kind of a scenario,

NOTE Confidence: 0.83844109

00:53:06.840 --> 00:53:08.960 you know, sometimes we consider

NOTE Confidence: 0.83844109

00:53:08.960 --> 00:53:10.656 palliative surgery with some

NOTE Confidence: 0.83844109

00:53:10.656 --> 00:53:12.769 of the options listed here,

NOTE Confidence: 0.83844109

00:53:12.770 --> 00:53:15.140 and that's sometimes a scenario

NOTE Confidence: 0.83844109

00:53:15.140 --> 00:53:17.500 and then limited liver metastases.

NOTE Confidence: 0.83844109

00:53:17.500 --> 00:53:19.271 We're going to talk at the last

NOTE Confidence: 0.83844109

00:53:19.271 --> 00:53:21.612 third of this talk a little bit more

NOTE Confidence: 0.83844109

00:53:21.612 --> 00:53:23.604 about metastatic disease and in some

NOTE Confidence: 0.83844109

00:53:23.604 --> 00:53:25.669 patients with limited liver metastases.

NOTE Confidence: 0.83844109

00:53:25.670 --> 00:53:28.016 Will will use a asynchronous approach

NOTE Confidence: 0.83844109

00:53:28.016 --> 00:53:30.367 where the primary tumors are addressed

NOTE Confidence: 0.83844109

00:53:30.367 --> 00:53:32.394 and the liver tumors is addressed,

NOTE Confidence: 0.83844109

00:53:32.394 --> 00:53:34.770 or we considered a surgery in a staged.

NOTE Confidence: 0.83844109

00:53:34.770 --> 00:53:35.320 Fashion.

NOTE Confidence: 0.867011257692308

00:53:37.340 --> 00:53:39.876 So for all of these for sections I'm

NOTE Confidence: 0.867011257692308

00:53:39.876 --> 00:53:42.588 I just figured I'd share some patient

NOTE Confidence: 0.867011257692308

00:53:42.588 --> 00:53:45.804 examples for you to try to put it

NOTE Confidence: 0.867011257692308

00:53:45.804 --> 00:53:48.030 into some perspective and and the

NOTE Confidence: 0.867011257692308

00:53:48.030 --> 00:53:50.550 first patient I'd like to present is

NOTE Confidence: 0.867011257692308

00:53:50.627 --> 00:53:53.777 an 80 year old male who presented

NOTE Confidence: 0.867011257692308

00:53:53.777 --> 00:53:56.114 with hypoglycemic episodes and he had

NOTE Confidence: 0.867011257692308

00:53:56.114 --> 00:53:57.754 what's called the Whipple's triad,

NOTE Confidence: 0.867011257692308

00:53:57.760 --> 00:53:59.824 which we've heard about,

NOTE Confidence: 0.867011257692308

00:53:59.824 --> 00:54:02.920 and for Pinkerton are under consumers,

NOTE Confidence: 0.867011257692308

00:54:02.920 --> 00:54:05.070 what we teach our residents is, you know,

NOTE Confidence: 0.867011257692308

00:54:05.070 --> 00:54:07.555 if if you're ones considering a functional.

NOTE Confidence: 0.867011257692308

00:54:07.560 --> 00:54:09.480 Increased our hundred tumor work up

NOTE Confidence: 0.867011257692308

00:54:09.480 --> 00:54:11.380 starts with the biochemical workup and

NOTE Confidence: 0.867011257692308

00:54:11.380 --> 00:54:13.084 this patient did have a biochemical

NOTE Confidence: 0.867011257692308

00:54:13.084 --> 00:54:13.860 work work up,

NOTE Confidence: 0.867011257692308

00:54:13.860 --> 00:54:16.566 which indeed was consistent with insulinoma.

NOTE Confidence: 0.867011257692308

00:54:16.570 --> 00:54:18.000 After the biochemical work up,

NOTE Confidence: 0.867011257692308

00:54:18.000 --> 00:54:20.346 then we preceded with the localization

NOTE Confidence: 0.867011257692308

00:54:20.346 --> 00:54:22.618 studies to identify where this tumor

NOTE Confidence: 0.867011257692308

00:54:22.618 --> 00:54:24.920 is located and and in this patient.

NOTE Confidence: 0.867011257692308

00:54:24.920 --> 00:54:27.770 Here, this is the the frontal

NOTE Confidence: 0.867011257692308

00:54:27.770 --> 00:54:29.716 images and and it shows.

NOTE Confidence: 0.867011257692308

00:54:29.716 --> 00:54:32.440 I don't think my arrow is projecting here,

NOTE Confidence: 0.867011257692308

00:54:32.440 --> 00:54:35.611 but there's a hyper enhancing mass in

NOTE Confidence: 0.867011257692308

00:54:35.611 --> 00:54:38.579 the head of the pancreas which is seen.

NOTE Confidence: 0.867011257692308

00:54:38.580 --> 00:54:40.368 And that is sometimes the look

NOTE Confidence: 0.867011257692308

00:54:40.368 --> 00:54:42.405 of how a neuron tumor shows

NOTE Confidence: 0.867011257692308

00:54:42.405 --> 00:54:44.350 up on cross sectional imaging,

NOTE Confidence: 0.867011257692308

00:54:44.350 --> 00:54:46.785 and we performed a pancreaticoduodenectomy

NOTE Confidence: 0.867011257692308

00:54:46.785 --> 00:54:49.639 with an extended lymphadenectomy on this

NOTE Confidence: 0.867011257692308

00:54:49.639 --> 00:54:51.775 patient specimen seen on the right,

NOTE Confidence: 0.867011257692308

00:54:51.780 --> 00:54:52.946 and interestingly,

NOTE Confidence: 0.867011257692308

00:54:52.946 --> 00:54:55.278 immediately the patients hypoglycemic

NOTE Confidence: 0.867011257692308

00:54:55.278 --> 00:54:58.087 episodes were completely resolved and

NOTE Confidence: 0.867011257692308

00:54:58.087 --> 00:55:00.137 provided this gentleman with many,

NOTE Confidence: 0.867011257692308

00:55:00.140 --> 00:55:02.750 many years of custom free life.

NOTE Confidence: 0.836767505

00:55:05.880 --> 00:55:08.730 Next, I'd like to transition to

NOTE Confidence: 0.836767505

00:55:08.730 --> 00:55:10.630 small bowel neuroendocrine tumors.

NOTE Confidence: 0.836767505

00:55:10.630 --> 00:55:13.528 And these are tumors that are

NOTE Confidence: 0.836767505

00:55:13.528 --> 00:55:15.460 submucosal neoplasms which primarily

NOTE Confidence: 0.836767505

00:55:15.539 --> 00:55:18.248 arise from the jejunum and the ileum.

NOTE Confidence: 0.836767505

00:55:18.250 --> 00:55:20.290 And there they do have

NOTE Confidence: 0.836767505

00:55:20.290 --> 00:55:21.106 neuroendocrine differentiation,

NOTE Confidence: 0.836767505

00:55:21.110 --> 00:55:23.420 just like some of these other tumors

NOTE Confidence: 0.836767505

00:55:23.420 --> 00:55:25.200 that we're talking about today.

NOTE Confidence: 0.836767505

00:55:25.200 --> 00:55:27.612 They have an ability to secrete

NOTE Confidence: 0.836767505

00:55:27.612 --> 00:55:29.919 functional hormones and a means they

NOTE Confidence: 0.836767505

00:55:29.919 --> 00:55:31.802 are the most common tumor of the

NOTE Confidence: 0.836767505

00:55:31.802 --> 00:55:33.780 small bowel with malignant potential.

NOTE Confidence: 0.836767505

00:55:33.780 --> 00:55:36.372 Which is interesting because this is

NOTE Confidence: 0.836767505

00:55:36.372 --> 00:55:39.164 shifted because when I was in intern

NOTE Confidence: 0.836767505

00:55:39.164 --> 00:55:42.267 almost 20 years ago now we used to not

NOTE Confidence: 0.836767505

00:55:42.267 --> 00:55:44.780 look at small bowel neuronal tumors as

NOTE Confidence: 0.836767505

00:55:44.780 --> 00:55:46.600 the most common small bowel tumors.

NOTE Confidence: 0.836767505

00:55:46.600 --> 00:55:48.510 We would think more of adenocarcinoma

NOTE Confidence: 0.836767505

00:55:48.510 --> 00:55:51.100 and then more often even benign tumors.

NOTE Confidence: 0.836767505

00:55:51.100 --> 00:55:51.970 But interestingly,

NOTE Confidence: 0.836767505

00:55:51.970 --> 00:55:53.710 now neuroendocrine small bowel

NOTE Confidence: 0.836767505

00:55:53.710 --> 00:55:55.960 tumors are the most common.

NOTE Confidence: 0.836767505

00:55:55.960 --> 00:55:59.890 Small bowel tumor with Fullington potential.

NOTE Confidence: 0.836767505

00:55:59.890 --> 00:56:02.445 Nearly a third of these tumors arise

NOTE Confidence: 0.836767505

00:56:02.450 --> 00:56:04.646 relatively close to the ileocecal valve,

NOTE Confidence: 0.836767505

00:56:04.650 --> 00:56:06.774 and that the reason that's important

NOTE Confidence: 0.836767505

00:56:06.774 --> 00:56:08.590 is our operative decision making

NOTE Confidence: 0.836767505

00:56:08.590 --> 00:56:11.490 takes that into consideration.

NOTE Confidence: 0.836767505

00:56:11.490 --> 00:56:13.420 Many patients present with multifocal

NOTE Confidence: 0.836767505

00:56:13.420 --> 00:56:15.350 disease that's also very important.

NOTE Confidence: 0.836767505

00:56:15.350 --> 00:56:17.990 When I talk about surgical approaches,

NOTE Confidence: 0.836767505

00:56:17.990 --> 00:56:20.665 and about 35% of patients

NOTE Confidence: 0.836767505

00:56:20.665 --> 00:56:22.805 present with distant metastases,

NOTE Confidence: 0.836767505

00:56:22.810 --> 00:56:24.820 so surgical resection is a preferred

NOTE Confidence: 0.836767505

00:56:24.820 --> 00:56:26.670 frontline treatment for these patients.

NOTE Confidence: 0.93575323375

00:56:29.060 --> 00:56:30.956 And the reasons for that is number one.

NOTE Confidence: 0.93575323375

00:56:30.960 --> 00:56:33.408 It can improve survival.

NOTE Confidence: 0.93575323375

00:56:33.410 --> 00:56:36.134 Number two can reduce the risk

NOTE Confidence: 0.93575323375

00:56:36.134 --> 00:56:37.950 for developing metastatic disease.

NOTE Confidence: 0.93575323375

00:56:37.950 --> 00:56:40.831 #3 can alleviate symptoms and

NOTE Confidence: 0.93575323375

00:56:40.831 --> 00:56:42.658 finally #4 it can prevent or delay

NOTE Confidence: 0.93575323375

00:56:42.658 --> 00:56:44.489 the onset of symptom development,

NOTE Confidence: 0.93575323375

00:56:44.490 --> 00:56:46.295 and that's important as we

NOTE Confidence: 0.93575323375

00:56:46.295 --> 00:56:48.550 talk a little bit more here.

NOTE Confidence: 0.93575323375

00:56:48.550 --> 00:56:49.183 So you know.

NOTE Confidence: 0.93575323375

00:56:49.183 --> 00:56:50.660 So like I thought it would be

NOTE Confidence: 0.93575323375

00:56:50.712 --> 00:56:52.218 useful to go over some scenarios

NOTE Confidence: 0.93575323375

00:56:52.218 --> 00:56:53.909 that some of your patients may

NOTE Confidence: 0.93575323375

00:56:53.909 --> 00:56:55.489 present with into the hospital.

