WEBVTT

00:00:00.000 --> 00:00:02.172 Funding for Yale Cancer Answers is

NOTE Confidence: 0.928890374545454

00:00:02.172 --> 00:00:04.240 provided by Smilow Cancer Hospital.

NOTE Confidence: 0.829373954444444

00:00:06.480 --> 00:00:08.680 Welcome to Yale Cancer Answers

NOTE Confidence: 0.829373954444444

00:00:08.680 --> 00:00:10.440 with Doctor Anees Chagpar.

NOTE Confidence: 0.829373954444444

00:00:10.440 --> 00:00:12.245 Yale Cancer Answers features the

NOTE Confidence: 0.829373954444444

00:00:12.245 --> 00:00:14.050 latest information on cancer care

NOTE Confidence: 0.829373954444444

00:00:14.107 --> 00:00:15.527 by welcoming oncologists and

NOTE Confidence: 0.829373954444444

00:00:15.527 --> 00:00:17.657 specialists who are on the forefront

NOTE Confidence: 0.829373954444444

00:00:17.718 --> 00:00:19.356 of the battle to fight cancer.

NOTE Confidence: 0.829373954444444

00:00:19.360 --> 00:00:21.635 This week it's a conversation about the

NOTE Confidence: 0.829373954444444

00:00:21.635 --> 00:00:23.969 evolution of HIPEC and the treatment

NOTE Confidence: 0.829373954444444

00:00:23.969 --> 00:00:25.919 of cancer with Doctor Kiran Turaga.

NOTE Confidence: 0.829373954444444

00:00:25.920 --> 00:00:27.996 Doctor Turaga is a professor and

NOTE Confidence: 0.829373954444444

00:00:27.996 --> 00:00:29.798 division chief of surgical oncology

NOTE Confidence: 0.829373954444444

00:00:29.798 --> 00:00:31.910 at the Yale School of Medicine

NOTE Confidence: 0.829373954444444

00:00:31.910 --> 00:00:34.063 where Doctor Chagpar is also a

NOTE Confidence: 0.829373954444444

00:00:34.063 --> 00:00:35.439 professor of surgical oncology.

NOTE Confidence: 0.93400507826087

00:00:36.440 --> 00:00:38.141 Dr. Turaga, maybe we can start off

NOTE Confidence: 0.93400507826087

00:00:38.141 --> 00:00:40.086 by you telling us a little bit more

NOTE Confidence: 0.93400507826087

00:00:40.086 --> 00:00:41.799 about yourself and what it is you do.

00:00:43.075 --> 00:00:45.000 I'm a surgical oncologist,

NOTE Confidence: 0.8076207925

00:00:45.000 --> 00:00:47.316 which means I'm a cancer surgeon,

NOTE Confidence: 0.8076207925

00:00:47.320 --> 00:00:49.180 cancer first, surgeon second.

NOTE Confidence: 0.8076207925

00:00:49.180 --> 00:00:51.505 But I use surgical techniques

NOTE Confidence: 0.8076207925

00:00:51.505 --> 00:00:54.202 to remove cancers and my

NOTE Confidence: 0.8076207925

00:00:54.202 --> 00:00:56.848 focus has always been on cancers

NOTE Confidence: 0.8076207925

00:00:56.848 --> 00:00:59.199 that spread or are advanced.

NOTE Confidence: 0.8076207925

00:00:59.200 --> 00:01:00.250 Typically these cancers

NOTE Confidence: 0.8076207925

00:01:00.250 --> 00:01:02.000 are called Stage 4 cancers.

NOTE Confidence: 0.8076207925

00:01:02.000 --> 00:01:04.940 And my desire has been to

NOTE Confidence: 0.8076207925

00:01:04.940 --> 00:01:07.546 see how best we can treat these

NOTE Confidence: 0.8076207925

00:01:07.546 --> 00:01:09.111 cancers and potentially lead to

NOTE Confidence: 0.8076207925

00:01:09.111 --> 00:01:11.039 cures even in stage 4 settings.

NOTE Confidence: 0.848949683529412

00:01:12.080 --> 00:01:13.910 You know, it's interesting

NOTE Confidence: 0.848949683529412

00:01:13.910 --> 00:01:16.166 that you start in that way

NOTE Confidence: 0.848949683529412

00:01:16.166 --> 00:01:18.278 because

NOTE Confidence: 0.848949683529412

00:01:18.280 --> 00:01:20.328 you said a couple of things that

NOTE Confidence: 0.848949683529412

00:01:20.328 --> 00:01:22.316 really tweaked my interest.

NOTE Confidence: 0.848949683529412

00:01:22.320 --> 00:01:24.730 First, you said cancer first, surgery 2nd.

NOTE Confidence: 0.848949683529412

00:01:24.730 --> 00:01:26.800 And the second thing you said

NOTE Confidence: 0.848949683529412

00:01:26.800 --> 00:01:29.524 which was of interest was the fact

NOTE Confidence: 0.848949683529412

00:01:29.524 --> 00:01:31.484 that you're interested in advanced

NOTE Confidence: 0.848949683529412

00:01:31.553 --> 00:01:33.878 cancers and metastatic cancers.

NOTE Confidence: 0.848949683529412

00:01:33.880 --> 00:01:35.980 For most cancers that we deal

NOTE Confidence: 0.848949683529412

00:01:35.980 --> 00:01:38.740 with most of the time surgery is

NOTE Confidence: 0.848949683529412

00:01:38.740 --> 00:01:40.880 limited to the early setting.

NOTE Confidence: 0.848949683529412

00:01:40.880 --> 00:01:44.160 So can you talk a little bit about

NOTE Confidence: 0.848949683529412

00:01:44.160 --> 00:01:46.692 how you got interested in advanced

NOTE Confidence: 0.848949683529412

00:01:46.692 --> 00:01:48.824 and metastatic cancers even though

NOTE Confidence: 0.848949683529412

00:01:48.824 --> 00:01:51.442 you're a surgeon or did that interest

NOTE Confidence: 0.848949683529412

00:01:51.442 --> 00:01:54.047 in surgery come after the interest

NOTE Confidence: 0.848949683529412

00:01:54.047 --> 00:01:56.277 in advanced and metastatic cancers?

NOTE Confidence: 0.895549409130435

00:01:57.120 --> 00:01:58.240 That's a great question.

NOTE Confidence: 0.895549409130435

00:01:58.240 --> 00:02:00.313 And my evolution

NOTE Confidence: 0.895549409130435

00:02:00.313 --> 00:02:02.305 and interest of both cancer and

NOTE Confidence: 0.895549409130435

00:02:02.305 --> 00:02:04.360 surgery was sort of parallel.

NOTE Confidence: 0.895549409130435

00:02:04.360 --> 00:02:05.480 You know, I've personally

NOTE Confidence: 0.895549409130435

00:02:05.480 --> 00:02:06.600 been affected by cancer.

NOTE Confidence: 0.895549409130435

00:02:06.600 --> 00:02:08.400 My grandfather died of lung cancer,

NOTE Confidence: 0.895549409130435

00:02:08.400 --> 00:02:09.798 my dad died of liver cancer.

NOTE Confidence: 0.895549409130435

00:02:09.800 --> 00:02:14.288 And so there's certainly

NOTE Confidence: 0.895549409130435

00:02:14.288 --> 00:02:16.536 a significant personal commitment

NOTE Confidence: 0.895549409130435

00:02:16.536 --> 00:02:19.640 to wanting to do better for cancer.

NOTE Confidence: 0.895549409130435

00:02:19.640 --> 00:02:21.075 I like doing things with my hands.

NOTE Confidence: 0.895549409130435

00:02:21.080 --> 00:02:23.960 In fact, for the longest time I wanted to be

NOTE Confidence: 0.895549409130435

00:02:23.960 --> 00:02:26.960 a medical doctor like an oncologist.

NOTE Confidence: 0.895549409130435

00:02:26.960 --> 00:02:28.856 And then when I started doing

NOTE Confidence: 0.895549409130435

00:02:28.856 --> 00:02:30.120 my rotations in surgery,

NOTE Confidence: 0.895549409130435

00:02:30.120 --> 00:02:32.118 I really enjoyed it and I felt the

NOTE Confidence: 0.895549409130435

00:02:32.118 --> 00:02:33.920 impact that we could have as surgeons.

NOTE Confidence: 0.895549409130435

00:02:33.920 --> 00:02:37.000 And so it was just a marrying of my

NOTE Confidence: 0.895549409130435

00:02:37.000 --> 00:02:39.460 two interests that brought me together

NOTE Confidence: 0.895549409130435

00:02:39.535 --> 00:02:41.920 to doing oncologic surgery.

NOTE Confidence: 0.895549409130435

00:02:41.920 --> 00:02:43.808 And I think you make a very good

NOTE Confidence: 0.895549409130435

00:02:43.808 --> 00:02:45.573 point that surgery is

NOTE Confidence: 0.895549409130435

00:02:45.573 --> 00:02:47.113 generally applied to tumors that

NOTE Confidence: 0.895549409130435

00:02:47.113 --> 00:02:49.188 are early stage or even sometimes

NOTE Confidence: 0.895549409130435

00:02:49.188 --> 00:02:50.556 for prevention of cancers.

NOTE Confidence: 0.895549409130435

00:02:50.560 --> 00:02:54.392 But I think I was very affected by

NOTE Confidence: 0.895549409130435

00:02:54.392 --> 00:02:56.072 many patients that I encountered

NOTE Confidence: 0.895549409130435

00:02:56.072 --> 00:02:58.063 during both my training and then

NOTE Confidence: 0.895549409130435

00:02:58.063 --> 00:03:00.392 even as a young attending where I

NOTE Confidence: 0.895549409130435

00:03:00.392 --> 00:03:02.768 felt that patients who had cancers

NOTE Confidence: 0.895549409130435

00:03:02.768 --> 00:03:05.385 that had spread were often treated

NOTE Confidence: 0.895549409130435

00:03:05.385 --> 00:03:07.935 more with purely palliative

NOTE Confidence: 0.895549409130435

00:03:07.935 --> 00:03:10.240 intent where you're trying to help

NOTE Confidence: 0.895549409130435

00:03:10.240 --> 00:03:12.160 them live a little bit longer

NOTE Confidence: 0.895549409130435

00:03:12.160 --> 00:03:13.360 with good quality of life,

NOTE Confidence: 0.895549409130435

00:03:13.360 --> 00:03:15.710 but perhaps not really thinking

NOTE Confidence: 0.895549409130435

00:03:15.710 --> 00:03:17.120 about curative approaches.

NOTE Confidence: 0.895549409130435

00:03:17.120 --> 00:03:19.045 And so I started thinking about the

NOTE Confidence: 0.895549409130435

00:03:19.045 --> 00:03:21.462 problem and I was fortunate to have

NOTE Confidence: 0.895549409130435

00:03:21.462 --> 00:03:22.990 interacted with numerous individuals

NOTE Confidence: 0.895549409130435

00:03:22.990 --> 00:03:25.140 that have had similar interests.

NOTE Confidence: 0.895549409130435

00:03:25.140 --> 00:03:28.083 And so we were able to think

NOTE Confidence: 0.895549409130435

00:03:28.083 --> 00:03:30.416 together about who are the patients

NOTE Confidence: 0.895549409130435

00:03:30.416 --> 00:03:32.720 that we can actually be aggressive

NOTE Confidence: 0.895549409130435

00:03:32.792 --> 00:03:35.180 even surgically to help think about

NOTE Confidence: 0.895549409130435

00:03:35.180 --> 00:03:36.520 more curative intent approaches.

00:03:36.990 --> 00:03:38.635 So that's sort of how

NOTE Confidence: 0.895549409130435

00:03:38.635 --> 00:03:39.960 my journey evolved.

