WEBVTT

NOTE Confidence: 0.9216286

00:00:00.000 --> 00:00:02.435 Support for Yale Cancer Answers

NOTE Confidence: 0.9216286

00:00:02.435 --> 00:00:04.870 comes from AstraZeneca, working

NOTE Confidence: 0.9216286

00:00:04.947 --> 00:00:07.935 to change how cancer is treated

NOTE Confidence: 0.9216286

00:00:07.935 --> 00:00:09.429 with personalized medicine.

NOTE Confidence: 0.9216286

00:00:09.430 --> 00:00:11.398 Learn more at astrazeneca-us.com.

NOTE Confidence: 0.9180162

00:00:13.470 --> 00:00:14.892 Welcome to Yale Cancer

NOTE Confidence: 0.9180162

00:00:14.892 --> 00:00:16.308 Answers with your host

NOTE Confidence: 0.9180162

00:00:16.310 --> 00:00:18.090 Doctor Anees Chagpar.

NOTE Confidence: 0.9180162

00:00:18.090 --> 00:00:19.985 Yale Cancer Answers features the

NOTE Confidence: 0.9180162

00:00:19.985 --> 00:00:22.313 latest information on cancer care by

NOTE Confidence: 0.9180162

00:00:22.313 --> 00:00:23.805 welcoming oncologists and specialists

NOTE Confidence: 0.9180162

00:00:23.805 --> 00:00:26.306 who are on the forefront of the

NOTE Confidence: 0.9180162

00:00:26.306 --> 00:00:28.028 battle to fight cancer. This week

NOTE Confidence: 0.9180162

00:00:28.030 --> 00:00:29.800 it's a conversation about pancreatic

NOTE Confidence: 0.9180162

00:00:29.800 --> 00:00:31.216 cancer with Doctor Mandar

NOTE Confidence: 0.9180162

00:00:31.220 --> 00:00:32.776 Deepak Muzumdar. Doctor Muzumdar

NOTE Confidence: 0.9180162

00:00:32.776 --> 00:00:34.721 is an assistant professor of

NOTE Confidence: 0.9180162

00:00:34.721 --> 00:00:36.104 genetics and medical oncology

NOTE Confidence: 0.9180162

00:00:36.104 --> 00:00:37.970 at the Yale School of Medicine

NOTE Confidence: 0.9180162

00:00:37.970 --> 00:00:40.100 where Doctor Chagpar is a

NOTE Confidence: 0.9180162

00:00:40.100 --> 00:00:41.520 professor of surgical oncology.

NOTE Confidence: 0.9437309

00:00:42.460 --> 00:00:43.850 Maybe you can

NOTE Confidence: 0.9437309

00:00:43.850 --> 00:00:45.690 start by telling us a little

NOTE Confidence: 0.9437309

00:00:45.690 --> 00:00:47.246 bit about pancreatic cancer.

NOTE Confidence: 0.9437309

00:00:47.250 --> 00:00:49.794 It's certainly not one of the Big 5.

NOTE Confidence: 0.9437309

00:00:49.800 --> 00:00:51.582 We talk about breast

NOTE Confidence: 0.9437309

00:00:51.582 --> 00:00:53.516 cancer and lung cancer and colon

NOTE Confidence: 0.9437309

00:00:53.516 --> 00:00:54.896 cancer and prostate cancer.

NOTE Confidence: 0.9437309

00:00:54.900 --> 00:00:57.450 Pancreatic cancer is a little bit rarer. Is

NOTE Confidence: 0.9437309

00:00:57.450 --> 00:00:58.730 that right?

NOTE Confidence: 0.9437309

00:00:58.730 --> 00:01:00.010 Yes, pancreatic cancer is

NOTE Confidence: 0.9437309

00:01:00.010 --> 00:01:01.918 somewhere between the 10th and 11th,

NOTE Confidence: 0.9437309

00:01:01.920 --> 00:01:03.515 most common cause of

NOTE Confidence: 0.9437309

00:01:03.515 --> 00:01:05.110 cancer in the United States.

NOTE Confidence: 0.9437309

00:01:05.110 --> 00:01:06.655 But it's rapidly contributing to

NOTE Confidence: 0.9437309

00:01:06.655 --> 00:01:08.620 cancer deaths in the United States.

NOTE Confidence: 0.9437309

00:01:08.620 --> 00:01:10.210 It's now the third leading

NOTE Confidence: 0.9437309

00:01:10.210 --> 00:01:11.482 cause of cancer death in the

NOTE Confidence: 0.9437309

00:01:11.490 --> 00:01:13.392 United States and is soon expected

NOTE Confidence: 0.9437309

00:01:13.392 --> 00:01:15.433 to be the second leading cause

NOTE Confidence: 0.9437309

00:01:15.433 --> 00:01:17.208 within the next few years.

NOTE Confidence: 0.9437309

00:01:17.210 --> 00:01:19.702 So I think it's becoming a very

NOTE Confidence: 0.9437309

00:01:19.702 --> 00:01:21.554 important cause of cancer that

NOTE Confidence: 0.9437309

00:01:21.554 --> 00:01:23.690 we really have to deal with.