NOTE Confidence: 0.93575323375

00:56:55.490 --> 00:56:59.026 And 11 scenario is in east symptomatic

NOTE Confidence: 0.93575323375

00:56:59.026 --> 00:57:01.428 prime patient that the patient presents

NOTE Confidence: 0.93575323375

00:57:01.428 --> 00:57:03.708 with asymptomatic disease with the

NOTE Confidence: 0.93575323375

00:57:03.708 --> 00:57:06.330 primary tumor without distant metastases.

NOTE Confidence: 0.93575323375

00:57:06.330 --> 00:57:08.170 So even though these patients

NOTE Confidence: 0.93575323375

00:57:08.170 --> 00:57:09.642 present with asymptomatic disease,

NOTE Confidence: 0.93575323375

00:57:09.650 --> 00:57:10.832 in retrospect,

NOTE Confidence: 0.93575323375

00:57:10.832 --> 00:57:14.969 many of them will have some symptomatology.

NOTE Confidence: 0.93575323375

00:57:14.970 --> 00:57:16.986 And they won't know about it until

NOTE Confidence: 0.93575323375

00:57:16.986 --> 00:57:18.689 after they've had their surgery.

NOTE Confidence: 0.93575323375

00:57:18.690 --> 00:57:20.718 But that symptomatology may have prompted

NOTE Confidence: 0.93575323375

00:57:20.718 --> 00:57:23.028 their imaging in the 1st place and

NOTE Confidence: 0.93575323375

00:57:23.028 --> 00:57:24.828 the cross sectional imaging Dr Booing

NOTE Confidence: 0.93575323375

00:57:24.828 --> 00:57:26.927 can speak to this better than I can,

NOTE Confidence: 0.93575323375

00:57:26.930 --> 00:57:29.210 but oftentimes it shows something such

NOTE Confidence: 0.93575323375

00:57:29.210 --> 00:57:31.928 as a mesenteric or small bowel mass,

NOTE Confidence: 0.93575323375

00:57:31.930 --> 00:57:34.430 which is hyper enhancing.

NOTE Confidence: 0.93575323375

00:57:34.430 --> 00:57:36.305 Speculated or calcified,

NOTE Confidence: 0.93575323375

00:57:36.310 --> 00:57:38.440 and interestingly in the operating room,

NOTE Confidence: 0.93575323375

00:57:38.440 --> 00:57:39.190 you know,

NOTE Confidence: 0.93575323375

00:57:39.190 --> 00:57:41.065 the speculation is something we

NOTE Confidence: 0.93575323375

00:57:41.065 --> 00:57:42.518 really appreciate because these

NOTE Confidence: 0.93575323375

00:57:42.518 --> 00:57:44.394 tumors in the OR or the mesenteric

NOTE Confidence: 0.93575323375

00:57:44.394 --> 00:57:46.339 mass in the OR tend to be fixed,

NOTE Confidence: 0.93575323375

00:57:46.340 --> 00:57:47.434 fixated posteriorly,

NOTE Confidence: 0.93575323375

00:57:47.434 --> 00:57:50.169 as opposed to something that

NOTE Confidence: 0.93575323375

00:57:50.169 --> 00:57:51.810 some freely movable,

NOTE Confidence: 0.93575323375

00:57:51.810 --> 00:57:53.665 which is the case with some of

NOTE Confidence: 0.93575323375

00:57:53.665 --> 00:57:55.258 the benign small bowel tumors

NOTE Confidence: 0.93575323375

00:57:55.258 --> 00:57:56.726 and even small biologists.

NOTE Confidence: 0.93575323375

00:57:56.730 --> 00:57:59.300 Another scenario is an asymptomatic

NOTE Confidence: 0.93575323375

00:57:59.300 --> 00:58:01.870 primary tumor with distant metastasis.

NOTE Confidence: 0.93575323375

00:58:01.870 --> 00:58:03.655 I'm going to talk a little bit

NOTE Confidence: 0.93575323375

00:58:03.655 --> 00:58:04.420 about about that.

NOTE Confidence: 0.93575323375

00:58:04.420 --> 00:58:05.332 In the last scenario,

NOTE Confidence: 0.93575323375

00:58:05.332 --> 00:58:06.700 because I think that's going to

NOTE Confidence: 0.93575323375

00:58:06.748 --> 00:58:08.169 be an important thing to go over.

NOTE Confidence: 0.752932856666667

00:58:10.200 --> 00:58:12.240 And and and symptomatically.

NOTE Confidence: 0.752932856666667

00:58:12.240 --> 00:58:14.439 You know, sometimes these neuroendocrine

NOTE Confidence: 0.752932856666667

00:58:14.439 --> 00:58:16.797 tumors present with the bowel obstruction,

NOTE Confidence: 0.752932856666667

00:58:16.800 --> 00:58:18.291 abdominal pain, bleeding,

NOTE Confidence: 0.752932856666667

00:58:18.291 --> 00:58:20.776 and the and the so-called

NOTE Confidence: 0.752932856666667

00:58:20.776 --> 00:58:24.570 carcinoid syndrome as well so.

NOTE Confidence: 0.752932856666667

00:58:24.570 --> 00:58:26.928 An approach that is important is

NOTE Confidence: 0.752932856666667

00:58:26.928 --> 00:58:29.010 expectations for our patients suffer.

NOTE Confidence: 0.752932856666667

00:58:29.010 --> 00:58:31.378 Patient knows what to expect in a non

NOTE Confidence: 0.752932856666667

00:58:31.378 --> 00:58:33.195 emergent setting prior to undergoing

NOTE Confidence: 0.752932856666667

00:58:33.195 --> 00:58:35.145 a surgical and conchological section.

NOTE Confidence: 0.752932856666667

00:58:35.150 --> 00:58:36.854 It goes along way for their

NOTE Confidence: 0.752932856666667

00:58:36.854 --> 00:58:37.990 satisfaction down the road.

NOTE Confidence: 0.752932856666667

00:58:37.990 --> 00:58:39.918 That's something that our

NOTE Confidence: 0.752932856666667

00:58:39.918 --> 00:58:42.293 our group at Yale uses.

NOTE Confidence: 0.752932856666667

00:58:42.293 --> 00:58:45.837 So we talked to our patients ahead of

NOTE Confidence: 0.752932856666667

00:58:45.837 --> 00:58:47.978 surgery and one thing that we talked

NOTE Confidence: 0.752932856666667

00:58:47.978 --> 00:58:50.245 to our patients about is sometimes that

NOTE Confidence: 0.752932856666667

00:58:50.245 --> 00:58:52.744 because of the multifocality of these tumors,

NOTE Confidence: 0.752932856666667

00:58:52.750 --> 00:58:54.180 larger areas of small bowel

NOTE Confidence: 0.752932856666667

00:58:54.180 --> 00:58:55.324 need to be respected.

NOTE Confidence: 0.752932856666667

00:58:55.330 --> 00:58:57.685 Lead to increased frequency of

NOTE Confidence: 0.752932856666667

00:58:57.685 --> 00:59:00.040 their bowels of bowel movements.

NOTE Confidence: 0.752932856666667

00:59:00.040 --> 00:59:01.200 We also consider perceptibility.

NOTE Confidence: 0.752932856666667

00:59:01.200 --> 00:59:04.017 A lot of it comes down to the mesenteric

NOTE Confidence: 0.752932856666667

00:59:04.017 --> 00:59:06.057 artery and the vein superior mesenteric,

NOTE Confidence: 0.752932856666667

00:59:06.060 --> 00:59:07.374 artery and vein.

NOTE Confidence: 0.752932856666667

00:59:07.374 --> 00:59:10.002 That's something we strongly consider for

NOTE Confidence: 0.752932856666667

00:59:10.002 --> 00:59:12.120 respectability for these guys into tumors,

NOTE Confidence: 0.752932856666667

00:59:12.120 --> 00:59:14.706 we and the surgery usually entails,

NOTE Confidence: 0.752932856666667

00:59:14.710 --> 00:59:16.710 and indirectly or small bowel

NOTE Confidence: 0.752932856666667

00:59:16.710 --> 00:59:18.310 resection with a lymphadenectomy.

NOTE Confidence: 0.752932856666667

00:59:18.310 --> 00:59:20.070 Sometimes it involves resection

NOTE Confidence: 0.752932856666667

00:59:20.070 --> 00:59:21.830 of a mesenteric mass,

NOTE Confidence: 0.752932856666667

00:59:21.830 --> 00:59:24.329 which is how a patient may present,

NOTE Confidence: 0.752932856666667

00:59:24.330 --> 00:59:26.300 and in the operating room.

NOTE Confidence: 0.752932856666667

00:59:26.300 --> 00:59:28.540 It's very important to palpate

NOTE Confidence: 0.752932856666667

00:59:28.540 --> 00:59:29.884 for synchronous tumors,

NOTE Confidence: 0.752932856666667

00:59:29.890 --> 00:59:31.918 so so open operations are preferred

NOTE Confidence: 0.752932856666667

00:59:31.918 --> 00:59:34.644 and I just want to spend just a

NOTE Confidence: 0.752932856666667

00:59:34.644 --> 00:59:36.930 minute talking about that as well too.

NOTE Confidence: 0.752932856666667

00:59:36.930 --> 00:59:39.610 So we do a lot of laparoscopic and

NOTE Confidence: 0.752932856666667

00:59:39.610 --> 00:59:41.548 minimally invasive surgery at at Yale.

NOTE Confidence: 0.752932856666667

00:59:41.550 --> 00:59:43.720 A lot of our operations are done

NOTE Confidence: 0.752932856666667

00:59:43.720 --> 00:59:44.650 in that manner,

NOTE Confidence: 0.752932856666667

00:59:44.650 --> 00:59:47.030 and the way I look at laparoscopy

NOTE Confidence: 0.752932856666667

00:59:47.030 --> 00:59:48.415 and minimally invasive surgeries

NOTE Confidence: 0.752932856666667

00:59:48.415 --> 00:59:51.122 that it should be a tool to provide

NOTE Confidence: 0.752932856666667

00:59:51.122 --> 00:59:52.986 a good oncologic operation.

NOTE Confidence: 0.752932856666667

00:59:52.990 --> 00:59:54.846 It shouldn't not be the other way around,

NOTE Confidence: 0.752932856666667

00:59:54.850 --> 00:59:56.460 meaning someone should not get.

NOTE Confidence: 0.752932856666667

00:59:56.460 --> 00:59:57.840 A minimally invasive surgery just

NOTE Confidence: 0.752932856666667

00:59:57.840 --> 00:59:59.707 for the sake of getting minimally

NOTE Confidence: 0.752932856666667

00:59:59.707 --> 01:00:00.579 invasive surgery,

NOTE Confidence: 0.752932856666667

01:00:00.580 --> 01:00:02.820 but so so for the way we approach

NOTE Confidence: 0.752932856666667

01:00:02.820 --> 01:00:05.018 these are we usually will do them.

NOTE Confidence: 0.752932856666667

01:00:05.020 --> 01:00:06.181 Laparoscopic Lee roulette,

NOTE Confidence: 0.752932856666667

01:00:06.181 --> 01:00:08.116 metastases and sometimes we could

NOTE Confidence: 0.752932856666667

01:00:08.116 --> 01:00:10.345 make a very small incision and

NOTE Confidence: 0.752932856666667

01:00:10.345 --> 01:00:12.080 eviscerate the tumor and palpate

NOTE Confidence: 0.752932856666667

01:00:12.080 --> 01:00:13.980 the entire small bowel to make

NOTE Confidence: 0.752932856666667

01:00:13.980 --> 01:00:14.880 sure that they're synchronous.