NOTE Confidence: 0.873726591818182

00:03:41.160 --> 00:03:43.890 And so that leads us into

NOTE Confidence: 0.873726591818182

00:03:43.890 --> 00:03:46.096 the whole world of of HIPEC.

NOTE Confidence: 0.873726591818182

00:03:46.096 --> 00:03:49.200 Can you tell us a little bit

NOTE Confidence: 0.873726591818182

00:03:49.301 --> 00:03:52.815 about what exactly it is and for

NOTE Confidence: 0.873726591818182

00:03:52.815 --> 00:03:55.840 which patients it is appropriate?

NOTE Confidence: 0.652222856285714

00:03:56.640 --> 00:03:59.125 HIPEC is hyperthermic

NOTE Confidence: 0.652222856285714

00:03:59.125 --> 00:04:00.119 intraparitoneal chemotherapy.

NOTE Confidence: 0.652222856285714

00:04:00.120 --> 00:04:01.760 So I'll tell you a little bit of a story.

NOTE Confidence: 0.652222856285714

00:04:01.760 --> 00:04:05.837 Way back even in the 18th century,

NOTE Confidence: 0.652222856285714

00:04:05.840 --> 00:04:07.765 there were patients that were

NOTE Confidence: 0.652222856285714

00:04:07.765 --> 00:04:08.920 developing malignant ascites.

NOTE Confidence: 0.652222856285714

00:04:08.920 --> 00:04:11.328 So they had fluid fill up inside their

NOTE Confidence: 0.652222856285714

00:04:11.328 --> 00:04:13.017 abdomen and were very distressed.

NOTE Confidence: 0.652222856285714

00:04:13.017 --> 00:04:15.096 And there was a surgeon who actually

NOTE Confidence: 0.652222856285714

00:04:15.096 --> 00:04:16.943 put wine or alcohol inside the

NOTE Confidence: 0.652222856285714

00:04:16.943 --> 00:04:18.731 abdomen with an intention of seeing

NOTE Confidence: 0.652222856285714

00:04:18.783 --> 00:04:20.559 if it would dry up the fluid.

NOTE Confidence: 0.652222856285714

00:04:20.560 --> 00:04:22.702 And it did, but unfortunately caused

NOTE Confidence: 0.652222856285714

00:04:22.702 --> 00:04:24.798 such a significant reaction that

NOTE Confidence: 0.652222856285714

00:04:24.798 --> 00:04:26.634 patients didn't do well from that.

NOTE Confidence: 0.652222856285714

00:04:26.640 --> 00:04:28.800 But over the years,

NOTE Confidence: 0.652222856285714

00:04:28.800 --> 00:04:31.440 there was this appreciation that cancers,

NOTE Confidence: 0.652222856285714

00:04:31.440 --> 00:04:33.520 especially many cancers that start

NOTE Confidence: 0.652222856285714

00:04:33.520 --> 00:04:35.600 both in the gastrointestinal tract,

NOTE Confidence: 0.652222856285714

00:04:35.600 --> 00:04:37.520 so like our digestive system

NOTE Confidence: 0.652222856285714

00:04:37.520 --> 00:04:40.080 and the genital urinary,

NOTE Confidence: 0.652222856285714

00:04:40.080 --> 00:04:42.600 essentially in ovarian cancers, can

NOTE Confidence: 0.652222856285714

00:04:42.600 --> 00:04:45.240 actually spread to the lining of the abdomen.

NOTE Confidence: 0.652222856285714

00:04:45.240 --> 00:04:46.125 And as surgeons,

NOTE Confidence: 0.652222856285714

00:04:46.125 --> 00:04:47.895 it was sort of overwhelming

NOTE Confidence: 0.652222856285714

00:04:47.895 --> 00:04:49.782 to see the number of tumors

NOTE Confidence: 0.652222856285714

00:04:49.782 --> 00:04:51.312 that were inside the abdomen.

NOTE Confidence: 0.652222856285714

00:04:51.320 --> 00:04:53.508 And so back in the 1980s,

NOTE Confidence: 0.652222856285714

00:04:53.508 --> 00:04:57.702 a concept was developed at the NIH/NCI

NOTE Confidence: 0.652222856285714

00:04:57.702 --> 00:04:59.390 where chemotherapy was introduced

NOTE Confidence: 0.652222856285714

00:04:59.390 --> 00:05:02.007 directly inside the abdomen at high

NOTE Confidence: 0.652222856285714

00:05:02.007 --> 00:05:03.767 concentrations and high temperatures

NOTE Confidence: 0.652222856285714

00:05:03.767 --> 00:05:05.967 with the understanding that when

NOTE Confidence: 0.652222856285714

00:05:06.032 --> 00:05:07.637 it was delivered like that,

NOTE Confidence: 0.652222856285714

00:05:07.640 --> 00:05:11.280 you were delivering a very high topical

NOTE Confidence: 0.652222856285714

00:05:11.280 --> 00:05:13.000 concentration of the chemotherapy.

NOTE Confidence: 0.652222856285714

00:05:13.000 --> 00:05:14.720 But the systemic absorption,

NOTE Confidence: 0.652222856285714

00:05:14.720 --> 00:05:15.960 meaning the absorption

NOTE Confidence: 0.652222856285714

00:05:15.960 --> 00:05:17.200 inside the bloodstream was

NOTE Confidence: 0.652222856285714

00:05:17.200 --> 00:05:18.370 fairly limited.

NOTE Confidence: 0.652222856285714

00:05:18.370 --> 00:05:20.710 And so this was termed different

NOTE Confidence: 0.652222856285714

00:05:20.710 --> 00:05:22.158 things over the years.

NOTE Confidence: 0.652222856285714

00:05:22.160 --> 00:05:24.834 And then finally in the early 2000s,

NOTE Confidence: 0.652222856285714

00:05:24.840 --> 00:05:26.508 the combination of heat,

NOTE Confidence: 0.652222856285714

00:05:26.508 --> 00:05:27.759 the intraperitoneal delivery,

NOTE Confidence: 0.652222856285714

00:05:27.760 --> 00:05:29.998 meaning putting it inside the abdomen

NOTE Confidence: 0.652222856285714

00:05:30.000 --> 00:05:31.435 and the chemotherapy came together

NOTE Confidence: 0.652222856285714

00:05:31.435 --> 00:05:33.200 and it started being called HIPEC.

NOTE Confidence: 0.652222856285714

00:05:33.200 --> 00:05:35.810 It is really delivering

NOTE Confidence: 0.652222856285714

00:05:35.810 --> 00:05:37.550 high concentration chemotherapy at

NOTE Confidence: 0.652222856285714

00:05:37.620 --> 00:05:39.960 high temperatures inside the abdomen

NOTE Confidence: 0.652222856285714

00:05:39.960 --> 00:05:42.160 to essentially affect cancer cells

NOTE Confidence: 0.652222856285714

00:05:42.160 --> 00:05:44.705 that are there after surgery with

NOTE Confidence: 0.652222856285714

00:05:44.705 --> 00:05:47.120 an intention of trying to cure it.

NOTE Confidence: 0.652222856285714

00:05:47.120 --> 00:05:48.710 It is a technique that's

NOTE Confidence: 0.652222856285714

00:05:48.710 --> 00:05:50.439 used for many cancers, like I said.

00:05:52.068 --> 00:05:54.510 But the common cancers that are routinely

NOTE Confidence: 0.652222856285714

00:05:54.591 --> 00:05:56.634 treated with cytoreductive surgery

NOTE Confidence: 0.652222856285714

00:05:56.634 --> 00:05:59.519 are ovarian cancers,

NOTE Confidence: 0.652222856285714

00:05:59.520 --> 00:06:01.840 colon cancers, appendix cancers,

NOTE Confidence: 0.652222856285714

00:06:01.840 --> 00:06:04.160 mesothelioma, and gastric cancer.

NOTE Confidence: 0.652222856285714

00:06:04.160 --> 00:06:05.819 So those are sort of the big

NOTE Confidence: 0.652222856285714

00:06:05.819 --> 00:06:07.473 cancer groups that are

NOTE Confidence: 0.652222856285714

00:06:07.473 --> 00:06:08.953 often treated with this technique.

NOTE Confidence: 0.9595973

00:06:10.040 --> 00:06:12.560 One of the other

NOTE Confidence: 0.9595973

00:06:12.560 --> 00:06:14.775 things that's interesting is that when

NOTE Confidence: 0.9595973

00:06:14.775 --> 00:06:16.560 we think about metastatic cancer,

NOTE Confidence: 0.9595973

00:06:16.560 --> 00:06:19.376 most often we think that the cancer has

NOTE Confidence: 0.9595973

00:06:19.376 --> 00:06:22.237 spread to a different part of the body,

NOTE Confidence: 0.9595973

00:06:22.240 --> 00:06:23.920 often through the bloodstream.

NOTE Confidence: 0.9595973

00:06:23.920 --> 00:06:26.440 And so it's interesting that you

NOTE Confidence: 0.9595973

00:06:26.516 --> 00:06:28.516 mentioned that HIPEC is really

NOTE Confidence: 0.9595973

00:06:28.520 --> 00:06:32.640 designed to be delivered topically

NOTE Confidence: 0.9595973

00:06:32.640 --> 00:06:35.293 into the abdomen so that it has

NOTE Confidence: 0.9595973

00:06:35.293 --> 00:06:38.199 its effect on peritoneal surfaces,

NOTE Confidence: 0.9595973

00:06:38.200 --> 00:06:40.712 which seems kind of counter to how we

NOTE Confidence: 0.9595973

00:06:40.712 --> 00:06:42.509 often think about distant metastatic

NOTE Confidence: 0.9595973

00:06:42.509 --> 00:06:45.493 spread in the sense that we want to

NOTE Confidence: 0.9595973

00:06:45.493 --> 00:06:47.635 get it into the systemic absorption.

NOTE Confidence: 0.9595973

00:06:47.640 --> 00:06:50.976 Can you kind of talk about the rationale

NOTE Confidence: 0.9595973

00:06:50.976 --> 00:06:53.600 behind that and and how that plays in?

NOTE Confidence: 0.965544569230769

00:06:54.280 --> 00:06:56.968 Yeah, you know, I think this is actually

NOTE Confidence: 0.965544569230769

00:06:56.968 --> 00:06:59.310 a fascinating story of how

NOTE Confidence: 0.965544569230769

00:06:59.310 --> 00:07:01.680 medicine has evolved over the century.

NOTE Confidence: 0.965544569230769

00:07:01.680 --> 00:07:04.312 So as you know, William Halsted was

NOTE Confidence: 0.965544569230769

00:07:04.312 --> 00:07:06.948 a very famous cancer surgeon or a

NOTE Confidence: 0.965544569230769

00:07:06.948 --> 00:07:09.880 surgeon at the Johns Hopkins Hospital

NOTE Confidence: 0.965544569230769

00:07:09.880 --> 00:07:11.856 and he was of the belief that cancer

NOTE Confidence: 0.965544569230769

00:07:11.856 --> 00:07:13.551 went in a very linear progression

NOTE Confidence: 0.965544569230769

00:07:13.551 --> 00:07:15.720 and that if there was cancer,

NOTE Confidence: 0.965544569230769

00:07:15.720 --> 00:07:17.918 the more aggressive and radical your surgery,

NOTE Confidence: 0.965544569230769

00:07:17.920 --> 00:07:19.397 the better the chance of curing it.

NOTE Confidence: 0.965544569230769

00:07:19.400 --> 00:07:21.280 So in fact taking out the entire chest

NOTE Confidence: 0.965544569230769

00:07:21.280 --> 00:07:23.200 wall for patients with breast cancer,

NOTE Confidence: 0.965544569230769

00:07:23.200 --> 00:07:25.444 cutting off legs for patients with

NOTE Confidence: 0.965544569230769

00:07:25.444 --> 00:07:27.020 skin cancers on the leg, et cetera.