NOTE Confidence: 0.91938174

00:01:23.690 --> 00:01:25.490 Yeah, and that's I guess

NOTE Confidence: 0.91938174

00:01:25.490 --> 00:01:26.570 because pancreatic cancer,

NOTE Confidence: 0.91938174

00:01:26.570 --> 00:01:28.370 although it may be rare,

NOTE Confidence: 0.91938174

00:01:28.370 --> 00:01:30.530 is often pretty fatal. Is that

NOTE Confidence: 0.91938174

00:01:30.530 --> 00:01:31.649 right?

NOTE Confidence: 0.91938174

00:01:31.649 --> 00:01:33.514 Most patients with pancreatic cancer

NOTE Confidence: 0.91938174

00:01:33.514 --> 00:01:35.210 are diagnosed at advanced stages.

NOTE Confidence: 0.91938174

00:01:35.210 --> 00:01:37.010 Either it's beyond surgical resection,

NOTE Confidence: 0.91938174

00:01:37.010 --> 00:01:38.660 which is our mainstay of

NOTE Confidence: 0.91938174

00:01:38.660 --> 00:01:40.780 therapy for cure or it is

NOTE Confidence: 0.91938174

00:01:40.780 --> 00:01:42.770 already spread to other organs,

NOTE Confidence: 0.91938174

00:01:42.770 --> 00:01:43.850 making it exceedingly

NOTE Confidence: 0.91938174

00:01:43.850 --> 00:01:45.650 challenging to treat at that

NOTE Confidence: 0.91938174

00:01:45.650 --> 00:01:48.407 point. And so the idea is

NOTE Confidence: 0.91938174

00:01:48.407 --> 00:01:50.002 to either find it early

NOTE Confidence: 0.91938174

00:01:50.002 --> 00:01:51.669 or prevent it altogether.

NOTE Confidence: 0.91938174

00:01:51.670 --> 00:01:54.126 So let's take each of those in turn.

NOTE Confidence: 0.91938174

00:01:54.130 --> 00:01:55.972 I know that your lab is

NOTE Confidence: 0.91938174

00:01:55.972 --> 00:01:57.200 really looking at prevention,

NOTE Confidence: 0.91938174

00:01:57.200 --> 00:01:59.293 but maybe you can talk a little

NOTE Confidence: 0.91938174

00:01:59.293 --> 00:02:01.189 bit before we get into that

NOTE Confidence: 0.91938174

00:02:01.190 --> 00:02:03.339 as the bulk of our discussion today,

NOTE Confidence: 0.91938174

00:02:03.340 --> 00:02:05.629 what are the signs and

NOTE Confidence: 0.91938174

00:02:05.629 --> 00:02:07.529 symptoms that people should be aware

NOTE Confidence: 0.91938174

00:02:07.529 --> 00:02:10.090 of so that they could try to catch it

NOTE Confidence: 0.9348432

00:02:10.090 --> 00:02:11.422 a little bit earlier?

NOTE Confidence: 0.9348432

00:02:11.422 --> 00:02:12.754 So pancreatic cancer unfortunately

NOTE Confidence: 0.9348432

00:02:12.754 --> 00:02:14.319 is challenging to actually diagnose

NOTE Confidence: 0.9348432

00:02:14.319 --> 00:02:16.011 early because many of the symptoms

NOTE Confidence: 0.9348432

00:02:16.011 --> 00:02:18.116 that are associated with it are quite

NOTE Confidence: 0.9348432

00:02:18.116 --> 00:02:19.664 nonspecific or associated with other

NOTE Confidence: 0.9348432

00:02:19.664 --> 00:02:21.120 different more common conditions.

NOTE Confidence: 0.9348432

00:02:21.120 --> 00:02:22.825 So some common symptoms include

NOTE Confidence: 0.9348432

00:02:22.825 --> 00:02:24.189 abdominal pain or discomfort,

NOTE Confidence: 0.9348432

00:02:24.190 --> 00:02:24.862 nausea, weight-loss.

NOTE Confidence: 0.9348432

00:02:24.862 --> 00:02:27.550 Many of these things can be caused by

NOTE Confidence: 0.9348432

00:02:27.617 --> 00:02:29.645 other factors that are more common,

NOTE Confidence: 0.9348432

00:02:29.650 --> 00:02:31.350 such as reflux for example.