NOTE Confidence: 0.752932856666667

01:00:14.880 --> 01:00:16.190 Tumors are are not missed,

NOTE Confidence: 0.752932856666667

01:00:16.190 --> 01:00:18.098 which sometimes is the case with

NOTE Confidence: 0.752932856666667

01:00:18.098 --> 01:00:19.052 true laparoscopic operations.

NOTE Confidence: 0.752932856666667

01:00:19.060 --> 01:00:21.164 For these small bell,

NOTE Confidence: 0.752932856666667

01:00:21.164 --> 01:00:23.772 any tease we value for distant

NOTE Confidence: 0.752932856666667

01:00:23.772 --> 01:00:25.712 metastases and sometimes consider a

NOTE Confidence: 0.752932856666667

01:00:25.712 --> 01:00:27.129 cholecystectomy and a lot of that.

NOTE Confidence: 0.752932856666667

01:00:27.130 --> 01:00:29.559 Ends up being a conversation with the

NOTE Confidence: 0.752932856666667

01:00:29.559 --> 01:00:31.750 surgical oncologist and medical oncologist,

NOTE Confidence: 0.752932856666667

01:00:31.750 --> 01:00:34.137 and about this patient may be a

NOTE Confidence: 0.752932856666667

01:00:34.137 --> 01:00:35.911 candidate for lanreotide in the

NOTE Confidence: 0.752932856666667

01:00:35.911 --> 01:00:37.957 future which can predispose to the

NOTE Confidence: 0.752932856666667

01:00:37.957 --> 01:00:41.080 development of gallstones. Uhm?

NOTE Confidence: 0.752932856666667

01:00:41.080 --> 01:00:43.270 So so a few scenarios.

NOTE Confidence: 0.752932856666667

01:00:43.270 --> 01:00:46.276 So patient presents with an incidental

NOTE Confidence: 0.752932856666667

01:00:46.280 --> 01:00:48.330 finding on cross sectional imaging.

NOTE Confidence: 0.752932856666667

01:00:48.330 --> 01:00:50.244 You know our suggestions are the

NOTE Confidence: 0.752932856666667

01:00:50.244 --> 01:00:52.213 patient should be evaluated by a

NOTE Confidence: 0.752932856666667

01:00:52.213 --> 01:00:53.489 surgical oncologist per section

NOTE Confidence: 0.752932856666667

01:00:53.490 --> 01:00:54.918 the patient presents,

NOTE Confidence: 0.752932856666667

01:00:54.918 --> 01:00:56.822 with an isolated mesenteric

NOTE Confidence: 0.752932856666667

01:00:56.822 --> 01:00:58.672 mass or small bowel mass,

NOTE Confidence: 0.752932856666667

01:00:58.672 --> 01:01:00.730 and the reasons we consider surgery

NOTE Confidence: 0.752932856666667

01:01:00.797 --> 01:01:02.722 are again, it could be diagnostic.

NOTE Confidence: 0.752932856666667

01:01:02.722 --> 01:01:04.362 Sometimes these tumors are not

NOTE Confidence: 0.752932856666667

01:01:04.362 --> 01:01:05.880 always new render consumers,

NOTE Confidence: 0.752932856666667

01:01:05.880 --> 01:01:07.252 but they usually are when we look

NOTE Confidence: 0.752932856666667

01:01:07.252 --> 01:01:08.650 at it with our radiologists,

NOTE Confidence: 0.752932856666667

01:01:08.650 --> 01:01:10.078 but sometimes they're not,

NOTE Confidence: 0.752932856666667

01:01:10.078 --> 01:01:11.863 so it's something to consider.

NOTE Confidence: 0.752932856666667

01:01:11.870 --> 01:01:12.280 In,

NOTE Confidence: 0.752932856666667

01:01:12.280 --> 01:01:14.330 the operation is potentially curative

NOTE Confidence: 0.931561368

01:01:14.330 --> 01:01:15.670 and this is very important.

NOTE Confidence: 0.931561368

01:01:15.670 --> 01:01:17.520 It can avoid future symptoms

NOTE Confidence: 0.931561368

01:01:17.520 --> 01:01:18.630 of bowel obstruction,

NOTE Confidence: 0.931561368

01:01:18.630 --> 01:01:19.722 bleeding or ischaemia,

NOTE Confidence: 0.931561368

01:01:19.722 --> 01:01:21.542 which sometimes happens in these

NOTE Confidence: 0.931561368

01:01:21.542 --> 01:01:23.308 small bells are under primary.

NOTE Confidence: 0.931561368

01:01:23.310 --> 01:01:24.594 Tumors are left alone,

NOTE Confidence: 0.931561368

01:01:24.594 --> 01:01:26.520 so that's an important point to

NOTE Confidence: 0.931561368

01:01:26.585 --> 01:01:28.300 mention and we and we do see

NOTE Confidence: 0.931561368

01:01:28.300 --> 01:01:30.255 that sometime and again with the

NOTE Confidence: 0.931561368

01:01:30.255 --> 01:01:31.960 patient that had an arrangement

NOTE Confidence: 0.931561368

01:01:32.025 --> 01:01:33.819 in which was being observed and

NOTE Confidence: 0.931561368

01:01:33.820 --> 01:01:36.406 so and the patient can present

NOTE Confidence: 0.931561368

01:01:36.406 --> 01:01:38.558 with some symptoms down the road.

NOTE Confidence: 0.931561368

01:01:38.558 --> 01:01:41.399 And of course it can avoid reduced risk.

NOTE Confidence: 0.931561368

01:01:41.400 --> 01:01:43.830 For tests.

NOTE Confidence: 0.931561368

01:01:43.830 --> 01:01:45.745 Another scenario is an asymptomatic

NOTE Confidence: 0.931561368

01:01:45.745 --> 01:01:47.277 primary with distant metastasis,

NOTE Confidence: 0.931561368

01:01:47.280 --> 01:01:49.810 and again this can be.

NOTE Confidence: 0.931561368

01:01:49.810 --> 01:01:52.090 This would suggest to be evaluated

NOTE Confidence: 0.931561368

01:01:52.090 --> 01:01:54.312 by a surgical oncologist and and

NOTE Confidence: 0.931561368

01:01:54.312 --> 01:01:56.208 the reasons for surgery in order

NOTE Confidence: 0.931561368

01:01:56.208 --> 01:01:58.844 to avoid future complications and

NOTE Confidence: 0.931561368

01:01:58.844 --> 01:02:01.516 metastasis and and discomfort.

NOTE Confidence: 0.931561368

01:02:01.520 --> 01:02:02.984 This kind of an approach can

NOTE Confidence: 0.931561368

01:02:02.984 --> 01:02:04.368 still provide a profession free

NOTE Confidence: 0.931561368

01:02:04.368 --> 01:02:05.080 survival advantage.

NOTE Confidence: 0.876315255

01:02:07.990 --> 01:02:10.006 And then and then, if patients.

NOTE Confidence: 0.876315255

01:02:10.010 --> 01:02:11.822 Sometimes patients present symptomatically

NOTE Confidence: 0.876315255

01:02:11.822 --> 01:02:13.634 and impatient that's presenting

NOTE Confidence: 0.876315255

01:02:13.634 --> 01:02:15.304 symptomatically should probably just get

NOTE Confidence: 0.876315255

01:02:15.304 --> 01:02:17.522 to the operating room and be seen by a

NOTE Confidence: 0.876315255

01:02:17.522 --> 01:02:19.028 general surgeon in the local hospital.

NOTE Confidence: 0.876315255

01:02:19.030 --> 01:02:20.640 Because sometimes these patients you

NOTE Confidence: 0.876315255

01:02:20.640 --> 01:02:23.109 know don't have room to be transferred,

NOTE Confidence: 0.876315255

01:02:23.110 --> 01:02:25.036 and they and acute ballot traction

NOTE Confidence: 0.876315255

01:02:25.036 --> 01:02:26.709 should just usually be managed

NOTE Confidence: 0.876315255

01:02:26.709 --> 01:02:28.689 locally and the reasons for this.

NOTE Confidence: 0.876315255

01:02:28.690 --> 01:02:30.975 Of course the obvious it

NOTE Confidence: 0.876315255

01:02:30.975 --> 01:02:32.346 alleviates her symptoms.

NOTE Confidence: 0.876315255

01:02:32.350 --> 01:02:34.285 That it can be diagnosed

NOTE Confidence: 0.876315255

01:02:34.285 --> 01:02:35.833 and be potentially cured.

NOTE Confidence: 0.876315255

01:02:35.840 --> 01:02:38.885 And a patient example here is an

NOTE Confidence: 0.876315255

01:02:38.885 --> 01:02:40.697 asymptomatic patient patient with

NOTE Confidence: 0.876315255

01:02:40.697 --> 01:02:42.837 an asymptomatic small bell NET.

NOTE Confidence: 0.876315255

01:02:42.840 --> 01:02:45.072 This is a 59 year old male who presented

NOTE Confidence: 0.876315255

01:02:45.072 --> 01:02:47.424 with a 4.2 centimeter hyper enhancing

NOTE Confidence: 0.876315255

01:02:47.424 --> 01:02:50.260 mesenteric mass on CT for abdominal pain,

NOTE Confidence: 0.876315255

01:02:50.260 --> 01:02:53.662 which resolved by the time we evaluated

NOTE Confidence: 0.876315255

01:02:53.662 --> 01:02:56.910 him and then this picture shows a CAT scan

NOTE Confidence: 0.876315255

01:02:56.910 --> 01:02:59.655 with a hyper In Sync 4.2 centimeter mass,

NOTE Confidence: 0.876315255

01:02:59.655 --> 01:03:01.605 which we ended up taking to

NOTE Confidence: 0.876315255

01:03:01.605 --> 01:03:03.502 the OR and resecting which is

NOTE Confidence: 0.876315255

01:03:03.502 --> 01:03:05.699 showing all the way in the right.

NOTE Confidence: 0.876315255

01:03:05.700 --> 01:03:09.060 And we did an enbloc small bowel

NOTE Confidence: 0.876315255

01:03:09.060 --> 01:03:11.204 resection with the mesenteric mass

NOTE Confidence: 0.876315255

01:03:11.204 --> 01:03:13.700 and the and the surgical pathology

NOTE Confidence: 0.876315255

01:03:13.774 --> 01:03:15.679 revealed multifocal tumors.

NOTE Confidence: 0.876315255

01:03:15.680 --> 01:03:18.910 Node positive disease without metastasis,

NOTE Confidence: 0.876315255

01:03:18.910 --> 01:03:22.109 and it was a grade one tear.

NOTE Confidence: 0.876315255

01:03:22.110 --> 01:03:22.956 And finally,

NOTE Confidence: 0.876315255

01:03:22.956 --> 01:03:25.494 I'll end this session by submitting

NOTE Confidence: 0.876315255

01:03:25.494 --> 01:03:27.469 metastatic here under consumers.

NOTE Confidence: 0.876315255

01:03:27.470 --> 01:03:28.136 So again,

NOTE Confidence: 0.876315255

01:03:28.136 --> 01:03:29.801 some perspective on things from

NOTE Confidence: 0.876315255

01:03:29.801 --> 01:03:31.384 a surgeon's perspective that so

NOTE Confidence: 0.876315255

01:03:31.384 --> 01:03:32.980 the reason we find this important

NOTE Confidence: 0.876315255

01:03:32.980 --> 01:03:34.489 is because the third patient,

NOTE Confidence: 0.876315255

01:03:34.490 --> 01:03:36.010 present with cysteine metastasis

NOTE Confidence: 0.876315255

01:03:36.010 --> 01:03:37.150 in the liver,

NOTE Confidence: 0.876315255

01:03:37.150 --> 01:03:39.334 happens to be the most common

NOTE Confidence: 0.876315255

01:03:39.334 --> 01:03:40.426 site of metastasis.