NOTE Confidence: 0.965544569230769

00:07:27.020 --> 00:07:29.176 And that was sort of the way a lot

NOTE Confidence: 0.965544569230769

00:07:29.176 --> 00:07:30.947 of cancers were treated all the way

NOTE Confidence: 0.965544569230769

00:07:30.947 --> 00:07:32.090 up to the 1960

NOTE Confidence: 0.965544569230769

00:07:32.090 --> 00:07:34.550 when nitrogen mustard which came

NOTE Confidence: 0.965544569230769

00:07:34.550 --> 00:07:37.412 from World War 2 and chemotherapy

NOTE Confidence: 0.965544569230769

00:07:37.412 --> 00:07:39.758 started being developed at that time.

NOTE Confidence: 0.965544569230769

00:07:39.760 --> 00:07:41.914 And then subsequently there was the

NOTE Confidence: 0.965544569230769

00:07:41.914 --> 00:07:43.714 Fisher's hypothesis which is where

NOTE Confidence: 0.965544569230769

00:07:43.714 --> 00:07:44.999 the concept was,

NOTE Confidence: 0.965544569230769

00:07:44.999 --> 00:07:47.153 all cancer is metastatic at diagnosis

NOTE Confidence: 0.965544569230769

00:07:47.153 --> 00:07:48.929 that there's always cancer cells

NOTE Confidence: 0.965544569230769

00:07:48.929 --> 00:07:50.843 or cancer DNA floating around in

NOTE Confidence: 0.965544569230769

00:07:50.843 --> 00:07:52.000 your blood streams,

NOTE Confidence: 0.965544569230769

00:07:52.000 --> 00:07:54.520 even if it's a very early stage cancer.

NOTE Confidence: 0.965544569230769

00:07:54.520 --> 00:07:57.000 And so therefore there needs to be this

NOTE Confidence: 0.965544569230769

00:07:57.000 --> 00:07:59.143 appreciation of all cancers have to be

NOTE Confidence: 0.965544569230769

00:07:59.143 --> 00:08:01.400 treated with a combination of chemotherapy,

NOTE Confidence: 0.965544569230769

00:08:01.400 --> 00:08:04.325 maybe surgery, and that is sort of how

NOTE Confidence: 0.965544569230769

00:08:04.325 --> 00:08:07.156 you're trying to affect this entire system.

NOTE Confidence: 0.965544569230769

00:08:07.160 --> 00:08:09.960 I think in the 1990s,

NOTE Confidence: 0.965544569230769

00:08:09.960 --> 00:08:11.770 a concept called oligometastasis

NOTE Confidence: 0.965544569230769

00:08:11.770 --> 00:08:14.394 was proposed by one of my

NOTE Confidence: 0.965544569230769

00:08:14.394 --> 00:08:15.878 close friends and colleagues,

NOTE Confidence: 0.965544569230769

00:08:15.880 --> 00:08:19.604 Ralph Weichselbaum and Sam Hellman who

NOTE Confidence: 0.965544569230769

00:08:19.604 --> 00:08:22.278 noted that maybe the reality wasn't

NOTE Confidence: 0.965544569230769

00:08:22.278 --> 00:08:25.317 one of these two hypothesis,

NOTE Confidence: 0.965544569230769

00:08:25.320 --> 00:08:27.462 but actually somewhere in the middle

NOTE Confidence: 0.965544569230769

00:08:27.462 --> 00:08:29.589 where there were clearly groups of

NOTE Confidence: 0.965544569230769

00:08:29.589 --> 00:08:31.485 patients who had cancers that had

NOTE Confidence: 0.965544569230769

00:08:31.485 --> 00:08:33.870 spread but had spread in a very unique

NOTE Confidence: 0.965544569230769

00:08:33.870 --> 00:08:35.690 way where the spread was limited,

NOTE Confidence: 0.965544569230769

00:08:35.690 --> 00:08:38.450 it was limited to a few areas and

NOTE Confidence: 0.965544569230769

00:08:38.529 --> 00:08:41.044 when treated locally, meaning with

NOTE Confidence: 0.965544569230769

00:08:41.044 --> 00:08:43.559 surgery or radiation or ablation.

NOTE Confidence: 0.965544569230769

00:08:43.560 --> 00:08:45.555 So when you're actually working on these,

NOTE Confidence: 0.965544569230769

00:08:45.560 --> 00:08:47.315 you can actually potentially cure

NOTE Confidence: 0.965544569230769

00:08:47.315 --> 00:08:49.419 these patients of the cancer and

NOTE Confidence: 0.965544569230769

00:08:49.419 --> 00:08:51.117 and this observation led to the

NOTE Confidence: 0.965544569230769

00:08:51.117 --> 00:08:53.279 coining of the word oligometastases.

NOTE Confidence: 0.965544569230769

00:08:53.280 --> 00:08:55.674 And since then there have been

NOTE Confidence: 0.965544569230769

00:08:55.674 --> 00:08:57.039 numerous investigations in this

NOTE Confidence: 0.965544569230769

00:08:57.039 --> 00:08:58.833 space and it's very fascinating to

NOTE Confidence: 0.965544569230769

00:08:58.833 --> 00:09:00.198 think about the peritoneum itself.

00:09:00.750 --> 00:09:02.400 The peritoneum is a remarkable barrier,

NOTE Confidence: 0.965544569230769

00:09:02.400 --> 00:09:04.157 but if you actually look at it,

NOTE Confidence: 0.965544569230769

00:09:04.160 --> 00:09:05.558 the peritoneum is like Saran wrap.

NOTE Confidence: 0.965544569230769

00:09:05.560 --> 00:09:07.541 I tell patients it's sort of like

NOTE Confidence: 0.965544569230769

00:09:07.541 --> 00:09:09.760 wallpaper on the walls of your rooms.

NOTE Confidence: 0.965544569230769

00:09:09.760 --> 00:09:12.315 So it's a very, very thin layer.

NOTE Confidence: 0.965544569230769

00:09:12.320 --> 00:09:13.020 But remarkably,

NOTE Confidence: 0.965544569230769

00:09:13.020 --> 00:09:14.770 all cancer that generally start

NOTE Confidence: 0.965544569230769

00:09:14.770 --> 00:09:17.005 in the peritoneum or in the

NOTE Confidence: 0.965544569230769

00:09:17.005 --> 00:09:18.410 peritoneal cavity are actually

NOTE Confidence: 0.965544569230769

00:09:18.410 --> 00:09:19.758 limited to that peritoneum.

NOTE Confidence: 0.965544569230769

00:09:19.760 --> 00:09:21.980 It rarely invades beyond the peritoneum

NOTE Confidence: 0.965544569230769

00:09:21.980 --> 00:09:24.399 into the abdominal wall or musculature,

NOTE Confidence: 0.965544569230769

00:09:24.400 --> 00:09:25.864 things like that.

00:09:26.840 --> 00:09:28.272 It's interesting when you

NOTE Confidence: 0.965544569230769

00:09:28.272 --> 00:09:30.420 actually measure the DNA of cancer

NOTE Confidence: 0.965544569230769

00:09:30.486 --> 00:09:32.156 that's present in the blood.

NOTE Confidence: 0.965544569230769

00:09:32.160 --> 00:09:34.072 And this is some of our own work

NOTE Confidence: 0.965544569230769

00:09:34.072 --> 00:09:35.738 where we've found that the DNA

NOTE Confidence: 0.965544569230769

00:09:35.738 --> 00:09:37.153 that's shed by these tumors,

NOTE Confidence: 0.965544569230769

00:09:37.160 --> 00:09:38.528 you might have a ton of

NOTE Confidence: 0.965544569230769

00:09:38.528 --> 00:09:39.440 cancer inside the peritoneum,

NOTE Confidence: 0.965544569230769

00:09:39.440 --> 00:09:40.910 but you barely will have any

NOTE Confidence: 0.965544569230769

00:09:40.910 --> 00:09:41.890 DNA or cancer DNA

NOTE Confidence: 0.921466057083333

00:09:41.947 --> 00:09:43.515 in the blood as opposed to if

NOTE Confidence: 0.921466057083333

00:09:43.515 --> 00:09:45.200 you have one spot in the liver,

NOTE Confidence: 0.921466057083333

00:09:45.200 --> 00:09:47.012 one spot in the lungs, you know,

NOTE Confidence: 0.921466057083333

00:09:47.012 --> 00:09:48.600 the amount of DNA that's shed in the blood,

NOTE Confidence: 0.921466057083333

00:09:48.600 --> 00:09:50.838 especially for colon cancer is tremendous.

NOTE Confidence: 0.921466057083333

00:09:50.840 --> 00:09:53.138 So it's a very interesting phenomenon

NOTE Confidence: 0.921466057083333

00:09:53.138 --> 00:09:55.902 where this may almost be a sequestered

NOTE Confidence: 0.921466057083333

00:09:55.902 --> 00:09:58.236 form of metastases that is happening,

NOTE Confidence: 0.921466057083333

00:09:58.240 --> 00:09:59.560 you know, in a certain region.

NOTE Confidence: 0.921466057083333

00:09:59.560 --> 00:10:01.528 So I think that is where

NOTE Confidence: 0.921466057083333

00:10:01.528 --> 00:10:04.456 the appeal of surgery and delivering

NOTE Confidence: 0.921466057083333

00:10:04.456 --> 00:10:05.920 intraperitoneal chemotherapy

NOTE Confidence: 0.921466057083333

00:10:05.920 --> 00:10:07.320 is significant in this area.

NOTE Confidence: 0.936096724285714

00:10:07.840 --> 00:10:10.156 Yeah, it certainly makes

NOTE Confidence: 0.936096724285714

00:10:10.156 --> 00:10:12.958 a whole lot more sense as to why

NOTE Confidence: 0.936096724285714

00:10:12.960 --> 00:10:15.360 delivering chemotherapy in a more

NOTE Confidence: 0.936096724285714

00:10:15.360 --> 00:10:18.256 topical way for people who have

NOTE Confidence: 0.936096724285714

00:10:18.256 --> 00:10:20.676 peritoneal metastases may be beneficial.

NOTE Confidence: 0.936096724285714

00:10:20.680 --> 00:10:24.088 Can you talk a little bit about how

NOTE Confidence: 0.936096724285714

00:10:24.088 --> 00:10:26.816 efficacious it is in terms of the

NOTE Confidence: 0.936096724285714

00:10:26.816 --> 00:10:29.240 response that patients have to HIPEC?

NOTE Confidence: 0.950194627058824

00:10:30.160 --> 00:10:32.050 Yeah, I think that's a good

NOTE Confidence: 0.950194627058824

00:10:32.050 --> 00:10:33.894 question and it's a complicated

NOTE Confidence: 0.950194627058824

00:10:33.894 --> 00:10:35.760 answer because there are numerous

NOTE Confidence: 0.950194627058824

00:10:35.760 --> 00:10:38.560 different cancers that are treated

NOTE Confidence: 0.950194627058824

00:10:38.560 --> 00:10:39.986 with intraperitoneal chemotherapy.

NOTE Confidence: 0.950194627058824

00:10:39.986 --> 00:10:41.718 But for instance,

NOTE Confidence: 0.950194627058824

00:10:41.720 --> 00:10:43.745 one of the cancers or one of the

NOTE Confidence: 0.950194627058824

00:10:43.745 --> 00:10:45.802 diseases that is often treated with this is

NOTE Confidence: 0.950194627058824

00:10:45.802 --> 00:10:47.720 a condition called pseudomyxoma peritonei.

NOTE Confidence: 0.950194627058824

00:10:47.720 --> 00:10:49.876 And this is a condition where patients'

NOTE Confidence: 0.950194627058824

00:10:49.880 --> 00:10:52.260 abdomens are full of mucus that is

NOTE Confidence: 0.950194627058824

00:10:52.260 --> 00:10:54.290 arising either from the appendix or

NOTE Confidence: 0.950194627058824

00:10:54.290 --> 00:10:56.138 the ovary and it causes the entire

NOTE Confidence: 0.950194627058824

00:10:56.138 --> 00:10:58.336 abdomen to fill up with mucus.