NOTE Confidence: 0.9348432

00:02:31.350 --> 00:02:33.396 So that's one of the challenges

NOTE Confidence: 0.9348432

00:02:33.396 --> 00:02:34.419 with diagnosing,

NOTE Confidence: 0.9348432

00:02:34.420 --> 00:02:36.820 but I think that one of the things

NOTE Confidence: 0.9348432

00:02:36.820 --> 00:02:39.591 that we do know is that there are a

NOTE Confidence: 0.9348432

00:02:39.591 --> 00:02:41.919 number of risk factors associated

NOTE Confidence: 0.9348432

00:02:41.920 --> 00:02:42.602 with pancreatic cancer,

NOTE Confidence: 0.9348432

00:02:42.602 --> 00:02:44.612 in particular by 10% of all

NOTE Confidence: 0.9348432

00:02:44.612 --> 00:02:45.254 pancreatic cancers,

NOTE Confidence: 0.9348432

00:02:45.254 --> 00:02:46.859 are associated with some sort

NOTE Confidence: 0.9348432

00:02:46.859 --> 00:02:48.060 of genetic

00:02:48.060 --> 00:02:48.694 familial cause,

NOTE Confidence: 0.9348432

00:02:48.694 --> 00:02:50.913 and so certainly in patients

NOTE Confidence: 0.9348432

00:02:50.913 --> 00:02:53.030 who have first degree relatives with

NOTE Confidence: 0.9348432

00:02:53.030 --> 00:02:55.220 a prior history of pancreatic cancer,

NOTE Confidence: 0.9348432

00:02:55.220 --> 00:02:55.866 multiple family

NOTE Confidence: 0.9348432

00:02:55.866 --> 00:02:57.481 members had pancreatic cancer

NOTE Confidence: 0.9348432

00:02:57.481 --> 00:02:59.279 that should alert more complete

NOTE Confidence: 0.9348432

00:02:59.279 --> 00:03:00.437 evaluation and discussion,

NOTE Confidence: 0.9348432

00:03:00.440 --> 00:03:02.110 at least with their physicians.

NOTE Confidence: 0.9348432

00:03:02.110 --> 00:03:02.754 But again,

NOTE Confidence: 0.9348432

00:03:02.754 --> 00:03:04.364 it doesn't have very common

NOTE Confidence: 0.9348432

00:03:04.364 --> 00:03:05.790 symptoms that are unique,

NOTE Confidence: 0.9348432

00:03:05.790 --> 00:03:07.122 making it very challenging

NOTE Confidence: 0.9348432

00:03:07.122 --> 00:03:08.787 to diagnose early.

NOTE Confidence: 0.9348432

00:03:08.790 --> 00:03:11.454 A number of studies are being done now

NOTE Confidence: 0.9348432

00:03:11.460 --> 00:03:13.130 to try to identify factors that

NOTE Confidence: 0.9348432

00:03:13.130 --> 00:03:14.800 are involved in early detection.

NOTE Confidence: 0.9348432

00:03:14.800 --> 00:03:16.470 Hopefully some of those will

NOTE Confidence: 0.9348432

00:03:16.470 --> 00:03:18.140 lead to some blood based,

NOTE Confidence: 0.9348432

00:03:18.140 --> 00:03:19.988 tests that we can actually do

NOTE Confidence: 0.9348432

00:03:19.988 --> 00:03:21.879 to try to identify some markers

NOTE Confidence: 0.9348432

00:03:21.879 --> 00:03:24.287 that might give us an inkling that

NOTE Confidence: 0.9348432

00:03:24.354 --> 00:03:26.462 pancreatic cancer may be there.

NOTE Confidence: 0.9348432

00:03:26.462 --> 00:03:28.358 That would allow us to do

NOTE Confidence: 0.9348432

00:03:28.358 --> 00:03:29.530 some follow-up testing,

NOTE Confidence: 0.9348432

00:03:29.530 --> 00:03:31.330 but we're still in the research

NOTE Confidence: 0.9348432

00:03:31.330 --> 00:03:32.230 phases of that.

NOTE Confidence: 0.9348432

00:03:32.230 --> 00:03:32.830 We're getting

NOTE Confidence: 0.9280481

00:03:32.830 --> 00:03:34.930 there, but we're not quite there yet.

NOTE Confidence: 0.9280481

00:03:34.930 --> 00:03:37.044 And so because the symptoms are so

NOTE Confidence: 0.9280481

00:03:37.044 --> 00:03:38.887 non specific people I would presume

NOTE Confidence: 0.9280481

00:03:38.887 --> 00:03:40.924 people don't pay attention to that.

NOTE Confidence: 0.9280481

00:03:40.930 --> 00:03:43.066 And by the time things have

NOTE Confidence: 0.9280481

00:03:43.066 --> 00:03:45.426 festered on for quite awhile.

NOTE Confidence: 0.9280481

00:03:45.430 --> 00:03:47.702 They then present and have are found to

NOTE Confidence: 0.9280481

00:03:47.702 --> 00:03:50.072 have disease that's gone and spread to other

NOTE Confidence: 0.9280481

00:03:50.072 --> 00:03:52.328 organs making it more difficult to treat.

NOTE Confidence: 0.9280481

00:03:52.330 --> 00:03:54.738 You talked a little bit about genetics and

NOTE Confidence: 0.9280481

00:03:54.738 --> 00:03:57.478 you said that about 10% of all pancreatic

NOTE Confidence: 0.9280481

00:03:57.478 --> 00:03:59.974 cancer patients have a family history.

NOTE Confidence: 0.9280481

00:03:59.980 --> 00:04:04.104 That also means that 90% of people don't.

NOTE Confidence: 0.9280481

00:04:04.104 --> 00:04:07.572 And so, even if you don't have a

NOTE Confidence: 0.9280481

00:04:07.572 --> 00:04:10.039 family history of pancreatic cancer,

NOTE Confidence: 0.9280481

00:04:10.040 --> 00:04:12.496 should you be paying attention

NOTE Confidence: 0.9280481

00:04:12.496 --> 00:04:14.788 even to those non specific symptoms?