NOTE Confidence: 0.876315255

01:03:40.430 --> 01:03:42.098 Metastasis is important because

NOTE Confidence: 0.876315255

01:03:42.098 --> 01:03:44.183 it negatively affects revival as,

NOTE Confidence: 0.876315255

01:03:44.190 --> 01:03:45.156 as we know,

NOTE Confidence: 0.876315255

01:03:45.156 --> 01:03:47.410 and that's the case with all cancers,

NOTE Confidence: 0.876315255

01:03:47.410 --> 01:03:49.330 and there's a increased risk of

NOTE Confidence: 0.876315255

01:03:49.330 --> 01:03:51.145 death compared to an individual

NOTE Confidence: 0.876315255

01:03:51.145 --> 01:03:53.017 that has localized disease.

NOTE Confidence: 0.876315255

01:03:53.020 --> 01:03:54.478 Clinical presentation can

NOTE Confidence: 0.876315255

01:03:54.478 --> 01:03:55.936 include hormonal symptoms,

NOTE Confidence: 0.876315255

01:03:55.940 --> 01:03:57.296 and that's more often the case

NOTE Confidence: 0.876315255

01:03:57.296 --> 01:03:58.700 for small bowel and any tease.

NOTE Confidence: 0.876315255

01:03:58.700 --> 01:04:01.008 This could be diarrhea,

NOTE Confidence: 0.876315255

01:04:01.008 --> 01:04:02.739 wheezing and flushing,

NOTE Confidence: 0.876315255

01:04:02.740 --> 01:04:04.710 and sometimes the patients could

NOTE Confidence: 0.876315255

01:04:04.710 --> 01:04:07.151 have valves are right sided valvular

NOTE Confidence: 0.876315255

01:04:07.151 --> 01:04:09.965 disease which can lead to heart failure.

NOTE Confidence: 0.876315255

01:04:09.970 --> 01:04:11.113 Increase your under.

NOTE Confidence: 0.876315255

01:04:11.113 --> 01:04:12.256 Consumers are important.

NOTE Confidence: 0.876315255

01:04:12.260 --> 01:04:15.690 They're at their often nonfunctional

NOTE Confidence: 0.876315255

01:04:15.690 --> 01:04:18.434 in cases of metastasis.

NOTE Confidence: 0.876315255

01:04:18.440 --> 01:04:20.828 The goal for the arguments supporting

NOTE Confidence: 0.876315255

01:04:20.828 --> 01:04:22.785 surgery for metastatic any teas

NOTE Confidence: 0.876315255

01:04:22.785 --> 01:04:24.543 are the first in the important

NOTE Confidence: 0.876315255

01:04:24.543 --> 01:04:26.606 thing is to control the tumor

NOTE Confidence: 0.876315255

01:04:26.606 --> 01:04:29.428 burden and by respecting ones

NOTE Confidence: 0.876315255

01:04:29.428 --> 01:04:31.198 metastatic neuroendocrine tumors.

NOTE Confidence: 0.876315255

01:04:31.198 --> 01:04:34.093 The progression free survival improves

NOTE Confidence: 0.876315255

01:04:34.093 --> 01:04:37.574 the patients as a whole and you know

NOTE Confidence: 0.876315255

01:04:37.574 --> 01:04:39.842 the literature can show five year

NOTE Confidence: 0.876315255

01:04:39.842 --> 01:04:42.316 overall five year survival up to 74%.

NOTE Confidence: 0.876315255

01:04:42.316 --> 01:04:43.324 That's overall survival,

NOTE Confidence: 0.876315255

01:04:43.324 --> 01:04:45.340 but the important thing to understand

NOTE Confidence: 0.876315255

01:04:45.399 --> 01:04:47.254 is there's a high risk of recurrence.

NOTE Confidence: 0.876315255

01:04:47.260 --> 01:04:49.078 Despite that kind of an approach,

NOTE Confidence: 0.876315255

01:04:49.080 --> 01:04:50.310 so even though I'm talking

NOTE Confidence: 0.876315255

01:04:50.310 --> 01:04:52.060 about 5 year old roll survival,

NOTE Confidence: 0.876315255

01:04:52.060 --> 01:04:54.310 if 74% the recurrence rate

NOTE Confidence: 0.876315255

01:04:54.310 --> 01:04:56.560 is nearly is over 80%.

NOTE Confidence: 0.876315255

01:04:56.560 --> 01:04:57.778 But there is benefit to doing

NOTE Confidence: 0.876315255

01:04:57.778 --> 01:04:58.983 this because it can provide

NOTE Confidence: 0.876315255

01:04:58.983 --> 01:05:00.039 effective symptom control,

NOTE Confidence: 0.876315255

01:05:00.040 --> 01:05:01.468 particularly for functioning tumors.

NOTE Confidence: 0.876315255

01:05:01.468 --> 01:05:03.610 It could prevent or delay the

NOTE Confidence: 0.876315255

01:05:03.667 --> 01:05:05.399 sequelae of carcinoid syndromes.

NOTE Confidence: 0.876315255

01:05:05.400 --> 01:05:07.435 It can improve one's performance

NOTE Confidence: 0.876315255

01:05:07.435 --> 01:05:08.656 status and pain,

NOTE Confidence: 0.876315255

01:05:08.660 --> 01:05:11.516 and this is the case more for

NOTE Confidence: 0.876315255

01:05:11.516 --> 01:05:12.994 nonfunctioning tumors and the number

NOTE Confidence: 0.876315255

01:05:12.994 --> 01:05:14.808 has shifted us to the number of the

NOTE Confidence: 0.876315255

01:05:14.808 --> 01:05:16.664 percent of tumor that we'd like to site,

NOTE Confidence: 0.862897105555556

01:05:16.670 --> 01:05:17.465 or reducing individual.

NOTE Confidence: 0.862897105555556

01:05:17.465 --> 01:05:19.055 And there was a time where.

NOTE Confidence: 0.862897105555556

01:05:19.060 --> 01:05:20.670 We used to think more along the

NOTE Confidence: 0.862897105555556

01:05:20.670 --> 01:05:22.665 lines of 90% but more recent

NOTE Confidence: 0.862897105555556

01:05:22.665 --> 01:05:24.840 literature has suggested that that

NOTE Confidence: 0.862897105555556

01:05:24.840 --> 01:05:26.957 number might be closer to 70%.

NOTE Confidence: 0.862897105555556

01:05:26.960 --> 01:05:28.800 Reduction of the tumor burden,

NOTE Confidence: 0.862897105555556

01:05:28.800 --> 01:05:30.228 and it's important if one can

NOTE Confidence: 0.862897105555556

01:05:30.228 --> 01:05:31.940 have this kind of cytoreduction,

NOTE Confidence: 0.862897105555556

01:05:31.940 --> 01:05:33.935 and we usually try to remove the

NOTE Confidence: 0.862897105555556

01:05:33.935 --> 01:05:35.785 primary tumor in the regional disease

NOTE Confidence: 0.862897105555556

01:05:35.785 --> 01:05:37.872 in this 70% number that I mentioned.

NOTE Confidence: 0.862897105555556

01:05:37.872 --> 01:05:40.503 But even if one does not have their

NOTE Confidence: 0.862897105555556

01:05:40.503 --> 01:05:42.187 primary tumor that's identified.

NOTE Confidence: 0.862897105555556

01:05:42.190 --> 01:05:44.332 One can still consider a cytoreductive

NOTE Confidence: 0.862897105555556

01:05:44.332 --> 01:05:46.856 surgery if greater than 70% of the

NOTE Confidence: 0.862897105555556

01:05:46.856 --> 01:05:48.568 disease burden that's clinically

NOTE Confidence: 0.862897105555556

01:05:48.568 --> 01:05:50.280 present can be addressed.

NOTE Confidence: 0.862897105555556

01:05:50.280 --> 01:05:52.206 And extrahepatic disease is not a

NOTE Confidence: 0.862897105555556

01:05:52.206 --> 01:05:53.490 contraindication to the surgical

NOTE Confidence: 0.862897105555556

01:05:53.543 --> 01:05:54.419 site or reduction.

NOTE Confidence: 0.83799956

01:05:57.110 --> 01:05:59.672 The tools that we use in surgical

NOTE Confidence: 0.83799956

01:05:59.672 --> 01:06:00.770 oncology for Cytoreduction,

NOTE Confidence: 0.83799956

01:06:00.770 --> 01:06:02.135 and I'm focusing a little bit more

NOTE Confidence: 0.83799956

01:06:02.135 --> 01:06:03.475 on the liver because I'm very

NOTE Confidence: 0.83799956

01:06:03.475 --> 01:06:04.875 biased towards the liver and, uh,

NOTE Confidence: 0.83799956

01:06:04.875 --> 01:06:06.310 I like operating the liver and then

NOTE Confidence: 0.83799956

01:06:06.310 --> 01:06:07.735 this ends up being the most one

NOTE Confidence: 0.83799956

01:06:07.735 --> 01:06:09.260 of the most common sites for the

NOTE Confidence: 0.83799956

01:06:09.260 --> 01:06:10.550 most common cited medicine disease.

NOTE Confidence: 0.83799956

01:06:10.550 --> 01:06:12.647 For any tease, we often will try to do

NOTE Confidence: 0.83799956

01:06:12.647 --> 01:06:14.897 what's called prank while sparing resections,

NOTE Confidence: 0.83799956

01:06:14.900 --> 01:06:16.870 because, as I mentioned before,

NOTE Confidence: 0.83799956

01:06:16.870 --> 01:06:19.893 many of these patients were occur and

NOTE Confidence: 0.83799956

01:06:19.893 --> 01:06:22.644 and they can have a longer survival,

NOTE Confidence: 0.83799956

01:06:22.650 --> 01:06:23.987 and they can recur in the liver,

NOTE Confidence: 0.83799956

01:06:23.990 --> 01:06:26.174 so we try to do prank whispering resections.

NOTE Confidence: 0.83799956

01:06:26.180 --> 01:06:27.389 Impossible understanding that.

NOTE Confidence: 0.83799956

01:06:27.389 --> 01:06:29.404 Well, if there's another recurrence

NOTE Confidence: 0.83799956

01:06:29.404 --> 01:06:30.540 down the road,

NOTE Confidence: 0.83799956

01:06:30.540 --> 01:06:32.871 it can allow the patient for a

NOTE Confidence: 0.83799956

01:06:32.871 --> 01:06:34.659 second liver operation or liver

NOTE Confidence: 0.83799956

01:06:34.659 --> 01:06:36.454 directed therapy down the road.

NOTE Confidence: 0.83799956

01:06:36.460 --> 01:06:38.868 But sometimes we do need to perform

NOTE Confidence: 0.83799956

01:06:38.868 --> 01:06:41.245 major head protect me as given the

NOTE Confidence: 0.83799956

01:06:41.245 --> 01:06:43.368 distribution of the testis is sometimes

NOTE Confidence: 0.83799956

01:06:43.368 --> 01:06:46.228 we consider a microwave ablation where

NOTE Confidence: 0.83799956

01:06:46.228 --> 01:06:48.190 we put a probe into the center of the

NOTE Confidence: 0.83799956

01:06:48.248 --> 01:06:50.053 tumor or sometimes our interventional

NOTE Confidence: 0.83799956

01:06:50.053 --> 01:06:51.858 radiology colleagues who are very

NOTE Confidence: 0.83799956

01:06:51.911 --> 01:06:54.141 adept at doing that can do that as well too.