NOTE Confidence: 0.950194627058824

00:10:58.336 --> 00:11:01.032 Folks often look like they're

NOTE Confidence: 0.950194627058824

00:11:01.032 --> 00:11:03.240 39 weeks pregnant and it's just a very,

NOTE Confidence: 0.950194627058824

00:11:03.240 --> 00:11:05.640 very tremendous burden on our patients.

NOTE Confidence: 0.950194627058824

00:11:05.640 --> 00:11:07.160 In that population of patients,

NOTE Confidence: 0.950194627058824

00:11:07.160 --> 00:11:10.240 especially the low grade tumors,

NOTE Confidence: 0.950194627058824

00:11:10.240 --> 00:11:12.208 70% of the patients are cured of this

NOTE Confidence: 0.950194627058824

00:11:12.208 --> 00:11:13.793 disease with cytopoductive surgery

NOTE Confidence: 0.950194627058824

00:11:13.793 --> 00:11:15.356 and intraperitoneal chemotherapy.

NOTE Confidence: 0.950194627058824

00:11:15.360 --> 00:11:17.520 So it is a very remarkable

NOTE Confidence: 0.950194627058824

00:11:17.520 --> 00:11:20.200 effect on these tumors.

NOTE Confidence: 0.950194627058824

00:11:20.200 --> 00:11:21.192 On the other hand,

NOTE Confidence: 0.950194627058824

00:11:21.192 --> 00:11:22.680 when cancers are more high grade,

NOTE Confidence: 0.950194627058824

00:11:22.680 --> 00:11:24.004 so they're more aggressive,

NOTE Confidence: 0.950194627058824

00:11:24.004 --> 00:11:26.440 the cure rates are a lot lower.

NOTE Confidence: 0.950194627058824

00:11:26.440 --> 00:11:28.120 So it's much harder to reach,

NOTE Confidence: 0.950194627058824

00:11:28.120 --> 00:11:29.520 you know, 10 year survivals.

NOTE Confidence: 0.950194627058824

00:11:29.520 --> 00:11:31.760 But I think for colon cancer, for instance,

NOTE Confidence: 0.950194627058824

00:11:31.760 --> 00:11:33.560 if it's detected very early,

NOTE Confidence: 0.950194627058824

00:11:33.560 --> 00:11:35.025 almost 60% of the patients

NOTE Confidence: 0.950194627058824

00:11:35.025 --> 00:11:36.960 will live 5 to 10 years,

NOTE Confidence: 0.950194627058824

00:11:36.960 --> 00:11:39.032 which I think is a good marker

NOTE Confidence: 0.950194627058824

00:11:39.032 --> 00:11:40.650 for considering cure as opposed

NOTE Confidence: 0.950194627058824

00:11:40.650 --> 00:11:42.475 to when it's detected late,

NOTE Confidence: 0.950194627058824

00:11:42.480 --> 00:11:43.716 you know only 20% of the

NOTE Confidence: 0.950194627058824

00:11:43.716 --> 00:11:44.840 patients will live five years.

NOTE Confidence: 0.950194627058824

00:11:44.840 --> 00:11:46.618 So I think a lot depends on

NOTE Confidence: 0.950194627058824

00:11:46.618 --> 00:11:47.946 when it's detected and then

NOTE Confidence: 0.950194627058824

00:11:47.946 --> 00:11:49.476 of course how it is treated.

NOTE Confidence: 0.950194627058824

00:11:49.480 --> 00:11:51.356 Also, the other thing that is often

NOTE Confidence: 0.950194627058824

00:11:52.528 --> 00:11:54.280 misunderstood or mischaracterized

NOTE Confidence: 0.950194627058824

00:11:54.280 --> 00:11:57.824 is HIPEC is not treatment by

NOTE Confidence: 0.950194627058824

00:11:57.824 --> 00:11:59.632 itself without considering the

NOTE Confidence: 0.950194627058824

00:11:59.632 --> 00:12:01.440 agent itself that's delivered.

NOTE Confidence: 0.950194627058824

00:12:01.440 --> 00:12:03.462 It's merely a technology by which

NOTE Confidence: 0.950194627058824

00:12:03.462 --> 00:12:05.520 you know therapy is delivered.

NOTE Confidence: 0.950194627058824

00:12:05.520 --> 00:12:07.632 So the effects are

NOTE Confidence: 0.950194627058824

00:12:07.632 --> 00:12:09.764 dependent on what the intraparitonal

NOTE Confidence: 0.950194627058824

00:12:09.764 --> 00:12:11.717 chemotherapy agent is.

NOTE Confidence: 0.950194627058824

00:12:11.720 --> 00:12:14.640 The problem with truly understanding

NOTE Confidence: 0.950194627058824

00:12:14.640 --> 00:12:17.560 how efficacious or even effective

NOTE Confidence: 0.950194627058824

00:12:17.560 --> 00:12:18.970 HIPEC itself

NOTE Confidence: 0.950194627058824

00:12:18.970 --> 00:12:21.320 is a little complicated because

NOTE Confidence: 0.950194627058824

00:12:21.320 --> 00:12:22.844 the first thing to consider is

NOTE Confidence: 0.950194627058824

00:12:22.844 --> 00:12:24.795 is that it is often delivered with

NOTE Confidence: 0.950194627058824

00:12:24.795 --> 00:12:26.555 surgery called cytoreductive surgery.

NOTE Confidence: 0.950194627058824

00:12:26.560 --> 00:12:27.838 So I give patients the example,

NOTE Confidence: 0.950194627058824

00:12:27.840 --> 00:12:29.712 like if you have grease that's

NOTE Confidence: 0.950194627058824

00:12:29.712 --> 00:12:31.566 spilt in your room, you know,

NOTE Confidence: 0.950194627058824

00:12:31.566 --> 00:12:33.081 instead of just spraying Lysol

NOTE Confidence: 0.950194627058824

00:12:33.081 --> 00:12:34.918 on it or Febreze on it,

NOTE Confidence: 0.950194627058824

00:12:34.920 --> 00:12:36.680 you first have to clean it all out.

NOTE Confidence: 0.950194627058824

00:12:36.680 --> 00:12:38.520 You have to pick up all that grease,

NOTE Confidence: 0.950194627058824

00:12:38.520 --> 00:12:40.152 scrub it and then you spray

NOTE Confidence: 0.950194627058824

00:12:40.152 --> 00:12:41.840 the Lysol and then scrub it.

NOTE Confidence: 0.950194627058824

00:12:41.840 --> 00:12:44.448 So that's really sort of the way HIPEC

NOTE Confidence: 0.950194627058824

00:12:44.448 --> 00:12:48.536 works and it's in its core and you

NOTE Confidence: 0.950194627058824

00:12:48.536 --> 00:12:50.552 know there are many components to it.

NOTE Confidence: 0.950194627058824

00:12:50.560 --> 00:12:51.386 There's heat,

NOTE Confidence: 0.950194627058824

00:12:51.386 --> 00:12:52.212 there's flow,

NOTE Confidence: 0.950194627058824

00:12:52.212 --> 00:12:54.277 there's the drug that's delivered,

NOTE Confidence: 0.950194627058824

00:12:54.280 --> 00:12:56.520 there's the duration that this is given.

NOTE Confidence: 0.950194627058824

00:12:56.520 --> 00:12:58.584 And so it's very hard to

NOTE Confidence: 0.950194627058824

00:12:58.584 --> 00:12:59.272 experimentally differentiate

NOTE Confidence: 0.950194627058824

00:12:59.272 --> 00:13:01.278 which one of these components

NOTE Confidence: 0.950194627058824

00:13:01.280 --> 00:13:02.840 is efficacious in which part.

NOTE Confidence: 0.950194627058824

00:13:02.840 --> 00:13:06.032 But in randomized trials such as in

NOTE Confidence: 0.950194627058824

00:13:06.032 --> 00:13:08.759 ovarian cancer and gastric cancer,

NOTE Confidence: 0.950194627058824

00:13:08.760 --> 00:13:11.000 it has clearly been found to be

NOTE Confidence: 0.950194627058824

00:13:11.000 --> 00:13:12.998 efficacious when certain agents are given.

NOTE Confidence: 0.950194627058824

00:13:13.000 --> 00:13:15.436 But in colon cancer, when oxaliplatin,

NOTE Confidence: 0.950194627058824

00:13:15.440 --> 00:13:16.958 one of the agents that's given,

NOTE Confidence: 0.950194627058824

00:13:16.958 --> 00:13:17.717 it wasn't effective,

NOTE Confidence: 0.950194627058824

00:13:17.720 --> 00:13:18.394 but mitomycin,

NOTE Confidence: 0.950194627058824

00:13:18.394 --> 00:13:20.079 another agent was very effective.

NOTE Confidence: 0.950194627058824

00:13:20.080 --> 00:13:21.880 So I think it's very individualized

NOTE Confidence: 0.950194627058824

00:13:21.880 --> 00:13:23.320 based on the disease.

NOTE Confidence: 0.9452573835

00:13:24.360 --> 00:13:26.950 Fantastic. So we're going to pick up

NOTE Confidence: 0.9452573835

00:13:26.950 --> 00:13:29.037 this conversation right after we take

NOTE Confidence: 0.9452573835

00:13:29.037 --> 00:13:31.151 a short break for a medical minute.

NOTE Confidence: 0.9452573835

00:13:31.160 --> 00:13:33.162 Please stay tuned to learn more about

NOTE Confidence: 0.9452573835

00:13:33.162 --> 00:13:35.095 HIPEC and the treatment of cancer

NOTE Confidence: 0.9452573835

00:13:35.095 --> 00:13:37.117 with my guest doctor Kiran Turaga.

NOTE Confidence: 0.899408477

00:13:37.840 --> 00:13:39.920 Funding for Yale Cancer Answers

NOTE Confidence: 0.899408477

00:13:39.920 --> 00:13:42.000 comes from Smilow Cancer Hospital,

NOTE Confidence: 0.899408477

00:13:42.000 --> 00:13:43.715 where spiritual care offers support

NOTE Confidence: 0.899408477

00:13:43.715 --> 00:13:45.797 to patients seeking peace in the

NOTE Confidence: 0.899408477

00:13:45.797 --> 00:13:47.317 midst of their cancer journey,

NOTE Confidence: 0.899408477

00:13:47.320 --> 00:13:49.600 while respecting the unique philosophies,

NOTE Confidence: 0.899408477

00:13:49.600 --> 00:13:51.211 spiritualities, and religions

NOTE Confidence: 0.899408477

00:13:51.211 --> 00:13:53.359 of patients and caregivers.

NOTE Confidence: 0.899408477

00:13:53.360 --> 00:13:55.520 Smilowcancerhospital.org.

NOTE Confidence: 0.965228785

00:13:57.560 --> 00:14:00.025 There are over 16.9 million

NOTE Confidence: 0.965228785

00:14:00.025 --> 00:14:02.954 cancer survivors in the US and

NOTE Confidence: 0.965228785

00:14:02.954 --> 00:14:04.868 over 240,000 here in Connecticut.

NOTE Confidence: 0.965228785

00:14:04.868 --> 00:14:06.416 Completing treatment for cancer

NOTE Confidence: 0.965228785

00:14:06.416 --> 00:14:08.679 is a very exciting milestone,

NOTE Confidence: 0.965228785

00:14:08.680 --> 00:14:10.660 but cancer and its treatment can

NOTE Confidence: 0.965228785

00:14:10.660 --> 00:14:12.760 be a life changing experience.