NOTE Confidence: 0.9280481

00:04:14.790 --> 00:04:16.818 And if they don't go away,

NOTE Confidence: 0.9280481

00:04:16.820 --> 00:04:19.880 or if they don't have a reason behind them,

NOTE Confidence: 0.9280481

00:04:19.880 --> 00:04:21.228 maybe get checked out?

NOTE Confidence: 0.93290085

00:04:21.230 --> 00:04:22.286 That's exactly right.

NOTE Confidence: 0.93290085

00:04:22.286 --> 00:04:24.398 So if their symptoms that are

NOTE Confidence: 0.93290085

00:04:24.398 --> 00:04:26.657 persistent or you don't have a great

NOTE Confidence: 0.93290085

00:04:26.657 --> 00:04:28.295 explanation for, a discussion with

NOTE Confidence: 0.93290085

00:04:28.295 --> 00:04:30.045 your doctor is always necessary.

NOTE Confidence: 0.93290085

00:04:30.050 --> 00:04:32.078 It's always possible that it is pancreatic cancer.

NOTE Confidence: 0.93290085

00:04:32.080 --> 00:04:33.865 But it's more likely

NOTE Confidence: 0.93290085

00:04:33.865 --> 00:04:35.293 that something else is going on.

NOTE Confidence: 0.93290085

00:04:35.300 --> 00:04:37.498 But it's better to be evaluated and

NOTE Confidence: 0.93290085

00:04:37.498 --> 00:04:39.642 check to make sure that pancreatic

NOTE Confidence: 0.93290085

00:04:39.642 --> 00:04:41.527 cancer wouldn't be a cause

NOTE Confidence: 0.9354147

00:04:41.530 --> 00:04:42.430 of the symptoms.

NOTE Confidence: 0.9354147

00:04:42.430 --> 00:04:44.530 Tell us a little bit more about

NOTE Confidence: 0.9354147

00:04:44.594 --> 00:04:46.719 the genetics of pancreatic cancer.

NOTE Confidence: 0.9354147

00:04:46.720 --> 00:04:49.135 I mean, when we talk about a

NOTE Confidence: 0.9354147

00:04:49.135 --> 00:04:50.868 family history, is it something

NOTE Confidence: 0.9354147

00:04:50.868 --> 00:04:52.944 that is age specific?

NOTE Confidence: 0.9354147

00:04:52.950 --> 00:04:54.918 Should it run on one side

NOTE Confidence: 0.9354147

00:04:54.918 --> 00:04:57.099 of the family or the other?

NOTE Confidence: 0.9354147

00:04:57.100 --> 00:04:58.975 Are there multiple family members

NOTE Confidence: 0.9354147

00:04:58.975 --> 00:05:01.540 who may be involved or should be

NOTE Confidence: 0.9354147

00:05:01.540 --> 00:05:03.696 involved in order for you to

NOTE Confidence: 0.9354147

00:05:03.696 --> 00:05:06.087 be a little bit more cautious?

NOTE Confidence: 0.9354147

00:05:06.090 --> 00:05:06.975 Does it affect

NOTE Confidence: 0.9354147

00:05:06.975 --> 00:05:08.745 other cancers? Tell us a little

NOTE Confidence: 0.9354147

00:05:08.745 --> 00:05:11.118 bit more about that whole space of

NOTE Confidence: 0.9354147

00:05:11.118 --> 00:05:12.940 the genetics of pancreatic cancer.

NOTE Confidence: 0.933211

00:05:12.940 --> 00:05:14.836 About 10%, like we discussed,

NOTE Confidence: 0.933211

00:05:14.840 --> 00:05:16.724 about 10% of all pancreatic cancers

NOTE Confidence: 0.933211

00:05:16.724 --> 00:05:18.960 are associated with some sort of family history.

NOTE Confidence: 0.933211

00:05:18.960 --> 00:05:21.179 And the things to be aware of,

NOTE Confidence: 0.933211

00:05:21.180 --> 00:05:23.399 are multiple first degree relatives,

NOTE Confidence: 0.933211

00:05:23.400 --> 00:05:24.980 so that is siblings, parents,

NOTE Confidence: 0.933211

00:05:24.980 --> 00:05:26.492 children with pancreatic cancer,

NOTE Confidence: 0.933211

00:05:26.492 --> 00:05:28.004 particularly first degree relatives

NOTE Confidence: 0.933211

00:05:28.004 --> 00:05:29.914 who are diagnosed prior to the age

NOTE Confidence: 0.933211

00:05:29.914 --> 00:05:31.959 of 50

NOTE Confidence: 0.933211

00:05:31.960 --> 00:05:33.540 found in your family.