NOTE Confidence: 0.83799956

01:06:54.150 --> 01:06:55.606 And if they can do it in

NOTE Confidence: 0.83799956

01:06:55.606 --> 01:06:56.680 the last invasive fashion,

NOTE Confidence: 0.83799956

01:06:56.680 --> 01:06:57.430 that's always.

NOTE Confidence: 0.83799956

01:06:57.430 --> 01:06:59.652 Investing for the patient and surgical

NOTE Confidence: 0.83799956

01:06:59.652 --> 01:07:01.818 site or rejection should be attempted

NOTE Confidence: 0.83799956

01:07:01.818 --> 01:07:03.957 when it's anatomically feasible and it

NOTE Confidence: 0.83799956

01:07:03.957 --> 01:07:06.650 can be performed with a low morbidity.

NOTE Confidence: 0.83799956

01:07:06.650 --> 01:07:09.849 So I'll end with a patient example,

NOTE Confidence: 0.83799956

01:07:09.850 --> 01:07:12.343 and this is a 62 year old male who,

NOTE Confidence: 0.83799956

01:07:12.343 --> 01:07:13.808 when I had seen him,

NOTE Confidence: 0.83799956

01:07:13.810 --> 01:07:15.665 was five years after the status posted,

NOTE Confidence: 0.83799956

01:07:15.670 --> 01:07:18.005 dissipate protect me for nonfunctioning

NOTE Confidence: 0.83799956

01:07:18.005 --> 01:07:21.536 tankers or under consumer one of his smile.

NOTE Confidence: 0.83799956

01:07:21.536 --> 01:07:23.192 Medical oncologists was surveying

NOTE Confidence: 0.83799956

01:07:23.192 --> 01:07:25.882 him and and identified enlarge.

NOTE Confidence: 0.83799956

01:07:25.882 --> 01:07:28.154 Enlarge incompat exclusions on

NOTE Confidence: 0.83799956

01:07:28.154 --> 01:07:30.620 surveillance cross sectional images.

NOTE Confidence: 0.83799956

01:07:30.620 --> 01:07:32.100 And this doesn't show everything,

NOTE Confidence: 0.83799956

01:07:32.100 --> 01:07:34.636 but this is a patient that had three

NOTE Confidence: 0.83799956

01:07:34.636 --> 01:07:36.726 tumors when we had seen seen him,

NOTE Confidence: 0.83799956

01:07:36.730 --> 01:07:38.698 one in the left lateral liver,

NOTE Confidence: 0.83799956

01:07:38.700 --> 01:07:40.518 one in the left medial liver,

NOTE Confidence: 0.83799956

01:07:40.520 --> 01:07:42.235 and then one in the right liver.

NOTE Confidence: 0.83799956

01:07:42.240 --> 01:07:44.944 And and then we went ahead and we

NOTE Confidence: 0.83799956

01:07:44.944 --> 01:07:47.134 actually needed to do a a major

NOTE Confidence: 0.83799956

01:07:47.134 --> 01:07:49.000 liver section for the left side,

NOTE Confidence: 0.83799956

01:07:49.000 --> 01:07:51.076 and apparently sparing resection on the

NOTE Confidence: 0.83799956

01:07:51.076 --> 01:07:53.640 right side to clear all of the disease.

NOTE Confidence: 0.83799956

01:07:53.640 --> 01:07:56.088 And and we did a cholecystectomy

NOTE Confidence: 0.83799956

01:07:56.088 --> 01:07:58.579 in this case as well too,

NOTE Confidence: 0.83799956

01:07:58.580 --> 01:08:01.052 and the pathology revealed

NOTE Confidence: 0.83799956

01:08:01.052 --> 01:08:02.370 for neuroendocrine tumors,

NOTE Confidence: 0.83799956

01:08:02.370 --> 01:08:04.470 which were identified in the liver,

NOTE Confidence: 0.83799956

01:08:04.470 --> 01:08:06.090 which were well differentiated.

NOTE Confidence: 0.8057071

01:08:08.540 --> 01:08:10.752 So the surgical manager of papers at

NOTE Confidence: 0.8057071

01:08:10.752 --> 01:08:12.110 small bowel neuroendocrine tumors,

NOTE Confidence: 0.8057071

01:08:12.110 --> 01:08:14.770 the incidence is rising.

NOTE Confidence: 0.8057071

01:08:14.770 --> 01:08:17.110 Section of primary neuroendocrine tumors.

NOTE Confidence: 0.8057071

01:08:17.110 --> 01:08:20.057 This clinical benefit and we've shown that,

NOTE Confidence: 0.8057071

01:08:20.060 --> 01:08:21.719 and I've shown that the pancreas for

NOTE Confidence: 0.8057071

01:08:21.719 --> 01:08:23.129 under consumers those non functioning,

NOTE Confidence: 0.8057071

01:08:23.130 --> 01:08:25.415 functioning and for small Val

NOTE Confidence: 0.8057071

01:08:25.415 --> 01:08:27.380 any teas and finally surgical

NOTE Confidence: 0.8057071

01:08:27.380 --> 01:08:29.130 site of reduction for metastatic.

NOTE Confidence: 0.8057071

01:08:29.130 --> 01:08:31.068 Any tease has clinical benefit at

NOTE Confidence: 0.8057071

01:08:31.068 --> 01:08:33.620 greater than 70% of the tumor burden.

NOTE Confidence: 0.8057071

01:08:33.620 --> 01:08:34.410 Which percentage.

NOTE Confidence: 0.8057071

01:08:34.410 --> 01:08:35.580 OK, thank you for your time.

NOTE Confidence: 0.731997347142857

01:08:41.520 --> 01:08:44.145 Thank you to doctors appointment and con.

NOTE Confidence: 0.731997347142857

01:08:44.150 --> 01:08:46.570 Those were both great presentations,

NOTE Confidence: 0.731997347142857

01:08:46.570 --> 01:08:48.802 so I think what we'll try to do is

NOTE Confidence: 0.731997347142857

01:08:48.810 --> 01:08:50.544 tackle some of the questions that

NOTE Confidence: 0.731997347142857

01:08:50.544 --> 01:08:52.748 have come through the chat and I also

NOTE Confidence: 0.731997347142857

01:08:52.748 --> 01:08:54.538 have some questions for the two of

NOTE Confidence: 0.731997347142857

01:08:54.538 --> 01:08:56.288 you and we can have a conversation.

NOTE Confidence: 0.731997347142857

01:08:56.290 --> 01:09:00.586 So one of the the first questions

NOTE Confidence: 0.731997347142857

01:09:00.586 --> 01:09:03.061 that came through is I think this

NOTE Confidence: 0.731997347142857

01:09:03.061 --> 01:09:04.363 was in reference and Doctor Boy

NOTE Confidence: 0.731997347142857

01:09:04.363 --> 01:09:05.987 and maybe I'll direct this to you.

NOTE Confidence: 0.731997347142857

01:09:05.990 --> 01:09:11.640 Is can the Ludo dictate treatment?

NOTE Confidence: 0.731997347142857

01:09:11.640 --> 01:09:16.440 PRT if it started early I'm

NOTE Confidence: 0.731997347142857

01:09:16.440 --> 01:09:19.760 can we achieve cure from this?

NOTE Confidence: 0.731997347142857

01:09:19.760 --> 01:09:23.288 And particularly if the cancer load is low,

NOTE Confidence: 0.731997347142857

01:09:23.290 --> 01:09:24.674 that's I think aspirational,

NOTE Confidence: 0.731997347142857

01:09:24.674 --> 01:09:27.180 but I will allow you to maybe

NOTE Confidence: 0.731997347142857

01:09:27.180 --> 01:09:28.616 comment some on that.

NOTE Confidence: 0.731997347142857

01:09:28.620 --> 01:09:30.396 What are the goals of treatment and in

NOTE Confidence: 0.731997347142857

01:09:30.396 --> 01:09:31.887 what setting do we typically use it?

NOTE Confidence: 0.906368257142857

01:09:33.070 --> 01:09:38.160 Yeah, this is a really great question now.

NOTE Confidence: 0.906368257142857

01:09:38.160 --> 01:09:40.890 The indications for which PRT is

NOTE Confidence: 0.906368257142857

01:09:40.890 --> 01:09:43.738 being used for right now is for.

NOTE Confidence: 0.906368257142857

01:09:43.740 --> 01:09:45.664 For well differentiated tumors,

NOTE Confidence: 0.906368257142857

01:09:45.664 --> 01:09:50.449 and when we do the therapy majority of the

NOTE Confidence: 0.906368257142857

01:09:50.449 --> 01:09:54.880 tumors actually do not decrease in size,

NOTE Confidence: 0.906368257142857

01:09:54.880 --> 01:09:56.836 but it does slow their growth,

NOTE Confidence: 0.906368257142857

01:09:56.840 --> 01:09:58.840 so there's significant improvement

NOTE Confidence: 0.906368257142857

01:09:58.840 --> 01:10:00.780 in progression. Free survival.

NOTE Confidence: 0.906368257142857

01:10:00.780 --> 01:10:04.070 So no, this is not a cure,

NOTE Confidence: 0.906368257142857

01:10:04.070 --> 01:10:07.436 but it does improve symptoms and

NOTE Confidence: 0.906368257142857

01:10:07.436 --> 01:10:11.030 improve survival. In patients.

NOTE Confidence: 0.906368257142857

01:10:11.030 --> 01:10:13.630 So that's for the lutetium.

NOTE Confidence: 0.906368257142857

01:10:13.630 --> 01:10:17.861 We still have a lot of other therapies in in

NOTE Confidence: 0.906368257142857

01:10:17.861 --> 01:10:20.447 the pipeline that we're still evaluating,

NOTE Confidence: 0.906368257142857

01:10:20.450 --> 01:10:22.088 but the goal is not cure.

NOTE Confidence: 0.906368257142857

01:10:22.090 --> 01:10:24.160 The goal is extension of life

NOTE Confidence: 0.906368257142857

01:10:24.160 --> 01:10:25.540 and improvement of symptoms.

NOTE Confidence: 0.864932581428571

01:10:27.300 --> 01:10:29.834 Thank you, there was another question that

NOTE Confidence: 0.864932581428571

01:10:29.834 --> 01:10:32.427 I think perhaps Doctor Khan can answer.

NOTE Confidence: 0.864932581428571

01:10:32.430 --> 01:10:34.509 So and I think you addressed this

NOTE Confidence: 0.864932581428571

01:10:34.509 --> 01:10:37.300 a little bit in the course of your

NOTE Confidence: 0.864932581428571

01:10:37.300 --> 01:10:39.300 presentation such so is it possible

NOTE Confidence: 0.864932581428571

01:10:39.300 --> 01:10:41.840 that we maybe can't find the primary,

NOTE Confidence: 0.864932581428571

01:10:41.840 --> 01:10:44.786 but we do see metastatic disease.

NOTE Confidence: 0.864932581428571

01:10:44.790 --> 01:10:46.923 You touched on that a little bit in the

NOTE Confidence: 0.864932581428571

01:10:46.923 --> 01:10:48.720 course of your surgical indications,

NOTE Confidence: 0.864932581428571

01:10:48.720 --> 01:10:51.450 but maybe you can address that some. Yes,

NOTE Confidence: 0.880437341428571

01:10:51.460 --> 01:10:54.120 yeah, so that's not an uncommon scenario.

NOTE Confidence: 0.880437341428571

01:10:54.120 --> 01:10:57.438 Back spoons, and that's very good question.

NOTE Confidence: 0.880437341428571

01:10:57.440 --> 01:11:00.280 And you know it is all worth it to look

NOTE Confidence: 0.880437341428571

01:11:00.362 --> 01:11:03.210 for the primary tumor and do a thorough

NOTE Confidence: 0.880437341428571

01:11:03.210 --> 01:11:05.478 exhaustive look for the primary tumor.