NOTE Confidence: 0.965228785

00:14:12.760 --> 00:14:14.775 The return to normal activities

NOTE Confidence: 0.965228785

00:14:14.775 --> 00:14:16.790 and relationships may be difficult

NOTE Confidence: 0.965228785

00:14:16.855 --> 00:14:18.625 and cancer survivors may face

NOTE Confidence: 0.965228785

00:14:18.625 --> 00:14:20.888 other long term side effects of

NOTE Confidence: 0.965228785

00:14:20.888 --> 00:14:22.596 cancer including heart problems,

NOTE Confidence: 0.965228785

00:14:22.600 --> 00:14:25.440 osteoporosis, fertility issues,

NOTE Confidence: 0.965228785

00:14:25.440 --> 00:14:28.240 and an increased risk of second cancers.

NOTE Confidence: 0.965228785

00:14:28.240 --> 00:14:30.765 Resources for cancer survivors are

NOTE Confidence: 0.965228785

00:14:30.765 --> 00:14:32.785 available at federally designated

NOTE Confidence: 0.965228785

00:14:32.785 --> 00:14:34.280 Comprehensive Cancer Centers,

NOTE Confidence: 0.965228785

00:14:34.280 --> 00:14:36.290 such as Yale Cancer Center

NOTE Confidence: 0.965228785

00:14:36.290 --> 00:14:38.513 and Smilow Cancer Hospital to

NOTE Confidence: 0.965228785

00:14:38.513 --> 00:14:40.553 keep cancer survivors well and

NOTE Confidence: 0.965228785

00:14:40.553 --> 00:14:42.320 focused on healthy living.

NOTE Confidence: 0.965228785

00:14:42.320 --> 00:14:44.600 The Smilow Cancer Hospital Survivorship

NOTE Confidence: 0.965228785

00:14:44.600 --> 00:14:46.880 Clinic focuses on providing guidance

NOTE Confidence: 0.965228785

00:14:46.941 --> 00:14:49.125 and direction to empower survivors to

NOTE Confidence: 0.965228785

00:14:49.125 --> 00:14:51.440 take steps to maximize their health,

NOTE Confidence: 0.965228785

00:14:51.440 --> 00:14:53.840 quality of life, and longevity.

NOTE Confidence: 0.965228785

00:14:53.840 --> 00:14:56.176 More information is available

NOTE Confidence: 0.965228785

00:14:56.176 --> 00:14:57.194 at yalecancercenter.org.

NOTE Confidence: 0.965228785

00:14:57.194 --> 00:14:59.798 You're listening to Connecticut Public Radio.

NOTE Confidence: 0.959079748333333

00:15:00.720 --> 00:15:02.598 Welcome back to Yale Cancer Answers.

NOTE Confidence: 0.959079748333333

00:15:02.600 --> 00:15:04.120 This is Doctor Anees Chagpar,

NOTE Confidence: 0.959079748333333

00:15:04.120 --> 00:15:06.157 and I'm joined tonight by my guest,

NOTE Confidence: 0.959079748333333

00:15:06.160 --> 00:15:07.321 Doctor Kiran Turaga.

NOTE Confidence: 0.959079748333333

00:15:07.321 --> 00:15:09.643 We're talking about the evolution of

NOTE Confidence: 0.959079748333333

00:15:09.643 --> 00:15:12.039 HIPEC in the treatment of cancer.

NOTE Confidence: 0.959079748333333

00:15:12.040 --> 00:15:14.375 And right before the break, Kiran,

NOTE Confidence: 0.959079748333333

00:15:14.375 --> 00:15:17.280 you were talking about the fact that

NOTE Confidence: 0.959079748333333

00:15:17.280 --> 00:15:20.416 delivering this particular drug

NOTE Confidence: 0.959079748333333

00:15:20.416 --> 00:15:25.120 depending on the disease in question,

NOTE Confidence: 0.959079748333333

00:15:25.120 --> 00:15:27.880 delivering chemotherapy at a high

NOTE Confidence: 0.959079748333333

00:15:27.880 --> 00:15:30.640 temperature into the peritoneal space,

NOTE Confidence: 0.959079748333333

00:15:30.640 --> 00:15:33.240 it can potentially be curative

NOTE Confidence: 0.959079748333333

00:15:33.240 --> 00:15:35.728 when coupled with surgery for

NOTE Confidence: 0.959079748333333

00:15:35.728 --> 00:15:37.360 patients with metastatic disease,

NOTE Confidence: 0.959079748333333

00:15:37.360 --> 00:15:39.460 which is something that a lot of

NOTE Confidence: 0.959079748333333

00:15:39.460 --> 00:15:41.638 people may not really think about.

NOTE Confidence: 0.959079748333333

00:15:41.640 --> 00:15:44.838 When we think about metastatic disease,

NOTE Confidence: 0.959079748333333

00:15:44.840 --> 00:15:47.480 the words curative and metastatic

NOTE Confidence: 0.959079748333333

00:15:47.480 --> 00:15:49.592 usually don't go together.

NOTE Confidence: 0.959079748333333

00:15:49.600 --> 00:15:52.354 So a couple of questions just to wrap up

NOTE Confidence: 0.959079748333333

00:15:52.360 --> 00:15:54.810 what we were talking about before

NOTE Confidence: 0.959079748333333

00:15:54.810 --> 00:15:57.660 you had mentioned that the peritoneal

NOTE Confidence: 0.959079748333333

00:15:57.660 --> 00:16:00.880 cavity is kind of like saran wrap.

NOTE Confidence: 0.959079748333333

00:16:00.880 --> 00:16:04.345 And so one can imagine that the

NOTE Confidence: 0.959079748333333

00:16:04.345 --> 00:16:08.260 chemotherapy may help to reduce

NOTE Confidence: 0.959079748333333

00:16:08.260 --> 00:16:11.844 that amount of disease in people

NOTE Confidence: 0.959079748333333

00:16:11.844 --> 00:16:14.473 who have significant burden of

NOTE Confidence: 0.959079748333333

00:16:14.473 --> 00:16:17.038 metastases in their abdominal cavity.

NOTE Confidence: 0.959079748333333

00:16:17.040 --> 00:16:18.788 The question then becomes,

NOTE Confidence: 0.959079748333333

00:16:18.788 --> 00:16:20.973 can you really remove all

NOTE Confidence: 0.959079748333333

00:16:20.973 --> 00:16:22.918 of that with surgery?

NOTE Confidence: 0.959079748333333

00:16:22.920 --> 00:16:23.886 And if not,

NOTE Confidence: 0.959079748333333

00:16:23.886 --> 00:16:26.933 how do you decide what to remove and how

NOTE Confidence: 0.959079748333333

00:16:26.933 --> 00:16:29.439 do you decide if that's good enough?

NOTE Confidence: 0.824300261666667

00:16:30.240 --> 00:16:32.238 Yeah, they're very, very good questions.

NOTE Confidence: 0.824300261666667

00:16:32.240 --> 00:16:35.120 And I think the answer is

NOTE Confidence: 0.824300261666667

00:16:35.120 --> 00:16:37.360 a process in evolution.

NOTE Confidence: 0.824300261666667

00:16:37.360 --> 00:16:39.364 So the lining which is

NOTE Confidence: 0.824300261666667

00:16:39.364 --> 00:16:41.120 on the abdominal wall side,

NOTE Confidence: 0.824300261666667

00:16:41.120 --> 00:16:43.350 so essentially in the same

NOTE Confidence: 0.824300261666667

00:16:43.350 --> 00:16:45.560 example of the room for instance,

NOTE Confidence: 0.824300261666667

00:16:45.560 --> 00:16:47.460 being your abdominal cavity with

NOTE Confidence: 0.824300261666667

00:16:47.460 --> 00:16:49.088 furniture inside it,

NOTE Confidence: 0.824300261666667

00:16:49.088 --> 00:16:50.796 it's very easy to remove the wallpaper,

NOTE Confidence: 0.824300261666667

00:16:50.800 --> 00:16:52.880 the flooring, the roof lining,

NOTE Confidence: 0.824300261666667

00:16:52.880 --> 00:16:55.040 which is the the anterior peritoneum

NOTE Confidence: 0.824300261666667

00:16:55.040 --> 00:16:56.480 or the parietal peritoneum.

NOTE Confidence: 0.824300261666667

00:16:56.480 --> 00:16:58.760 So I think that's a fairly

NOTE Confidence: 0.824300261666667

00:16:58.760 --> 00:17:00.202 straightforward procedure and

NOTE Confidence: 0.824300261666667

00:17:00.202 --> 00:17:02.248 when I say straightforward you know

NOTE Confidence: 0.824300261666667

00:17:02.248 --> 00:17:04.015 developed and you require expertise

NOTE Confidence: 0.824300261666667

00:17:04.015 --> 00:17:06.061 but with training I think it's

NOTE Confidence: 0.824300261666667

00:17:06.061 --> 00:17:08.079 possible for experts to do.

NOTE Confidence: 0.824300261666667

00:17:08.080 --> 00:17:09.942 I think the part where it becomes

NOTE Confidence: 0.824300261666667

00:17:09.942 --> 00:17:11.958 a little bit more challenging is

NOTE Confidence: 0.824300261666667

00:17:11.958 --> 00:17:13.878 when the peritoneum overlying the

NOTE Confidence: 0.824300261666667

00:17:13.880 --> 00:17:16.035 organs called the visceral peritoneum

NOTE Confidence: 0.824300261666667

00:17:16.035 --> 00:17:17.759 especially over the intestines

NOTE Confidence: 0.824300261666667

00:17:17.759 --> 00:17:19.839 is involved with the disease.

NOTE Confidence: 0.824300261666667

00:17:19.840 --> 00:17:23.848 And so I think the key thing

NOTE Confidence: 0.824300261666667

00:17:23.848 --> 00:17:26.584 that we know is that

NOTE Confidence: 0.824300261666667

00:17:26.584 --> 00:17:29.319 removing tumors part way, halfway,

NOTE Confidence: 0.824300261666667

00:17:29.320 --> 00:17:31.315 a little bit, doesn't help.

NOTE Confidence: 0.824300261666667

00:17:31.320 --> 00:17:33.640 So I think the key part is in

NOTE Confidence: 0.824300261666667

00:17:33.640 --> 00:17:35.278 selecting the patients in whom

NOTE Confidence: 0.824300261666667

00:17:35.278 --> 00:17:37.588 we can remove all the disease or

NOTE Confidence: 0.824300261666667

00:17:37.660 --> 00:17:40.048 reduce it to a microscopic level

NOTE Confidence: 0.824300261666667

00:17:40.048 --> 00:17:42.218 such that the chemotherapy can work.

NOTE Confidence: 0.824300261666667

00:17:42.218 --> 00:17:44.241 So I think the selection of patients

NOTE Confidence: 0.824300261666667

00:17:44.241 --> 00:17:46.914 is very important and I think the big

NOTE Confidence: 0.824300261666667

00:17:46.914 --> 00:17:48.924 factors that actually prevent many of

NOTE Confidence: 0.824300261666667

00:17:48.924 --> 00:17:50.838 us from doing these surgeries would

NOTE Confidence: 0.824300261666667

00:17:50.838 --> 00:17:53.045 be if there is extensive involvement

NOTE Confidence: 0.824300261666667

00:17:53.045 --> 00:17:54.930 of the visceral peritoneum which

NOTE Confidence: 0.824300261666667

00:17:54.993 --> 00:17:56.709 is the lining on the intestines

NOTE Confidence: 0.824300261666667

00:17:56.709 --> 00:17:58.679 or the surfaces of the intestines

NOTE Confidence: 0.824300261666667

00:17:58.679 --> 00:18:00.599 that cannot be feasibly removed.