NOTE Confidence: 0.933211

00:05:33.540 --> 00:05:35.125 There's a greater risk of

NOTE Confidence: 0.933211

00:05:35.125 --> 00:05:36.076 developing pancreatic cancer,

NOTE Confidence: 0.933211

00:05:36.080 --> 00:05:38.194 and there's a number of known gene

NOTE Confidence: 0.933211

00:05:38.194 --> 00:05:40.186 mutations that have been identified in

NOTE Confidence: 0.933211

00:05:40.186 --> 00:05:42.238 pancreatic cancer that are also seen

NOTE Confidence: 0.933211

00:05:42.240 --> 00:05:44.352 in other cancer types such as

NOTE Confidence: 0.933211

00:05:44.352 --> 00:05:45.762 colorectal cancer, breast cancer,

NOTE Confidence: 0.933211

00:05:45.762 --> 00:05:46.464 ovarian cancer.

NOTE Confidence: 0.933211

00:05:46.464 --> 00:05:47.166 So certainly,

NOTE Confidence: 0.933211

00:05:47.170 --> 00:05:49.282 if any of those have been

NOTE Confidence: 0.933211

00:05:49.282 --> 00:05:50.690 found in family members,

NOTE Confidence: 0.933211

00:05:50.690 --> 00:05:53.182 one should at least discuss with the

NOTE Confidence: 0.933211

00:05:53.182 --> 00:05:54.985 geneticists getting tested for

NOTE Confidence: 0.933211

00:05:54.985 --> 00:05:57.013 those types of mutations which might

NOTE Confidence: 0.933211

00:05:57.013 --> 00:05:59.850 alter how to actually screen or to try

NOTE Confidence: 0.933211

00:05:59.850 --> 00:06:01.600 and diagnose pancreatic cancer early.

NOTE Confidence: 0.91961807

00:06:01.600 --> 00:06:03.665 And so some of those mutations I

NOTE Confidence: 0.91961807

00:06:03.665 --> 00:06:06.178 know as a breast cancer surgeon,

NOTE Confidence: 0.91961807

00:06:06.180 --> 00:06:07.940 things like BRCA,

NOTE Confidence: 0.91961807

00:06:07.940 --> 00:06:10.397 we think of BRCA.

NOTE Confidence: 0.91961807

00:06:10.400 --> 00:06:11.930 We think breast and ovarian

NOTE Confidence: 0.91961807

00:06:11.930 --> 00:06:13.939 cancer but be RCA also increases

NOTE Confidence: 0.91961807

00:06:13.939 --> 00:06:16.029 your risk of pancreatic cancer.

NOTE Confidence: 0.91961807

00:06:16.030 --> 00:06:16.684 Prostate cancer.

NOTE Confidence: 0.91961807

00:06:16.684 --> 00:06:18.973 So if you have a family history

NOTE Confidence: 0.91961807

00:06:18.973 --> 00:06:21.447 of breast cancer and let's say one

NOTE Confidence: 0.91961807

00:06:21.447 --> 00:06:23.620 of your family members has been

NOTE Confidence: 0.91961807

00:06:23.620 --> 00:06:25.410 diagnosed with a BRC mutation,

NOTE Confidence: 0.91961807

00:06:25.410 --> 00:06:27.080 you're at increased risk of

NOTE Confidence: 0.91961807

00:06:27.080 --> 00:06:28.416 carrying that same mutation.

NOTE Confidence: 0.91961807

00:06:28.420 --> 00:06:30.541 You go to a geneticists or genetic

NOTE Confidence: 0.91961807

00:06:30.541 --> 00:06:32.549 counselor and you test because

NOTE Confidence: 0.91961807

00:06:32.549 --> 00:06:34.269 testing now is pretty ubiquitous

NOTE Confidence: 0.91961807

00:06:34.269 --> 00:06:35.759 and actually fairly cheap.

NOTE Confidence: 0.91961807

00:06:35.760 --> 00:06:38.098 And if you carry that genetic mutation,

NOTE Confidence: 0.91961807

00:06:38.100 --> 00:06:40.319 most people think about all of the

NOTE Confidence: 0.91961807

00:06:40.319 --> 00:06:42.717 things that they can do to prevent

NOTE Confidence: 0.91961807

00:06:42.717 --> 00:06:44.442 breast cancer or ovarian cancer,

NOTE Confidence: 0.91961807

00:06:44.450 --> 00:06:45.749 and certainly prophylactic

NOTE Confidence: 0.91961807

00:06:45.749 --> 00:06:47.914 surgery is in the cards.

NOTE Confidence: 0.91961807

00:06:47.920 --> 00:06:49.430 But what about pancreatic cancer?

NOTE Confidence: 0.91961807

00:06:49.430 --> 00:06:50.930 How do you prevent that?

NOTE Confidence: 0.91961807

00:06:50.930 --> 00:06:52.440 You can't really remove your

NOTE Confidence: 0.9225416

00:06:52.440 --> 00:06:53.412 pancreas.

NOTE Confidence: 0.9225416

00:06:53.412 --> 00:06:55.032 There's no surgical removal of

NOTE Confidence: 0.9225416

00:06:55.032 --> 00:06:56.647 the pancreas that would be used.