NOTE Confidence: 0.880437341428571

01:11:05.480 --> 01:11:07.538 However, the primary tumor cannot be found.

NOTE Confidence: 0.880437341428571

01:11:07.540 --> 01:11:09.960 There is benefit towards some.

NOTE Confidence: 0.880437341428571

01:11:09.960 --> 01:11:12.450 If a patient has a resectable

NOTE Confidence: 0.880437341428571

01:11:12.450 --> 01:11:13.280 metastatic disease,

NOTE Confidence: 0.880437341428571

01:11:13.280 --> 01:11:16.236 which could be said or reduced to over 70%,

NOTE Confidence: 0.880437341428571

01:11:16.236 --> 01:11:21.300 and the morbidity is is not very high.

NOTE Confidence: 0.880437341428571

01:11:21.300 --> 01:11:23.238 Uh, I would still recommend

NOTE Confidence: 0.880437341428571

01:11:23.238 --> 01:11:24.686 consideration for surgical cytoreduction

NOTE Confidence: 0.880437341428571

01:11:24.686 --> 01:11:26.498 because of the improvement in

NOTE Confidence: 0.880437341428571

01:11:26.498 --> 01:11:27.878 the professional free survival.

NOTE Confidence: 0.93715871

01:11:29.510 --> 01:11:31.110 And I'll just comment this.

NOTE Confidence: 0.93715871

01:11:31.110 --> 01:11:33.385 You know, entity of unknown primaries is

NOTE Confidence: 0.93715871

01:11:33.385 --> 01:11:35.168 certainly something that we come across,

NOTE Confidence: 0.93715871

01:11:35.170 --> 01:11:37.610 although I will say I think that's less

NOTE Confidence: 0.93715871

01:11:37.610 --> 01:11:40.318 in the era of gallium 68 PET scans.

NOTE Confidence: 0.93715871

01:11:40.318 --> 01:11:42.514 I think we are often identifying

NOTE Confidence: 0.93715871

01:11:42.514 --> 01:11:45.073 the primary a little bit more

NOTE Confidence: 0.93715871

01:11:45.073 --> 01:11:47.092 easily with better imaging so,

NOTE Confidence: 0.93715871

01:11:47.092 --> 01:11:49.846 but we do still see that I have a

NOTE Confidence: 0.93715871

01:11:49.846 --> 01:11:51.206 couple of questions actually there.

NOTE Confidence: 0.93715871

01:11:51.210 --> 01:11:52.641 I think there is one more in the Q&A

NOTE Confidence: 0.93715871

01:11:52.641 --> 01:11:55.692 from the audience, so this is something.

NOTE Confidence: 0.93715871

01:11:55.692 --> 01:11:56.868 Maybe I'll tackle first,

NOTE Confidence: 0.93715871

01:11:56.870 --> 01:11:58.402 but would welcome comments

NOTE Confidence: 0.93715871

01:11:58.402 --> 01:11:59.934 from from my partners.

NOTE Confidence: 0.93715871

01:11:59.940 --> 01:12:02.188 Here, so some cancers,

NOTE Confidence: 0.93715871

01:12:02.188 --> 01:12:03.874 even lung adenocarcinomas,

NOTE Confidence: 0.93715871

01:12:03.880 --> 01:12:05.191 had endocrine secretion.

NOTE Confidence: 0.93715871

01:12:05.191 --> 01:12:07.376 How can we treat that?

NOTE Confidence: 0.93715871

01:12:07.380 --> 01:12:09.444 I didn't personally spend a lot of time

NOTE Confidence: 0.93715871

01:12:09.444 --> 01:12:11.418 talking about how we treat hormone control,

NOTE Confidence: 0.93715871

01:12:11.420 --> 01:12:15.216 but I think for certainly for many

NOTE Confidence: 0.93715871

01:12:15.216 --> 01:12:17.192 patients with neuroendocrine related

NOTE Confidence: 0.93715871

01:12:17.192 --> 01:12:19.919 hormones secretion we the mainstay is

NOTE Confidence: 0.93715871

01:12:19.919 --> 01:12:21.595 really using somatostatin analogs.

NOTE Confidence: 0.93715871

01:12:21.600 --> 01:12:24.084 First they were approved on the

NOTE Confidence: 0.93715871

01:12:24.084 --> 01:12:25.740 basis of controlling hormones,

NOTE Confidence: 0.93715871

01:12:25.740 --> 01:12:27.186 specifically carcinoid syndrome,

NOTE Confidence: 0.93715871

01:12:27.186 --> 01:12:29.596 which is diarrhea and flushing.

NOTE Confidence: 0.93715871

01:12:29.600 --> 01:12:31.406 They are also indicated in some.

NOTE Confidence: 0.93715871

01:12:31.410 --> 01:12:33.470 Other forms of hormones secretion,

NOTE Confidence: 0.93715871

01:12:33.470 --> 01:12:38.178 including gastrinomas and others.

NOTE Confidence: 0.93715871

01:12:38.180 --> 01:12:41.069 But we also try to PSI to reduce or

NOTE Confidence: 0.93715871

01:12:41.069 --> 01:12:44.040 kind of reduce the bulk of the tumor,

NOTE Confidence: 0.93715871

01:12:44.040 --> 01:12:46.932 either through surgery as Doctor Khan

NOTE Confidence: 0.93715871

01:12:46.932 --> 01:12:48.816 indicated or other systemic treatments

NOTE Confidence: 0.93715871

01:12:48.816 --> 01:12:51.559 that have the ability to shrink the tumor.

NOTE Confidence: 0.93715871

01:12:51.560 --> 01:12:54.710 So cytotoxic chemotherapy can do that.

NOTE Confidence: 0.93715871

01:12:54.710 --> 01:12:56.492 Doctor Khan, I think, spoke about

NOTE Confidence: 0.93715871

01:12:56.492 --> 01:12:58.880 some of the like oblated procedures.

NOTE Confidence: 0.93715871

01:12:58.880 --> 01:13:00.903 We often we didn't talk tonight a

NOTE Confidence: 0.93715871

01:13:00.903 --> 01:13:03.019 lot about liver directed treatments,

NOTE Confidence: 0.93715871

01:13:03.020 --> 01:13:05.642 but I think that when patients

NOTE Confidence: 0.93715871

01:13:05.642 --> 01:13:07.136 have secretion of hormones,

NOTE Confidence: 0.93715871

01:13:07.136 --> 01:13:08.544 we really it's tricky.

NOTE Confidence: 0.93715871

01:13:08.550 --> 01:13:10.632 Because we need to think about

NOTE Confidence: 0.93715871

01:13:10.632 --> 01:13:12.448 both managing the hormones and

NOTE Confidence: 0.93715871

01:13:12.448 --> 01:13:13.908 managing the tumor itself.

NOTE Confidence: 0.93715871

01:13:13.910 --> 01:13:14.372 So doctor,

NOTE Confidence: 0.93715871

01:13:14.372 --> 01:13:16.220 can you have any other comments on that?

NOTE Confidence: 0.891338747777778

01:13:17.380 --> 01:13:20.098 Yeah, I know, I think those are why you

NOTE Confidence: 0.891338747777778

01:13:20.098 --> 01:13:23.019 know if if if an individual has a patient.

NOTE Confidence: 0.891338747777778

01:13:23.020 --> 01:13:25.252 If a if a provider has a patient with,

NOTE Confidence: 0.891338747777778

01:13:25.260 --> 01:13:27.410 you know neuroendocrine tumor general,

NOTE Confidence: 0.891338747777778

01:13:27.410 --> 01:13:28.815 but in this specific scenario

NOTE Confidence: 0.891338747777778

01:13:28.815 --> 01:13:30.709 it's good to have them evaluate

NOTE Confidence: 0.891338747777778

01:13:30.709 --> 01:13:32.437 in a multidisciplinary fashion.

NOTE Confidence: 0.891338747777778

01:13:32.440 --> 01:13:33.354 Because surgery.

NOTE Confidence: 0.891338747777778

01:13:33.354 --> 01:13:36.096 I'm not saying everyone needs surgery

NOTE Confidence: 0.891338747777778

01:13:36.100 --> 01:13:38.530 and sometimes systemic options are

NOTE Confidence: 0.891338747777778

01:13:38.530 --> 01:13:40.960 much more effective at controlling

NOTE Confidence: 0.891338747777778

01:13:41.033 --> 01:13:43.638 these symptoms than surgical options.

NOTE Confidence: 0.891338747777778

01:13:43.640 --> 01:13:45.481 And and I think that's why you

NOTE Confidence: 0.891338747777778

01:13:45.481 --> 01:13:47.674 know an active discussion by a

NOTE Confidence: 0.891338747777778

01:13:47.674 --> 01:13:49.018 multidisciplinary tumor board.

NOTE Confidence: 0.891338747777778

01:13:49.020 --> 01:13:51.940 Is it is very beneficial for the patient,

NOTE Confidence: 0.891338747777778

01:13:51.940 --> 01:13:53.636 but you know if if one is able

NOTE Confidence: 0.891338747777778

01:13:53.636 --> 01:13:54.320 to control you,

NOTE Confidence: 0.891338747777778

01:13:54.320 --> 01:13:55.937 know a high burden of disease like

NOTE Confidence: 0.891338747777778

01:13:55.937 --> 01:13:58.034 I threw the number of 70% out there.

NOTE Confidence: 0.891338747777778

01:13:58.034 --> 01:13:59.769 That's that's for surgical literature.

NOTE Confidence: 0.891338747777778

01:13:59.770 --> 01:14:02.080 But I don't know if this is true or not,

NOTE Confidence: 0.891338747777778

01:14:02.080 --> 01:14:04.796 but perhaps that would is true for

NOTE Confidence: 0.891338747777778

01:14:04.796 --> 01:14:06.599 non-surgical approaches as well too.

NOTE Confidence: 0.891338747777778

01:14:06.600 --> 01:14:08.126 And I think if we're able to

NOTE Confidence: 0.891338747777778

01:14:08.126 --> 01:14:09.652 address the source of where the

NOTE Confidence: 0.891338747777778

01:14:09.652 --> 01:14:11.017 hormones are being separated from,

NOTE Confidence: 0.891338747777778

01:14:11.020 --> 01:14:12.352 we could probably really provide some

NOTE Confidence: 0.891338747777778

01:14:12.352 --> 01:14:13.730 good clinical abilities to our patients.

NOTE Confidence: 0.863501954

01:14:14.650 --> 01:14:16.130 Right, right now I agree.

NOTE Confidence: 0.863501954

01:14:16.130 --> 01:14:17.228 Good doctor Brian.

NOTE Confidence: 0.863501954

01:14:17.228 --> 01:14:20.268 I have a question that comes up almost

NOTE Confidence: 0.863501954

01:14:20.268 --> 01:14:22.680 in many of my patient interactions

NOTE Confidence: 0.863501954

01:14:22.680 --> 01:14:25.408 and also when I'm teaching trainees

NOTE Confidence: 0.863501954

01:14:25.408 --> 01:14:28.288 this actually just came up yesterday.

NOTE Confidence: 0.863501954

01:14:28.290 --> 01:14:31.908 How do we interpret SUV on Gallium 68 pet?

NOTE Confidence: 0.863501954

01:14:31.910 --> 01:14:34.166 Should we pay attention to it?

NOTE Confidence: 0.863501954

01:14:34.170 --> 01:14:35.305 Is it different than how

NOTE Confidence: 0.863501954

01:14:35.305 --> 01:14:36.440 we think about FDG pet?