NOTE Confidence: 0.824300261666667

00:18:00.600 --> 00:18:02.118 I think the other thing also

NOTE Confidence: 0.824300261666667

00:18:02.118 --> 00:18:03.432 as cancer surgeons, we all

NOTE Confidence: 0.824300261666667

00:18:03.984 --> 00:18:05.640 think about very carefully with our

NOTE Confidence: 0.824300261666667

00:18:05.696 --> 00:18:07.508 patients and shared decision making is

NOTE Confidence: 0.824300261666667

00:18:07.508 --> 00:18:09.917 making sure that we are hitting the goals,

00:18:10.538 --> 00:18:12.083 it's not just adequate

NOTE Confidence: 0.824300261666667

00:18:12.083 --> 00:18:13.918 to live long or get cured,

NOTE Confidence: 0.824300261666667

00:18:13.920 --> 00:18:15.120 if you're going to be living

NOTE Confidence: 0.824300261666667

00:18:15.120 --> 00:18:15.720 a miserable life.

NOTE Confidence: 0.824300261666667

00:18:15.720 --> 00:18:18.045 So I think it is very important to

NOTE Confidence: 0.824300261666667

00:18:18.045 --> 00:18:19.755 balance both quality and quantity of

NOTE Confidence: 0.824300261666667

00:18:19.755 --> 00:18:21.960 life when these decisions are being made.

NOTE Confidence: 0.972076886666666

00:18:22.400 --> 00:18:24.584 Which of course brings us to

NOTE Confidence: 0.972076886666666

00:18:24.584 --> 00:18:26.320 the next question, which is

NOTE Confidence: 0.972076886666666

00:18:26.320 --> 00:18:28.560 can you talk about some of the

NOTE Confidence: 0.972076886666666

00:18:28.560 --> 00:18:31.038 side effects of this procedure?

NOTE Confidence: 0.906115968666667

00:18:31.720 --> 00:18:33.824 Yeah. So I think these side effects are

NOTE Confidence: 0.906115968666667

00:18:33.824 --> 00:18:35.879 again broken down into the two components.

NOTE Confidence: 0.906115968666667

00:18:35.880 --> 00:18:37.980 So one is the cytoreductive surgery

NOTE Confidence: 0.906115968666667

00:18:37.980 --> 00:18:39.919 and these surgeries can be very,

NOTE Confidence: 0.906115968666667

00:18:39.920 --> 00:18:42.755 very big where we're doing long operations,

NOTE Confidence: 0.906115968666667

00:18:42.760 --> 00:18:44.983 8 to 10 hours trying to clean out tumors

NOTE Confidence: 0.906115968666667

00:18:44.983 --> 00:18:47.562 from every nook and cranny inside the

NOTE Confidence: 0.906115968666667

00:18:47.562 --> 00:18:49.520 abdominal cavity requiring resecting organs,

NOTE Confidence: 0.906115968666667

00:18:49.520 --> 00:18:50.582 sometimes many organs.

NOTE Confidence: 0.906115968666667

00:18:50.582 --> 00:18:53.060 And so it could be very dramatic

NOTE Confidence: 0.906115968666667

00:18:53.126 --> 00:18:54.800 or it could be very minor.

NOTE Confidence: 0.906115968666667

00:18:54.800 --> 00:18:55.394 We're actually now doing

NOTE Confidence: 0.906115968666667

00:18:55.394 --> 00:18:56.879 these laparoscopically.

NOTE Confidence: 0.906115968666667

00:18:56.880 --> 00:18:59.370 In fact we just published along with

NOTE Confidence: 0.906115968666667

00:18:59.370 --> 00:19:01.225 a bunch of other institutions a group

NOTE Confidence: 0.906115968666667

00:19:01.225 --> 00:19:02.853 of laparoscopic procedures where you

NOTE Confidence: 0.906115968666667

00:19:02.853 --> 00:19:05.119 can do these with little poke holes

NOTE Confidence: 0.906115968666667

00:19:05.119 --> 00:19:07.071 and remove a lot of the cancers and

NOTE Confidence: 0.906115968666667

00:19:07.071 --> 00:19:08.604 still achieve the same benefits.

NOTE Confidence: 0.906115968666667

00:19:08.604 --> 00:19:10.530 The premise being you can identify

NOTE Confidence: 0.906115968666667

00:19:10.586 --> 00:19:11.639 these cancers early,

NOTE Confidence: 0.906115968666667

00:19:11.640 --> 00:19:13.488 which I think is the key to

NOTE Confidence: 0.906115968666667

00:19:13.488 --> 00:19:15.200 thinking about the future of this.

NOTE Confidence: 0.906115968666667

00:19:15.200 --> 00:19:16.992 And so the side effect profile of

NOTE Confidence: 0.906115968666667

00:19:16.992 --> 00:19:18.801 the surgery is something that is

NOTE Confidence: 0.906115968666667

00:19:18.801 --> 00:19:20.436 well known and well understood.

NOTE Confidence: 0.906115968666667

00:19:20.440 --> 00:19:22.912 The addition of the HIPEC in

NOTE Confidence: 0.906115968666667

00:19:22.912 --> 00:19:25.092 many randomized trials adds very

NOTE Confidence: 0.906115968666667

00:19:25.092 --> 00:19:27.372 little to the complication profile

NOTE Confidence: 0.906115968666667

00:19:27.372 --> 00:19:29.196 when studied in trial.

NOTE Confidence: 0.906115968666667

00:19:29.200 --> 00:19:29.680 So essentially,

NOTE Confidence: 0.906115968666667

00:19:29.680 --> 00:19:31.360 it can increase the risk of bleeding,

NOTE Confidence: 0.906115968666667

00:19:31.360 --> 00:19:32.914 it can increase the risk of

NOTE Confidence: 0.906115968666667

00:19:32.914 --> 00:19:34.640 leakages when we make connections.

NOTE Confidence: 0.906115968666667

00:19:34.640 --> 00:19:36.467 But I think one of the things that we

NOTE Confidence: 0.906115968666667

00:19:36.467 --> 00:19:38.242 notice often in clinics is that it does

NOTE Confidence: 0.906115968666667

00:19:38.242 --> 00:19:39.813 knock the wind out of our patients

NOTE Confidence: 0.906115968666667

00:19:39.813 --> 00:19:41.483 a little bit more than just surgery.

NOTE Confidence: 0.906115968666667

00:19:41.483 --> 00:19:44.024 And so you know patients will typically

NOTE Confidence: 0.906115968666667

00:19:44.024 --> 00:19:46.088 feel about 80% of their pre surgery

NOTE Confidence: 0.906115968666667

00:19:46.088 --> 00:19:48.040 quality of life at about six weeks

NOTE Confidence: 0.906115968666667

00:19:48.040 --> 00:19:49.867 and it takes about 3 months for

NOTE Confidence: 0.906115968666667

00:19:49.867 --> 00:19:51.578 people to really start feeling as

NOTE Confidence: 0.906115968666667

00:19:51.578 --> 00:19:53.659 well as they did before the surgery.

NOTE Confidence: 0.906115968666667

00:19:53.659 --> 00:19:54.038 However,

NOTE Confidence: 0.906115968666667

00:19:54.038 --> 00:19:55.554 interestingly in many quality

NOTE Confidence: 0.906115968666667

00:19:55.554 --> 00:19:57.760 of life studies at six months,

NOTE Confidence: 0.906115968666667

00:19:57.760 --> 00:19:59.280 most patients actually feel better,

NOTE Confidence: 0.906115968666667

00:19:59.280 --> 00:20:01.212 like 120% as compared to prior

NOTE Confidence: 0.906115968666667

00:20:01.212 --> 00:20:02.848 to surgery obviously because the

NOTE Confidence: 0.906115968666667

00:20:02.848 --> 00:20:04.612 cancer has been removed and

NOTE Confidence: 0.906115968666667

00:20:04.612 --> 00:20:06.318 they're doing well at that point.

NOTE Confidence: 0.9640205425

00:20:07.280 --> 00:20:09.578 Getting back to the question or

NOTE Confidence: 0.9640205425

00:20:09.578 --> 00:20:12.013 the point that you made earlier

NOTE Confidence: 0.9640205425

00:20:12.013 --> 00:20:14.491 which was that removing

NOTE Confidence: 0.9640205425

00:20:14.491 --> 00:20:17.237 a little bit doesn't really help.

NOTE Confidence: 0.9640205425

00:20:17.240 --> 00:20:20.210 I think a lot of listeners may have the

NOTE Confidence: 0.9640205425

00:20:20.210 --> 00:20:22.679 question that goes something like this.

NOTE Confidence: 0.9640205425

00:20:22.680 --> 00:20:25.480 If you have this peritoneum,

NOTE Confidence: 0.9640205425

00:20:25.480 --> 00:20:27.880 which is a barrier, right?

NOTE Confidence: 0.9640205425

00:20:27.880 --> 00:20:30.190 You had mentioned before the break

NOTE Confidence: 0.9640205425

00:20:30.190 --> 00:20:32.313 that people who have peritoneal

NOTE Confidence: 0.9640205425

00:20:32.313 --> 00:20:35.520 metastases often times don't have a

NOTE Confidence: 0.9640205425

00:20:35.520 --> 00:20:38.968 large burden of circulating cancer

NOTE Confidence: 0.9640205425

00:20:38.968 --> 00:20:42.076 that it really acts to confine that.

NOTE Confidence: 0.9640205425

00:20:42.080 --> 00:20:46.028 So then I wonder if you remove

NOTE Confidence: 0.9640205425

00:20:46.028 --> 00:20:47.156 the peritoneum,

NOTE Confidence: 0.9640205425

00:20:47.160 --> 00:20:49.476 do you then remove that barrier

NOTE Confidence: 0.9640205425

00:20:49.476 --> 00:20:51.857 such that patients who get a

NOTE Confidence: 0.9640205425

00:20:51.857 --> 00:20:54.080 recurrence may be more likely to

NOTE Confidence: 0.9640205425

00:20:54.080 --> 00:20:55.552 get distant metastatic disease?

NOTE Confidence: 0.91992293

00:20:56.360 --> 00:20:57.600 That's a fascinating question.

NOTE Confidence: 0.91992293

00:20:57.600 --> 00:20:59.460 And the answer is we

NOTE Confidence: 0.91992293

00:20:59.519 --> 00:21:00.758 don't know completely,

NOTE Confidence: 0.91992293

00:21:00.760 --> 00:21:03.235 but I can give you some data that might

NOTE Confidence: 0.91992293

00:21:03.235 --> 00:21:05.352 help us think about this.

NOTE Confidence: 0.91992293

00:21:05.352 --> 00:21:07.424 So if you think and again remember

NOTE Confidence: 0.91992293

00:21:07.424 --> 00:21:08.762 unfortunately there's a very

NOTE Confidence: 0.91992293

00:21:08.762 --> 00:21:10.074 heterogeneous group of tumors.

NOTE Confidence: 0.91992293

00:21:10.080 --> 00:21:11.480 So it matters which cancer

NOTE Confidence: 0.91992293

00:21:11.480 --> 00:21:12.320 we're talking about.

NOTE Confidence: 0.91992293

00:21:12.320 --> 00:21:14.066 But let's take the example

NOTE Confidence: 0.91992293

00:21:14.066 --> 00:21:15.800 of colon cancer for instance.

NOTE Confidence: 0.91992293

00:21:15.800 --> 00:21:17.680 And so in colon cancer,

NOTE Confidence: 0.91992293

00:21:17.680 --> 00:21:19.600 when the lining is removed,

NOTE Confidence: 0.91992293

00:21:19.600 --> 00:21:22.920 the peritoneum is removed.

NOTE Confidence: 0.91992293

00:21:22.920 --> 00:21:25.559 Depending on when the cancer comes back,

NOTE Confidence: 0.91992293

00:21:25.560 --> 00:21:27.390 often the cancer will still come

NOTE Confidence: 0.91992293

00:21:27.390 --> 00:21:29.040 back inside the abdominal cavity.

NOTE Confidence: 0.91992293

00:21:29.040 --> 00:21:30.720 So even though the barrier or

NOTE Confidence: 0.91992293

00:21:30.720 --> 00:21:32.360 the lining has been removed,

NOTE Confidence: 0.91992293

00:21:32.360 --> 00:21:34.556 it still tends to come back to the cavity.