NOTE Confidence: 0.9225416

00:06:56.650 --> 00:06:59.040 The prevention, though there are

NOTE Confidence: 0.9225416

00:06:59.040 --> 00:07:00.952 certain screening programs that

NOTE Confidence: 0.9225416

00:07:00.952 --> 00:07:03.545 one can get, a part of that would

NOTE Confidence: 0.9225416

00:07:03.550 --> 00:07:05.590 help you to find it earlier.

NOTE Confidence: 0.9225416

00:07:05.590 --> 00:07:08.110 That would include things like image Ng and

NOTE Confidence: 0.9225416

00:07:08.165 --> 00:07:10.316 other things that can be done to find it.

NOTE Confidence: 0.9225416

00:07:10.320 --> 00:07:12.091 There's also a number of non genetic

NOTE Confidence: 0.9225416

00:07:12.091 --> 00:07:14.013 risk factors that we know can contribute

NOTE Confidence: 0.9225416

00:07:14.013 --> 00:07:15.675 to pancreatic cancer and they likely

NOTE Confidence: 0.9225416

00:07:15.725 --> 00:07:17.370 will cooperate with gene mutations,

NOTE Confidence: 0.9225416

00:07:17.370 --> 00:07:19.274 and those are some of the lifestyle

NOTE Confidence: 0.9225416

00:07:19.274 --> 00:07:21.503 things that can be done to try and

NOTE Confidence: 0.9225416

00:07:21.503 --> 00:07:23.290 decrease your risk of pancreatic cancer.

NOTE Confidence: 0.9225416

00:07:23.290 --> 00:07:23.754 For example,

NOTE Confidence: 0.9225416

00:07:23.754 --> 00:07:25.610 we know for quite some time now that

NOTE Confidence: 0.9225416

00:07:25.664 --> 00:07:27.800 smoking is associated with pancreatic cancer,

NOTE Confidence: 0.9225416

00:07:27.800 --> 00:07:29.564 two and a half fold increased

NOTE Confidence: 0.9225416

00:07:29.564 --> 00:07:31.016 risk of developing the disease

NOTE Confidence: 0.9225416

00:07:31.016 --> 00:07:32.308 over the general population,

NOTE Confidence: 0.9225416

00:07:32.310 --> 00:07:33.840 so quitting smoking might be

NOTE Confidence: 0.9225416

00:07:33.840 --> 00:07:35.052 one thing to do.

NOTE Confidence: 0.9225416

00:07:35.052 --> 00:07:36.567 We know there's several other

NOTE Confidence: 0.9225416

00:07:36.567 --> 00:07:38.199 modifiable risk factors

NOTE Confidence: 0.9225416

00:07:38.200 --> 00:07:38.858 including obesity,

NOTE Confidence: 0.9225416

00:07:38.858 --> 00:07:40.832 which is soon

NOTE Confidence: 0.9225416

00:07:40.832 --> 00:07:42.998 to surpass smoking as the leading

NOTE Confidence: 0.9225416

00:07:42.998 --> 00:07:44.808 modifiable risk factor for pancreatic

NOTE Confidence: 0.9225416

00:07:44.808 --> 00:07:46.432 cancer and its associated with

NOTE Confidence: 0.9225416

00:07:46.432 --> 00:07:48.244 somewhere between 2 and a

NOTE Confidence: 0.9225416

00:07:48.250 --> 00:07:50.044 2 1/2 fold increased risk

NOTE Confidence: 0.9225416

00:07:50.044 --> 00:07:51.930 again over the general population,

NOTE Confidence: 0.9225416

00:07:51.930 --> 00:07:53.754 and so losing weight may be

NOTE Confidence: 0.9225416

00:07:53.754 --> 00:07:55.950 helpful in terms of reducing risk.

NOTE Confidence: 0.9225416

00:07:55.950 --> 00:07:57.738 There are a number of dietary

NOTE Confidence: 0.9225416

00:07:57.738 --> 00:07:59.640 things that have been associated,

NOTE Confidence: 0.9225416

00:07:59.640 --> 00:08:01.650 but none of them are convincing,

NOTE Confidence: 0.9225416

00:08:01.650 --> 00:08:03.636 but there are lifestyle modifications in

NOTE Confidence: 0.9225416

00:08:03.636 --> 00:08:05.850 terms of tobacco cessation, stopping smoking.

NOTE Confidence: 0.9225416

00:08:05.850 --> 00:08:07.615 Or altering diets or losing

NOTE Confidence: 0.9225416

00:08:07.615 --> 00:08:09.390 weight that might be helpful.

NOTE Confidence: 0.9225416

00:08:09.390 --> 00:08:10.383 What about alcohol?

NOTE Confidence: 0.9225416

00:08:10.383 --> 00:08:12.081 So there are some studies that

NOTE Confidence: 0.9225416

00:08:12.081 --> 00:08:14.373 do see an association of alcohol

NOTE Confidence: 0.9225416

00:08:14.373 --> 00:08:15.756 with pancreatic cancer.

NOTE Confidence: 0.9225416

00:08:15.760 --> 00:08:17.176 Development of the studies

NOTE Confidence: 0.9225416

00:08:17.176 --> 00:08:18.238 are not conclusive.

NOTE Confidence: 0.9225416

00:08:18.240 --> 00:08:19.656 There's also an association

NOTE Confidence: 0.9225416

00:08:19.656 --> 00:08:21.426 with excessive alcohol use.