NOTE Confidence: 0.81888439

01:14:38.570 --> 01:14:40.598 Oh yeah, that's a great question.

NOTE Confidence: 0.81888439

01:14:40.600 --> 01:14:43.302 It's a we can give a whole

NOTE Confidence: 0.81888439

01:14:43.302 --> 01:14:46.330 lecture tracer uptake,

NOTE Confidence: 0.81888439

01:14:46.330 --> 01:14:49.753 so I would I would think too.

NOTE Confidence: 0.81888439

01:14:49.753 --> 01:14:52.434 I I do recommend to, so it's a.

NOTE Confidence: 0.81888439

01:14:52.434 --> 01:14:54.762 It's a general unit of Tracer

NOTE Confidence: 0.81888439

01:14:54.762 --> 01:14:56.387 update that's generalized

NOTE Confidence: 0.81888439

01:14:56.387 --> 01:14:58.695 to patient body weight.

NOTE Confidence: 0.81888439

01:14:58.700 --> 01:15:00.430 But the the big issue?

NOTE Confidence: 0.780661641111111

01:15:04.760 --> 01:15:07.704 Hope we lost Doctor Abovyan there for a

NOTE Confidence: 0.780661641111111

01:15:07.704 --> 01:15:09.480 moment. So hopefully she will be back.

NOTE Confidence: 0.780661641111111

01:15:09.480 --> 01:15:11.650 I can text her, we technical issues.

NOTE Confidence: 0.57515877125

01:15:13.120 --> 01:15:14.400 Related to the tax, there will be a

NOTE Confidence: 0.789410134

01:15:15.140 --> 01:15:16.540 doctor boy and we lost you for

NOTE Confidence: 0.789410134

01:15:16.540 --> 01:15:18.955 just a minute. Maybe you can

NOTE Confidence: 0.789410134

01:15:18.955 --> 01:15:20.730 repeat the last portion of that.

NOTE Confidence: 0.813835244444445

01:15:21.500 --> 01:15:24.076 Oh sorry, I was having Internet connectivity

NOTE Confidence: 0.813835244444445

01:15:24.076 --> 01:15:26.556 issues so so in terms of that SUV is

NOTE Confidence: 0.813835244444445

01:15:26.556 --> 01:15:29.230 it's a it's a way to measure tracer

NOTE Confidence: 0.813835244444445

01:15:29.230 --> 01:15:31.620 uptake normalized to patient body weight.

NOTE Confidence: 0.813835244444445

01:15:31.620 --> 01:15:35.420 And it is a semi quantitative that measure.

NOTE Confidence: 0.813835244444445

01:15:35.420 --> 01:15:37.886 Now there's a whole field of

NOTE Confidence: 0.813835244444445

01:15:37.886 --> 01:15:40.054 quantitative pet that requires very

NOTE Confidence: 0.813835244444445

01:15:40.054 --> 01:15:41.398 complex mathematical modeling.

NOTE Confidence: 0.813835244444445

01:15:41.400 --> 01:15:43.016 And here at EO.

NOTE Confidence: 0.813835244444445

01:15:43.016 --> 01:15:46.110 Under the guidance of Doctor Rich Carson,

NOTE Confidence: 0.813835244444445

01:15:46.110 --> 01:15:47.052 their leader leaders,

NOTE Confidence: 0.813835244444445

01:15:47.052 --> 01:15:49.250 they go pet center in quantitative PET

NOTE Confidence: 0.813835244444445

01:15:49.312 --> 01:15:51.181 imaging and we're still trying to figure

NOTE Confidence: 0.813835244444445

01:15:51.181 --> 01:15:53.297 out how to apply to clinical practice

NOTE Confidence: 0.813835244444445

01:15:53.297 --> 01:15:55.473 because it's not used in clinical practice.

NOTE Confidence: 0.813835244444445

01:15:55.473 --> 01:15:58.020 But as UV is kind of a poor man's

NOTE Confidence: 0.813835244444445

01:15:58.094 --> 01:16:00.350 approach to try to quantitate so

NOTE Confidence: 0.813835244444445

01:16:00.350 --> 01:16:02.450 it's a semi quantitative measure,

NOTE Confidence: 0.813835244444445

01:16:02.450 --> 01:16:05.033 but I would really focus on looking

NOTE Confidence: 0.813835244444445

01:16:05.033 --> 01:16:08.227 at the CVS within a specific tracer.

NOTE Confidence: 0.813835244444445

01:16:08.230 --> 01:16:10.582 So if you're going to compare

NOTE Confidence: 0.813835244444445

01:16:10.582 --> 01:16:11.857 SUV values only,

NOTE Confidence: 0.813835244444445

01:16:11.857 --> 01:16:14.779 compare them between gallium dotate scan.

NOTE Confidence: 0.813835244444445

01:16:14.780 --> 01:16:16.530 Don't compare them between gallium

NOTE Confidence: 0.813835244444445

01:16:16.530 --> 01:16:19.304 dotate and don't talk or gallium dotate,

NOTE Confidence: 0.813835244444445

01:16:19.304 --> 01:16:21.136 and if you're so,

NOTE Confidence: 0.813835244444445

01:16:21.140 --> 01:16:22.958 if you have a patient that's

NOTE Confidence: 0.813835244444445

01:16:22.958 --> 01:16:24.480 being imaged with MTG pad,

NOTE Confidence: 0.813835244444445

01:16:24.480 --> 01:16:27.980 then you can compare the SUV values.

NOTE Confidence: 0.813835244444445

01:16:27.980 --> 01:16:30.330 But if you're patient change

NOTE Confidence: 0.813835244444445

01:16:30.330 --> 01:16:32.200 significantly so supposedly lost a

NOTE Confidence: 0.813835244444445

01:16:32.200 --> 01:16:34.800 lot of weight in between the scans,

NOTE Confidence: 0.813835244444445

01:16:34.800 --> 01:16:37.488 then you have to be really careful

NOTE Confidence: 0.813835244444445

01:16:37.490 --> 01:16:39.795 and usually in nuclear medicine

NOTE Confidence: 0.813835244444445

01:16:39.795 --> 01:16:42.100 when we do the reports,

NOTE Confidence: 0.813835244444445

01:16:42.100 --> 01:16:43.655 we do mention the numbers

NOTE Confidence: 0.813835244444445

01:16:43.655 --> 01:16:44.899 'cause everybody wants some.

NOTE Confidence: 0.813835244444445

01:16:44.900 --> 01:16:45.310 Connotation,

NOTE Confidence: 0.813835244444445

01:16:45.310 --> 01:16:48.590 but we do try to use language as

NOTE Confidence: 0.813835244444445

01:16:48.590 --> 01:16:51.734 well because it is it's it is

NOTE Confidence: 0.813835244444445

01:16:51.734 --> 01:16:53.502 a semi quantitative analysis.

NOTE Confidence: 0.860811624

01:16:54.680 --> 01:16:58.150 Thank you, yeah that's helpful.

NOTE Confidence: 0.860811624

01:16:58.150 --> 01:17:00.180 Doctor Khan I have a question that

NOTE Confidence: 0.860811624

01:17:00.180 --> 01:17:02.350 comes up a lot in tumor board.

NOTE Confidence: 0.860811624

01:17:02.350 --> 01:17:04.060 You know, I think I'd

NOTE Confidence: 0.860811624

01:17:04.060 --> 01:17:06.090 love to hear from you of.

NOTE Confidence: 0.860811624

01:17:06.090 --> 01:17:08.418 Are there situations or or notable

NOTE Confidence: 0.860811624

01:17:08.418 --> 01:17:09.970 situations where you're like?

NOTE Confidence: 0.860811624

01:17:09.970 --> 01:17:12.126 Gosh, I really wish I saw this

NOTE Confidence: 0.860811624

01:17:12.126 --> 01:17:13.648 patient earlier, like when?

NOTE Confidence: 0.860811624

01:17:13.648 --> 01:17:16.342 When should medical oncologists or surgeons

NOTE Confidence: 0.860811624

01:17:16.342 --> 01:17:19.968 in the community be thinking about surgery?

NOTE Confidence: 0.860811624

01:17:19.970 --> 01:17:21.300 When should it be on their radar?

NOTE Confidence: 0.860811624

01:17:21.300 --> 01:17:23.256 I'd say specifically for metastatic disease.

NOTE Confidence: 0.860811624

01:17:24.250 --> 01:17:27.260 OK, you know

NOTE Confidence: 0.842575879166667

01:17:27.260 --> 01:17:28.982 the first. Maybe I can also answer

NOTE Confidence: 0.842575879166667

01:17:28.982 --> 01:17:30.749 one about non metastatic disease.

NOTE Confidence: 0.842575879166667

01:17:30.750 --> 01:17:33.542 Some you know. I think if one identifies

NOTE Confidence: 0.842575879166667

01:17:33.542 --> 01:17:35.309 a hypervascular mesenteric mass,

NOTE Confidence: 0.842575879166667

01:17:35.310 --> 01:17:37.145 I would consider that I

NOTE Confidence: 0.842575879166667

01:17:37.145 --> 01:17:38.549 wouldn't just sit on it.

NOTE Confidence: 0.842575879166667

01:17:38.549 --> 01:17:39.887 I would consider sending it to

NOTE Confidence: 0.842575879166667

01:17:39.887 --> 01:17:41.397 one of the surgical oncology,

NOTE Confidence: 0.842575879166667

01:17:41.400 --> 01:17:42.891 or at least one of the general

NOTE Confidence: 0.842575879166667

01:17:42.891 --> 01:17:44.048 surgeon to evaluate for for it,

NOTE Confidence: 0.842575879166667

01:17:44.050 --> 01:17:44.962 because you know,

NOTE Confidence: 0.842575879166667

01:17:44.962 --> 01:17:47.942 every so often we do see a patient that

NOTE Confidence: 0.842575879166667

01:17:47.942 --> 01:17:50.557 has had this followed a cross sectional

NOTE Confidence: 0.842575879166667

01:17:50.557 --> 01:17:52.651 imaging and then presents with you

NOTE Confidence: 0.842575879166667

01:17:52.651 --> 01:17:55.014 know some sort of a problem with the.

NOTE Confidence: 0.842575879166667

01:17:55.020 --> 01:17:56.680 Primary small bowel related issue.

NOTE Confidence: 0.842575879166667

01:17:56.680 --> 01:17:59.040 Whether it's this kimia infarct

NOTE Confidence: 0.842575879166667

01:17:59.040 --> 01:18:00.714 or balance truction and then it

NOTE Confidence: 0.842575879166667

01:18:00.714 --> 01:18:02.840 becomes more of an emerging problem.

NOTE Confidence: 0.842575879166667

01:18:02.840 --> 01:18:04.478 And it's something that I probably

NOTE Confidence: 0.842575879166667

01:18:04.478 --> 01:18:06.644 could be less of a bigger operation

NOTE Confidence: 0.842575879166667

01:18:06.644 --> 01:18:08.660 for metastatic disease as well too.

NOTE Confidence: 0.842575879166667

01:18:08.660 --> 01:18:09.718 So actually,

NOTE Confidence: 0.842575879166667

01:18:09.718 --> 01:18:13.421 the last patient I presented was being

NOTE Confidence: 0.842575879166667

01:18:13.421 --> 01:18:16.536 followed for awhile because the the

NOTE Confidence: 0.842575879166667

01:18:16.536 --> 01:18:19.605 tumors were were visible and I had

NOTE Confidence: 0.842575879166667

01:18:19.605 --> 01:18:22.090 given a talk on liver metastasis about.

NOTE Confidence: 0.842575879166667

01:18:22.090 --> 01:18:24.136 You know around that time and

NOTE Confidence: 0.842575879166667

01:18:24.136 --> 01:18:25.830 then the the individual who.