NOTE Confidence: 0.91992293

00:21:34.560 --> 00:21:37.256 Now the caveat is that in colon cancer

NOTE Confidence: 0.91992293

00:21:37.256 --> 00:21:39.759 we rarely remove the entire lining,

NOTE Confidence: 0.91992293

00:21:39.760 --> 00:21:40.780 the parietal peritoneum.

NOTE Confidence: 0.91992293

00:21:40.780 --> 00:21:42.820 And so perhaps there still is

NOTE Confidence: 0.91992293

00:21:42.820 --> 00:21:44.523 that evidence of a barrier

NOTE Confidence: 0.91992293

00:21:44.523 --> 00:21:46.153 that's keeping things at bay.

NOTE Confidence: 0.91992293

00:21:46.160 --> 00:21:47.472 On the other hand,

NOTE Confidence: 0.91992293

00:21:47.472 --> 00:21:49.112 there are tumors like mesothelioma

NOTE Confidence: 0.91992293

00:21:49.120 --> 00:21:50.600 appendix tumors where we actually

NOTE Confidence: 0.91992293

00:21:50.600 --> 00:21:52.080 take out the entire lining.

NOTE Confidence: 0.91992293

00:21:52.080 --> 00:21:53.646 And even in those scenarios very

NOTE Confidence: 0.91992293

00:21:53.646 --> 00:21:55.279 often if it does come back,

NOTE Confidence: 0.91992293

00:21:55.280 --> 00:21:57.320 it still tends to come back

NOTE Confidence: 0.91992293

00:21:57.320 --> 00:21:58.680 inside the abdominal cavity.

NOTE Confidence: 0.91992293

00:21:58.680 --> 00:21:59.013 However,

NOTE Confidence: 0.91992293

00:21:59.013 --> 00:22:01.011 one of the observations we started

NOTE Confidence: 0.91992293

00:22:01.011 --> 00:22:03.290 noticing as a group most of us

NOTE Confidence: 0.91992293

00:22:03.290 --> 00:22:04.840 that treat patients with this

NOTE Confidence: 0.91992293

00:22:04.840 --> 00:22:06.877 disease was that we were now

NOTE Confidence: 0.91992293

00:22:06.877 --> 00:22:08.572 keeping patients alive longer and

NOTE Confidence: 0.91992293

00:22:08.572 --> 00:22:10.590 longer to the point where now

NOTE Confidence: 0.91992293

00:22:10.590 --> 00:22:12.200 we started seeing metastasis or

NOTE Confidence: 0.91992293

00:22:12.200 --> 00:22:14.336 spread of cancer in locations that

NOTE Confidence: 0.91992293

00:22:14.336 --> 00:22:15.760 we wouldn't conventionally see.

NOTE Confidence: 0.91992293

00:22:15.760 --> 00:22:17.710 So for instance in appendix cancer

NOTE Confidence: 0.91992293

00:22:17.710 --> 00:22:19.461 we started seeing bone metastasis

NOTE Confidence: 0.91992293

00:22:19.461 --> 00:22:21.396 or brain metastasis five years

NOTE Confidence: 0.91992293

00:22:21.396 --> 00:22:22.557 after an operation.

NOTE Confidence: 0.91992293

00:22:22.560 --> 00:22:24.636 So just a very unusual pattern.

NOTE Confidence: 0.91992293

00:22:24.640 --> 00:22:26.680 So perhaps there may be some

NOTE Confidence: 0.91992293

00:22:26.680 --> 00:22:28.840 effect of removing the peritoneum,

NOTE Confidence: 0.91992293

00:22:28.840 --> 00:22:31.006 but not something that is immediately

NOTE Confidence: 0.91992293

00:22:31.006 --> 00:22:33.359 observable or has been seen by datum.

NOTE Confidence: 0.905206716

00:22:34.040 --> 00:22:37.932 And you know presumably this will take

NOTE Confidence: 0.905206716

00:22:37.932 --> 00:22:40.320 longer study because distant metastases

NOTE Confidence: 0.905206716

00:22:40.320 --> 00:22:43.200 won't occur in the short term.

NOTE Confidence: 0.905206716

00:22:43.200 --> 00:22:46.944 And so it's interesting to kind of think

NOTE Confidence: 0.905206716

00:22:46.944 --> 00:22:49.404 about getting these distant metastases

NOTE Confidence: 0.905206716

00:22:49.404 --> 00:22:52.358 that we may not have seen before.

NOTE Confidence: 0.905206716

00:22:52.360 --> 00:22:54.292 Which brings us to the

NOTE Confidence: 0.905206716

00:22:54.292 --> 00:22:56.080 next big question I think,

NOTE Confidence: 0.905206716

00:22:56.080 --> 00:22:58.187 which is can you talk a little

NOTE Confidence: 0.905206716

00:22:58.187 --> 00:22:59.874 bit about ongoing research and

NOTE Confidence: 0.905206716

00:22:59.874 --> 00:23:02.022 things that are most exciting for

NOTE Confidence: 0.905206716

00:23:02.022 --> 00:23:04.117 you moving forward in this area?

NOTE Confidence: 0.962798132

00:23:04.800 --> 00:23:06.080 Yeah. So I think

NOTE Confidence: 0.962798132

00:23:06.080 --> 00:23:08.896 this is perhaps where we have

NOTE Confidence: 0.962798132

00:23:08.896 --> 00:23:10.798 the opportunity for greatest impact,

NOTE Confidence: 0.962798132

00:23:10.800 --> 00:23:12.424 which is number one,

NOTE Confidence: 0.962798132

00:23:12.424 --> 00:23:14.600 I think knowing what this disease is.

NOTE Confidence: 0.962798132

00:23:14.600 --> 00:23:16.598 So I think finally now there's

NOTE Confidence: 0.962798132

00:23:16.598 --> 00:23:18.518 enough awareness and there's a lot

NOTE Confidence: 0.962798132

00:23:18.518 --> 00:23:20.373 of folks that are learning more

NOTE Confidence: 0.962798132

00:23:20.373 --> 00:23:22.280 about peritoneal metastases early.

NOTE Confidence: 0.962798132

00:23:22.280 --> 00:23:24.492 And what is fascinating is a study

NOTE Confidence: 0.962798132

00:23:24.492 --> 00:23:26.412 that was recently published where

NOTE Confidence: 0.962798132

00:23:26.412 --> 00:23:28.667 patients with colon cancer without

NOTE Confidence: 0.962798132

00:23:28.667 --> 00:23:30.464 metastases were treated with

NOTE Confidence: 0.962798132

00:23:30.464 --> 00:23:31.996 intrapertonal chemotherapy with HIPEC

NOTE Confidence: 0.962798132

00:23:31.996 --> 00:23:34.419 at the time of their operation.

NOTE Confidence: 0.962798132

00:23:34.419 --> 00:23:35.417 So remember,

NOTE Confidence: 0.962798132

00:23:35.417 --> 00:23:37.912 no peritoneal metastases and they

NOTE Confidence: 0.962798132

00:23:37.912 --> 00:23:40.240 actually demonstrated that at three years,

NOTE Confidence: 0.962798132

00:23:40.240 --> 00:23:42.557 97% of these patients who got the

NOTE Confidence: 0.962798132

00:23:42.557 --> 00:23:44.832 chemo didn't have peritoneal metastases

NOTE Confidence: 0.962798132

00:23:44.832 --> 00:23:47.477 versus 84 or 85% of patients in the

NOTE Confidence: 0.962798132

00:23:47.477 --> 00:23:49.919 other arm who developed metastases.

NOTE Confidence: 0.962798132

00:23:49.920 --> 00:23:51.384 So it's a remarkable

00:23:52.120 --> 00:23:54.724 concept of thinking about can we act

NOTE Confidence: 0.962798132

00:23:54.724 --> 00:23:56.892 in a preventative way or can we act

NOTE Confidence: 0.962798132

00:23:56.892 --> 00:23:59.238 in a way where we find these diseases early.

NOTE Confidence: 0.962798132

00:23:59.240 --> 00:24:02.292 I think the other thing is using

NOTE Confidence: 0.962798132

00:24:02.292 --> 00:24:03.920 novel technologies like CFDN,

NOTE Confidence: 0.962798132

00:24:03.920 --> 00:24:05.200 A/C, TDNA, advanced MRI,

NOTE Confidence: 0.962798132

00:24:05.200 --> 00:24:07.582 advanced PET scans to find these

NOTE Confidence: 0.962798132

00:24:07.582 --> 00:24:09.170 peritoneal metastases early so

NOTE Confidence: 0.962798132

00:24:09.238 --> 00:24:11.320 that they can be treated earlier.

NOTE Confidence: 0.962798132

00:24:11.320 --> 00:24:13.534 And then I think more importantly

NOTE Confidence: 0.962798132

00:24:13.534 --> 00:24:15.993 finding better agents that can be put

NOTE Confidence: 0.962798132

00:24:15.993 --> 00:24:17.835 inside the abdomen in better ways.

NOTE Confidence: 0.962798132

00:24:17.840 --> 00:24:19.720 So there's technologies like HIPEC,

NOTE Confidence: 0.962798132

00:24:19.720 --> 00:24:22.720 which is aerosolized chemotherapy,

NOTE Confidence: 0.962798132

00:24:22.720 --> 00:24:24.883 but there's also other things such as

NOTE Confidence: 0.962798132

00:24:24.883 --> 00:24:26.399 delivering immunotherapy inside the abdomen,

NOTE Confidence: 0.962798132

00:24:26.400 --> 00:24:29.248 viruses inside the abdomen,

NOTE Confidence: 0.962798132

00:24:29.248 --> 00:24:31.622 vaccines that I think have really moved

NOTE Confidence: 0.962798132

00:24:31.622 --> 00:24:33.680 the field forward and are are exciting.

NOTE Confidence: 0.962798132

00:24:33.680 --> 00:24:36.340 And what I tell a lot

NOTE Confidence: 0.962798132

00:24:36.417 --> 00:24:38.960 of my patients is that while

NOTE Confidence: 0.962798132

00:24:38.960 --> 00:24:41.328 we try our best to cure these cancers

NOTE Confidence: 0.962798132

00:24:41.328 --> 00:24:43.757 and we're not successful all the time,

00:24:44.204 --> 00:24:45.980 our goal is to at least keep people

NOTE Confidence: 0.962798132

00:24:46.038 --> 00:24:47.872 alive long enough with good quality of

NOTE Confidence: 0.962798132

00:24:47.872 --> 00:24:49.640 life such that our science advances at

NOTE Confidence: 0.962798132

00:24:49.640 --> 00:24:51.640 a pace that we are able to see this.

NOTE Confidence: 0.962798132

00:24:51.640 --> 00:24:52.640 And in my own lifetime,

NOTE Confidence: 0.962798132

00:24:52.640 --> 00:24:55.398 as I'm sure you have seen Anees,

NOTE Confidence: 0.962798132

00:24:55.400 --> 00:24:57.530 the advances in cancer care have

NOTE Confidence: 0.962798132

00:24:57.530 --> 00:24:58.240 been dramatic.

NOTE Confidence: 0.962798132

00:24:58.240 --> 00:25:00.504 You know for the first time we're

NOTE Confidence: 0.962798132

00:25:00.504 --> 00:25:02.597 seeing reduction in cancer deaths nationally.

NOTE Confidence: 0.962798132

00:25:02.600 --> 00:25:04.889 We're seeing almost two to

NOTE Confidence: 0.962798132

00:25:04.889 --> 00:25:07.298 three new drugs being approved by the

NOTE Confidence: 0.962798132

00:25:07.298 --> 00:25:09.640 FDA every month for many of these conditions.