NOTE Confidence: 0.9225416

00:08:21.430 --> 00:08:23.200 An inflammation of the pancreas,

NOTE Confidence: 0.9225416

00:08:23.200 --> 00:08:24.965 also known as pancreatitis

NOTE Confidence: 0.9225416

00:08:24.965 --> 00:08:26.377 and certainly chronic pancreatitis.

NOTE Confidence: 0.9225416

00:08:26.380 --> 00:08:28.150 That is inflammation that's recurrent,

NOTE Confidence: 0.9225416

00:08:28.150 --> 00:08:30.280 can be a risk factor.

00:08:32.750 --> 00:08:35.590 But in terms of limited exposures of alcohol,

NOTE Confidence: 0.9225416

00:08:35.590 --> 00:08:37.214 there is some association,

NOTE Confidence: 0.9225416

00:08:37.214 --> 00:08:39.244 though it's not necessarily as

NOTE Confidence: 0.9225416

00:08:39.244 --> 00:08:40.857 strong as tobacco and or

NOTE Confidence: 0.9225416

00:08:40.860 --> 00:08:41.580 obesity so

NOTE Confidence: 0.930459

00:08:41.580 --> 00:08:44.086 you make a good point.

00:08:46.600 --> 00:08:48.664 We often talk about obesity and

NOTE Confidence: 0.930459

00:08:48.664 --> 00:08:50.462 sitting is becoming the new

NOTE Confidence: 0.930459

00:08:50.462 --> 00:08:52.568 smoking and the number of cancers

NOTE Confidence: 0.930459

00:08:52.568 --> 00:08:54.499 that are increased with obesity.

NOTE Confidence: 0.930459

00:08:54.500 --> 00:08:56.290 Your lab has been looking

NOTE Confidence: 0.930459

00:08:56.290 --> 00:08:57.722 at that in particular,

NOTE Confidence: 0.930459

00:08:57.730 --> 00:08:59.122 with pancreatic cancer. Tell

NOTE Confidence: 0.930459

00:08:59.122 --> 00:09:01.649 us a little bit more about the

NOTE Confidence: 0.930459

00:09:01.649 --> 00:09:03.479 research that you do.

NOTE Confidence: 0.930459

00:09:03.480 --> 00:09:05.345 We've become interested in

NOTE Confidence: 0.930459

00:09:05.345 --> 00:09:07.210 looking at non genetic factors

NOTE Confidence: 0.930459

00:09:07.281 --> 00:09:09.146 that might be contributed to

NOTE Confidence: 0.930459

00:09:09.146 --> 00:09:11.011 cancer development and this is

NOTE Confidence: 0.930459

00:09:11.020 --> 00:09:13.076 in part due to the fact that we

NOTE Confidence: 0.930459

00:09:13.076 --> 00:09:15.203 can study the cancer associated gene

NOTE Confidence: 0.930459

00:09:15.203 --> 00:09:17.519 mutations in animal systems or model

NOTE Confidence: 0.930459

00:09:17.588 --> 00:09:19.520 system such as the mouse and what

NOTE Confidence: 0.930459

00:09:19.520 --> 00:09:21.690 we found is when we engineer the

NOTE Confidence: 0.930459

00:09:21.690 --> 00:09:23.365 cancer associated mutations into mice

NOTE Confidence: 0.930459

00:09:23.365 --> 00:09:25.329 while they do get the human cancers,

NOTE Confidence: 0.930459

00:09:25.330 --> 00:09:27.304 we can engineer them in a large

NOTE Confidence: 0.930459

00:09:27.304 --> 00:09:28.750 fraction of the pancreas.

NOTE Confidence: 0.930459

00:09:28.750 --> 00:09:30.442 But we get very little tumor

NOTE Confidence: 0.930459

00:09:30.442 --> 00:09:32.252 that develops and even the tumors

NOTE Confidence: 0.930459

00:09:32.252 --> 00:09:34.112 that develop, most of them don't

NOTE Confidence: 0.930459

00:09:34.112 --> 00:09:35.898 progress to the advanced stages.

NOTE Confidence: 0.930459

00:09:35.900 --> 00:09:37.766 So this suggested to us perhaps

NOTE Confidence: 0.930459

00:09:37.766 --> 00:09:39.010 non mutational factors,

NOTE Confidence: 0.930459

00:09:39.010 --> 00:09:40.645 non genetic factors may

NOTE Confidence: 0.930459

00:09:40.645 --> 00:09:41.953 be driving it or

NOTE Confidence: 0.930459

00:09:41.960 --> 00:09:43.928 the environment or some other factors

NOTE Confidence: 0.930459

00:09:43.928 --> 00:09:46.099 within the person might be contributing.