NOTE Confidence: 0.842575879166667

01:18:25.830 --> 01:18:27.918 Caring for that patient was didn't

NOTE Confidence: 0.842575879166667

01:18:27.918 --> 01:18:29.310 realize that surgical options

NOTE Confidence: 0.842575879166667

01:18:29.370 --> 01:18:30.950 and options for that patient,

NOTE Confidence: 0.842575879166667

01:18:30.950 --> 01:18:33.712 so I think if a patient is known to

NOTE Confidence: 0.842575879166667

01:18:33.712 --> 01:18:35.956 have a neuroendocrine tumor and perhaps

NOTE Confidence: 0.842575879166667

01:18:35.956 --> 01:18:37.990 present was the liver metastases,

NOTE Confidence: 0.842575879166667

01:18:37.990 --> 01:18:39.684 I think it's worth it for that

NOTE Confidence: 0.842575879166667

01:18:39.684 --> 01:18:41.921 patient to be seen by GI medical

NOTE Confidence: 0.842575879166667

01:18:41.921 --> 01:18:43.377 oncologist or surgical oncologist.

NOTE Confidence: 0.842575879166667

01:18:43.380 --> 01:18:46.832 Because I do think that we can

NOTE Confidence: 0.842575879166667

01:18:46.832 --> 01:18:48.537 provide a good progression free

NOTE Confidence: 0.842575879166667

01:18:48.537 --> 01:18:50.217 survival benefit for most patients

NOTE Confidence: 0.842575879166667

01:18:50.217 --> 01:18:51.993 in that kind of a scenario.

NOTE Confidence: 0.842575879166667

01:18:52.000 --> 01:18:55.276 If with a good multidisciplinary approach.

NOTE Confidence: 0.9469452

01:18:57.760 --> 01:19:00.726 Great thank you and doctor Brian.

NOTE Confidence: 0.9469452

01:19:00.726 --> 01:19:03.998 Maybe I'll ask you one one more and sort of.

NOTE Confidence: 0.9469452

01:19:03.998 --> 01:19:05.894 I'd say a really exciting direction

NOTE Confidence: 0.9469452

01:19:05.894 --> 01:19:07.985 and something you and I are

NOTE Confidence: 0.9469452

01:19:07.985 --> 01:19:09.690 partnering on is really thinking

NOTE Confidence: 0.9469452

01:19:09.753 --> 01:19:11.517 about a theranostics program.

NOTE Confidence: 0.9469452

01:19:11.520 --> 01:19:14.409 Can you speak to how you think the field

NOTE Confidence: 0.9469452

01:19:14.409 --> 01:19:18.454 is changing and how we are likely to see

NOTE Confidence: 0.9469452

01:19:18.454 --> 01:19:21.120 the development of theranostics programs?

NOTE Confidence: 0.9469452

01:19:21.120 --> 01:19:23.180 Sort of in multiple locations,

NOTE Confidence: 0.9469452

01:19:23.180 --> 01:19:24.680 but maybe the value of that.

NOTE Confidence: 0.9469452

01:19:24.680 --> 01:19:26.912 What that means and and sort of how

NOTE Confidence: 0.9469452

01:19:26.912 --> 01:19:28.648 nuclear medicine docs are going to be.

NOTE Confidence: 0.9469452

01:19:28.650 --> 01:19:30.010 Providing direct patient care.

NOTE Confidence: 0.888517102

01:19:31.560 --> 01:19:32.712 Oh, thank you. Yes,

NOTE Confidence: 0.888517102

01:19:32.712 --> 01:19:34.818 this is a very exciting field and

NOTE Confidence: 0.888517102

01:19:34.818 --> 01:19:37.002 I just came back from Society of

NOTE Confidence: 0.888517102

01:19:37.002 --> 01:19:39.278 Nuclear Medicine and Molecular Imaging

NOTE Confidence: 0.888517102

01:19:39.278 --> 01:19:41.513 Therapeutics conference where we met

NOTE Confidence: 0.888517102

01:19:41.513 --> 01:19:43.859 for several days and talked about

NOTE Confidence: 0.888517102

01:19:43.859 --> 01:19:46.994 how different sites across USA are

NOTE Confidence: 0.888517102

01:19:46.994 --> 01:19:49.654 starting the theranostics centers and

NOTE Confidence: 0.888517102

01:19:49.737 --> 01:19:52.090 their layout plans and how they're

NOTE Confidence: 0.888517102

01:19:52.090 --> 01:19:53.980 going to be treating the patients.

NOTE Confidence: 0.888517102

01:19:53.980 --> 01:19:56.380 And this is really changing

NOTE Confidence: 0.888517102

01:19:56.380 --> 01:19:58.300 radiology and nuclear medicine.

NOTE Confidence: 0.888517102

01:19:58.300 --> 01:20:00.620 We are now going back to senior patients.

NOTE Confidence: 0.888517102

01:20:00.620 --> 01:20:02.530 We're now we're now becoming.

NOTE Confidence: 0.888517102

01:20:02.530 --> 01:20:05.242 Parts of teams with oncologists and

NOTE Confidence: 0.888517102

01:20:05.242 --> 01:20:07.546 surgeons and really practicing together

NOTE Confidence: 0.888517102

01:20:07.546 --> 01:20:10.472 and with radiation oncology as well and

NOTE Confidence: 0.888517102

01:20:10.472 --> 01:20:12.835 we're really practicing together as a

NOTE Confidence: 0.888517102

01:20:12.835 --> 01:20:16.536 team in terms of taking care of patients.

NOTE Confidence: 0.888517102

01:20:16.536 --> 01:20:20.166 There's sites where patient is being

NOTE Confidence: 0.888517102

01:20:20.166 --> 01:20:23.330 seen by their GI oncologist and followed

NOTE Confidence: 0.888517102

01:20:23.410 --> 01:20:26.578 up by a visit with nuclear medicine Doc

NOTE Confidence: 0.888517102

01:20:26.578 --> 01:20:29.764 to discuss PRRT and the specifics of

NOTE Confidence: 0.888517102

01:20:29.764 --> 01:20:33.545 radiation based therapy radionuclide.

NOTE Confidence: 0.888517102

01:20:33.545 --> 01:20:36.510 Therapy and that really helps patients

NOTE Confidence: 0.888517102

01:20:36.510 --> 01:20:38.370 in terms of understanding what

NOTE Confidence: 0.888517102

01:20:38.432 --> 01:20:40.514 they're going to be undergoing and

NOTE Confidence: 0.888517102

01:20:40.514 --> 01:20:42.580 their side effects and the risks.

NOTE Confidence: 0.888517102

01:20:42.580 --> 01:20:44.008 The nuclear medicine physicians

NOTE Confidence: 0.888517102

01:20:44.008 --> 01:20:46.150 are following up on the patients

NOTE Confidence: 0.888517102

01:20:46.212 --> 01:20:47.997 and are involved in in the care.

NOTE Confidence: 0.888517102

01:20:48.000 --> 01:20:50.532 So another thing that's really helpful

NOTE Confidence: 0.888517102

01:20:50.532 --> 01:20:53.277 is that we're starting to combine

NOTE Confidence: 0.888517102

01:20:53.277 --> 01:20:55.241 chemotherapy with radionuclide therapy

NOTE Confidence: 0.888517102

01:20:55.241 --> 01:20:58.909 and trials and trying to see how we can

NOTE Confidence: 0.888517102

01:20:58.909 --> 01:21:00.758 improve the efficacy of these therapies.

NOTE Confidence: 0.888517102

01:21:00.758 --> 01:21:02.284 And the only way to do it

NOTE Confidence: 0.888517102

01:21:02.284 --> 01:21:03.509 is to work together.

NOTE Confidence: 0.888517102

01:21:03.510 --> 01:21:06.156 So it's a really exciting team

NOTE Confidence: 0.888517102

01:21:06.156 --> 01:21:07.920 based approach that's happening

NOTE Confidence: 0.888517102

01:21:07.996 --> 01:21:10.642 across the country and it's it's

NOTE Confidence: 0.888517102

01:21:10.642 --> 01:21:12.406 really gonna change radiology

NOTE Confidence: 0.888517102

01:21:12.410 --> 01:21:14.958 and how we care for our patients.

NOTE Confidence: 0.71732502

01:21:17.160 --> 01:21:18.500 Not very exciting, I think.

NOTE Confidence: 0.71732502

01:21:18.500 --> 01:21:20.840 Lots of opportunities for asking for

NOTE Confidence: 0.71732502

01:21:20.840 --> 01:21:22.803 for both providing really excellent

NOTE Confidence: 0.71732502

01:21:22.803 --> 01:21:25.134 patient care and I think you know

NOTE Confidence: 0.71732502

01:21:25.134 --> 01:21:27.606 one thing we can speak to is really

NOTE Confidence: 0.71732502

01:21:27.606 --> 01:21:28.962 the importance of multidisciplinary

NOTE Confidence: 0.71732502

01:21:28.962 --> 01:21:31.158 care for the care of these patients.

NOTE Confidence: 0.71732502

01:21:31.160 --> 01:21:33.352 I think the intent was to have three

NOTE Confidence: 0.71732502

01:21:33.352 --> 01:21:34.430 different disciplines represented on

NOTE Confidence: 0.71732502

01:21:34.430 --> 01:21:36.117 on this panel tonight and I think

NOTE Confidence: 0.71732502

01:21:36.117 --> 01:21:37.820 we all certainly work together and

NOTE Confidence: 0.71732502

01:21:37.820 --> 01:21:41.360 caring for our patients with Nets.

NOTE Confidence: 0.71732502

01:21:41.360 --> 01:21:43.064 So I think what we can do is

NOTE Confidence: 0.71732502

01:21:43.064 --> 01:21:44.150 I don't see other.

NOTE Confidence: 0.71732502

01:21:44.150 --> 01:21:45.613 I don't know if Doctor Boyd or

NOTE Confidence: 0.71732502

01:21:45.613 --> 01:21:47.082 Doctor Khan you had any other

NOTE Confidence: 0.71732502

01:21:47.082 --> 01:21:48.402 burning questions for each other

NOTE Confidence: 0.71732502

01:21:48.402 --> 01:21:49.748 or anything that has come up.

NOTE Confidence: 0.917837738181818

01:21:52.530 --> 01:21:55.122 If not, I really want to thank the

NOTE Confidence: 0.917837738181818

01:21:55.122 --> 01:21:57.970 two of you. Certainly for your time

NOTE Confidence: 0.917837738181818

01:21:57.970 --> 01:21:59.770 and and excellent presentations,

NOTE Confidence: 0.917837738181818

01:21:59.770 --> 01:22:02.052 I want to thank our audience for

NOTE Confidence: 0.917837738181818

01:22:02.052 --> 01:22:04.498 their time and and listing tonight.

NOTE Confidence: 0.917837738181818

01:22:04.500 --> 01:22:06.426 This will. This has been recorded

NOTE Confidence: 0.917837738181818

01:22:06.426 --> 01:22:09.005 so we will make this available to

NOTE Confidence: 0.917837738181818

01:22:09.005 --> 01:22:12.600 the Community and stay tuned for our

NOTE Confidence: 0.917837738181818

01:22:12.600 --> 01:22:15.762 future GCM E series in April and May.

NOTE Confidence: 0.917837738181818

01:22:15.762 --> 01:22:17.160 We will promote those and hope

NOTE Confidence: 0.917837738181818

01:22:17.210 --> 01:22:18.904 that some of you will listen again.

NOTE Confidence: 0.917837738181818

01:22:18.910 --> 01:22:21.998 So thank you and have a wonderful evening.