NOTE Confidence: 0.962798132

00:25:09.640 --> 00:25:12.690 And so I think it is remarkable to be

NOTE Confidence: 0.962798132

00:25:12.690 --> 00:25:15.394 at this phase of science where

00:25:15.908 --> 00:25:17.892 I feel much more hopeful about our, goals.

00:25:20.320 --> 00:25:24.058 Yeah, you know the the idea of

NOTE Confidence: 0.826344489166667

00:25:24.058 --> 00:25:27.439 of using HIPEC for preventing

NOTE Confidence: 0.826344489166667

00:25:27.440 --> 00:25:30.610 peritoneal metastases is certainly

NOTE Confidence: 0.826344489166667

00:25:30.610 --> 00:25:33.780 intriguing especially when you couple

NOTE Confidence: 0.826344489166667

00:25:33.868 --> 00:25:37.315 it with this idea of you know the

NOTE Confidence: 0.826344489166667

00:25:37.315 --> 00:25:40.240 the peritoneum being a barrier.

NOTE Confidence: 0.826344489166667

00:25:40.240 --> 00:25:44.496 So has anybody looked at using just

NOTE Confidence: 0.826344489166667

00:25:44.496 --> 00:25:47.620 the chemotherapy part of HIPEC in

NOTE Confidence: 0.826344489166667

00:25:47.620 --> 00:25:50.000 terms of the prevention or in the

NOTE Confidence: 0.826344489166667

00:25:50.000 --> 00:25:51.918 preventative trial that you mentioned,

NOTE Confidence: 0.826344489166667

00:25:51.920 --> 00:25:54.370 were they also removing the

NOTE Confidence: 0.826344489166667

00:25:54.370 --> 00:25:55.840 entire parietal peritoneum?

NOTE Confidence: 0.796963142222222

00:25:56.600 --> 00:25:59.354 No. So I think 2 parts to the answer.

NOTE Confidence: 0.796963142222222

00:25:59.360 --> 00:26:02.188 First for the trial

NOTE Confidence: 0.796963142222222

00:26:02.188 --> 00:26:04.799 specifically called the HIPEC T4 trial,

NOTE Confidence: 0.796963142222222

00:26:04.800 --> 00:26:06.654 it was removing the colon cancer

NOTE Confidence: 0.796963142222222

00:26:06.654 --> 00:26:08.560 and then doing the hot chemo,

NOTE Confidence: 0.796963142222222

00:26:08.560 --> 00:26:10.560 not removing the parietal peritoneum.

NOTE Confidence: 0.796963142222222

00:26:10.560 --> 00:26:12.310 And so I think that was purely

NOTE Confidence: 0.796963142222222

00:26:12.310 --> 00:26:14.037 a study where delivering the

NOTE Confidence: 0.796963142222222

00:26:14.037 --> 00:26:15.417 intraparitonal chemotherapy with

NOTE Confidence: 0.796963142222222

00:26:15.417 --> 00:26:17.717 mitomycin worked in colon cancer.

NOTE Confidence: 0.796963142222222

00:26:17.720 --> 00:26:19.420 A similar study with oxaliplatin

NOTE Confidence: 0.796963142222222

00:26:19.420 --> 00:26:20.440 actually didn't work.

NOTE Confidence: 0.796963142222222

00:26:20.440 --> 00:26:22.680 So again going to the concept that

NOTE Confidence: 0.796963142222222

00:26:22.680 --> 00:26:24.799 the actual drug that is delivered

NOTE Confidence: 0.796963142222222

00:26:24.800 --> 00:26:27.998 matters a lot in these diseases.

NOTE Confidence: 0.796963142222222

00:26:28.000 --> 00:26:30.226 I think the concept of putting

NOTE Confidence: 0.796963142222222

00:26:30.226 --> 00:26:32.127 chemotherapy alone in the abdomen

NOTE Confidence: 0.796963142222222

00:26:32.127 --> 00:26:34.233 is something that is being explored

NOTE Confidence: 0.796963142222222

00:26:34.233 --> 00:26:36.874 both by a technology or technique

NOTE Confidence: 0.796963142222222

00:26:36.874 --> 00:26:39.370 called intraperitoneal aerosol chemotherapy (PIPAC).

NOTE Confidence: 0.796963142222222

00:26:39.370 --> 00:26:41.795 In both of these concepts,

NOTE Confidence: 0.796963142222222

00:26:41.800 --> 00:26:43.520 if you think of the analogy I'd given

NOTE Confidence: 0.796963142222222

00:26:43.520 --> 00:26:45.298 earlier of grease on the floor and

NOTE Confidence: 0.796963142222222

00:26:45.298 --> 00:26:46.598 you know cytoreductive surgeries,

NOTE Confidence: 0.796963142222222

00:26:46.600 --> 00:26:48.882 removing the grease and HIPEC is sort

NOTE Confidence: 0.796963142222222

00:26:48.882 --> 00:26:51.357 of the Lysol or the Febreeze spray.

NOTE Confidence: 0.796963142222222

00:26:51.360 --> 00:26:53.425 There is a concept where you actually

NOTE Confidence: 0.796963142222222

00:26:53.425 --> 00:26:55.080 don't remove the tumor at all.

NOTE Confidence: 0.796963142222222

00:26:55.080 --> 00:26:56.220 So you don't actually scrub

NOTE Confidence: 0.796963142222222

00:26:56.220 --> 00:26:58.005 the grease and you just put the

NOTE Confidence: 0.796963142222222

00:26:58.005 --> 00:26:59.197 chemotherapy inside the abdomen.

NOTE Confidence: 0.796963142222222

00:26:59.200 --> 00:27:00.120 You let it

NOTE Confidence: 0.796963142222222

00:27:00.120 --> 00:27:01.768 deliver either through HIPEC

NOTE Confidence: 0.796963142222222

00:27:01.768 --> 00:27:04.240 which is heated and delivered inside

NOTE Confidence: 0.796963142222222

00:27:04.312 --> 00:27:06.338 the abdomen or through normal

NOTE Confidence: 0.796963142222222

00:27:06.338 --> 00:27:07.676 thermic intravertinal chemotherapy.

NOTE Confidence: 0.796963142222222

00:27:07.680 --> 00:27:09.632 So you just put a catheter and you

NOTE Confidence: 0.796963142222222

00:27:09.632 --> 00:27:11.637 put chemo inside it or with PIPEC

NOTE Confidence: 0.796963142222222

00:27:11.637 --> 00:27:13.232 in which you actually aerosolize

NOTE Confidence: 0.796963142222222

00:27:13.232 --> 00:27:14.839 the chemotherapy and put it inside.

NOTE Confidence: 0.796963142222222

00:27:14.840 --> 00:27:17.336 And there are numerous trials that

NOTE Confidence: 0.796963142222222

00:27:17.336 --> 00:27:19.811 are ongoing across the world where

NOTE Confidence: 0.796963142222222

00:27:19.811 --> 00:27:22.037 these concepts are being studied not

NOTE Confidence: 0.796963142222222

00:27:22.037 --> 00:27:24.239 just to improve quality of life,

NOTE Confidence: 0.796963142222222

00:27:24.240 --> 00:27:27.400 but also to see if these are helpful

NOTE Confidence: 0.796963142222222

00:27:27.400 --> 00:27:29.200 in controlling the cancers.

NOTE Confidence: 0.796963142222222

00:27:29.200 --> 00:27:31.160 It is a little difficult to believe

NOTE Confidence: 0.796963142222222

00:27:31.160 --> 00:27:32.360 that these therapies alone,

NOTE Confidence: 0.796963142222222

00:27:32.360 --> 00:27:33.720 at least as they stand,

NOTE Confidence: 0.796963142222222

00:27:33.720 --> 00:27:35.480 will lead to curative intent.

NOTE Confidence: 0.796963142222222

00:27:35.480 --> 00:27:37.461 And so many of these are trials

NOTE Confidence: 0.796963142222222

00:27:37.461 --> 00:27:39.571 designed with the end point of

NOTE Confidence: 0.796963142222222

00:27:39.571 --> 00:27:41.371 being able to get to cytoreductive

NOTE Confidence: 0.796963142222222

00:27:41.434 --> 00:27:43.396 surgery or some other modality.

00:27:43.760 --> 00:27:47.000 But it has been very interesting to see many,

NOTE Confidence: 0.796963142222222

00:27:47.000 --> 00:27:49.240 many preliminary reports where

NOTE Confidence: 0.796963142222222

00:27:49.240 --> 00:27:50.920 intraparitonal chemotherapy delivered

NOTE Confidence: 0.796963142222222

00:27:50.920 --> 00:27:54.280 in different forms seems to have

NOTE Confidence: 0.796963142222222

00:27:54.280 --> 00:27:55.960 a significant oncological benefit.

NOTE Confidence: 0.832474085

00:27:57.240 --> 00:27:59.487 And to your earlier point of you

NOTE Confidence: 0.832474085

00:27:59.487 --> 00:28:02.137 know the whole concept of HIPEC

NOTE Confidence: 0.832474085

00:28:02.137 --> 00:28:03.749 and cytoreductive surgery being

NOTE Confidence: 0.832474085

00:28:03.749 --> 00:28:06.437 kind of studied as a bundle, right,

NOTE Confidence: 0.832474085

00:28:06.437 --> 00:28:09.059 with the heat and the intraparitoneal

NOTE Confidence: 0.832474085

00:28:09.059 --> 00:28:11.920 chemotherapy and the cytoreductive surgery.

NOTE Confidence: 0.832474085

00:28:11.920 --> 00:28:13.943 One can only imagine that these trials

NOTE Confidence: 0.832474085

00:28:13.943 --> 00:28:16.518 that are now ongoing which are looking at,

NOTE Confidence: 0.832474085

00:28:16.520 --> 00:28:19.440 well what if we don't heat the chemotherapy,

NOTE Confidence: 0.832474085

00:28:19.440 --> 00:28:22.107 what if we don't do the cytoreductive

NOTE Confidence: 0.832474085

00:28:22.107 --> 00:28:24.760 surgery might give us some insight into,

NOTE Confidence: 0.832474085

00:28:24.760 --> 00:28:28.360 you know, which of these elements of HIPEC

NOTE Confidence: 0.832474085

00:28:28.360 --> 00:28:30.400 are really the most efficacious?

NOTE Confidence: 0.832474085

00:28:31.000 --> 00:28:31.600 Absolutely.

NOTE Confidence: 0.877118086666667

00:28:32.320 --> 00:28:34.833 Doctor Kiran Turaga is a professor and

NOTE Confidence: 0.877118086666667

00:28:34.833 --> 00:28:36.761 division Chief of Surgical Oncology

NOTE Confidence: 0.877118086666667

00:28:36.761 --> 00:28:39.113 at the Yale School of Medicine.

NOTE Confidence: 0.877118086666667

00:28:39.120 --> 00:28:41.060 If you have questions,

NOTE Confidence: 0.877118086666667

00:28:41.060 --> 00:28:42.971 the address is canceranswers@yale.edu,

NOTE Confidence: 0.877118086666667

00:28:42.971 --> 00:28:45.677 and past editions of the program

NOTE Confidence: 0.877118086666667

00:28:45.677 --> 00:28:48.022 are available in audio and written

NOTE Confidence: 0.877118086666667

00:28:48.022 --> 00:28:48.946 form at yalecancercenter.org.

NOTE Confidence: 0.877118086666667

00:28:48.946 --> 00:28:51.394 We hope you'll join us next week to

NOTE Confidence: 0.877118086666667

00:28:51.394 --> 00:28:53.268 learn more about the fight against

NOTE Confidence: 0.877118086666667

00:28:53.268 --> 00:28:55.120 cancer here on Connecticut Public Radio.

NOTE Confidence: 0.877118086666667

00:28:55.120 --> 00:28:57.622 Funding for Yale Cancer Answers is

NOTE Confidence: 0.877118086666667

00:28:57.622 --> 00:29:00.000 provided by Smilow Cancer Hospital.