00:09:48.100 --> 00:09:49.996 And so we actually turned to

NOTE Confidence: 0.930459

00:09:49.996 --> 00:09:51.687 epidemiological studies that had actually

NOTE Confidence: 0.930459

00:09:51.687 --> 00:09:53.527 shown risk of increased pancreatic

NOTE Confidence: 0.930459

00:09:53.527 --> 00:09:55.680 cancer development in obese individuals,

NOTE Confidence: 0.930459

00:09:55.680 --> 00:09:57.485 and this has been known

NOTE Confidence: 0.930459

00:09:57.485 --> 00:09:59.290 now for nearly two decades,

NOTE Confidence: 0.930459

00:09:59.290 --> 00:10:00.006 in fact.

NOTE Confidence: 0.930459

00:10:00.006 --> 00:10:01.796 Obesity is associated with 13

NOTE Confidence: 0.930459

00:10:01.796 --> 00:10:02.870 different cancer types,

NOTE Confidence: 0.930459

00:10:02.870 --> 00:10:04.928 including many of the cancers in

NOTE Confidence: 0.930459

00:10:04.928 --> 00:10:05.957 the gastrointestinal tract,

NOTE Confidence: 0.930459

00:10:05.960 --> 00:10:07.019 including pancreatic cancer,

NOTE Confidence: 0.930459

00:10:07.019 --> 00:10:09.137 and our research is really focused

NOTE Confidence: 0.930459

00:10:09.137 --> 00:10:11.071 on trying to understand how

NOTE Confidence: 0.930459

00:10:11.071 --> 00:10:12.971 obesity might contribute to cancer

NOTE Confidence: 0.930459

00:10:12.971 --> 00:10:14.830 development in hopes of maybe

NOTE Confidence: 0.930459

00:10:14.830 --> 00:10:16.250 identifying new ways of preventing

NOTE Confidence: 0.930459

00:10:16.250 --> 00:10:17.970 and or treating the disease.

NOTE Confidence: 0.930459

00:10:17.970 --> 00:10:20.686 And what we've found actually in

NOTE Confidence: 0.930459

00:10:20.686 --> 00:10:22.853 studying obesity in mice in which

NOTE Confidence: 0.930459

00:10:22.853 --> 00:10:25.023 we can engineer the mice to be

NOTE Confidence: 0.930459

00:10:25.099 --> 00:10:27.563 obese or give them a high fat diet,

NOTE Confidence: 0.930459

00:10:27.570 --> 00:10:29.628 for example, to make them dietarily,

NOTE Confidence: 0.930459

00:10:29.630 --> 00:10:30.186 obese,

NOTE Confidence: 0.930459

00:10:30.186 --> 00:10:32.132 that the obesity

NOTE Confidence: 0.930459

00:10:32.132 --> 00:10:33.593 itself can actually cooperate

NOTE Confidence: 0.930459

00:10:33.593 --> 00:10:35.473 with gene mutations to promote

NOTE Confidence: 0.930459

00:10:35.473 --> 00:10:37.088 the development and progression

NOTE Confidence: 0.930459

00:10:37.088 --> 00:10:38.297 of pancreatic cancer.

NOTE Confidence: 0.930459

00:10:38.300 --> 00:10:40.302 And we can actually do studies in

NOTE Confidence: 0.930459

00:10:40.302 --> 00:10:42.763 mice to make them lose weight using

NOTE Confidence: 0.930459

00:10:42.763 --> 00:10:45.073 either genetic or again dietary tricks,

NOTE Confidence: 0.930459

00:10:45.080 --> 00:10:46.963 and we've found that if you do

NOTE Confidence: 0.930459

00:10:46.963 --> 00:10:49.472 that at an early stage prior to

NOTE Confidence: 0.930459

00:10:49.472 --> 00:10:51.512 the development of advanced tumors,

NOTE Confidence: 0.930459

00:10:51.520 --> 00:10:53.620 you can actually use that as a

NOTE Confidence: 0.930459

00:10:53.620 --> 00:10:54.953 preventative strategy

NOTE Confidence: 0.930459

00:10:54.953 --> 00:10:56.808 to actually prevent the

NOTE Confidence: 0.930459

00:10:56.808 --> 00:10:58.292 emergence of advanced pancreatic

NOTE Confidence: 0.91823715

00:10:58.300 --> 00:11:00.060 cancer.

NOTE Confidence: 0.91823715

00:11:00.060 --> 00:11:01.116 So what you're basically telling us

NOTE Confidence: 0.91823715

00:11:01.120 --> 00:11:03.094 is that obesity kind of is

NOTE Confidence: 0.91823715

00:11:03.094 --> 00:11:04.410 synergistic with genetic mutations

NOTE Confidence: 0.91823715

00:11:04.465 --> 00:11:06.270 in pancreatic cancer in their

NOTE Confidence: 0.91823715

00:11:06.270 --> 00:11:08.075 progression and in their development.

NOTE Confidence: 0.91823715

00:11:08.080 --> 00:11:10.856 And so if you have a BRC mutation,

NOTE Confidence: 0.91823715

00:11:10.860 --> 00:11:13.497 one of the things you can do before you

NOTE Confidence: 0.91823715

00:11:13.497 --> 00:11:15.933 ever get pancreatic cancer as soon as

NOTE Confidence: 0.91823715

00:11:15.933 --> 00:11:18.520 you know about that genetic mutation,

NOTE Confidence: 0.91823715

00:11:18.520 --> 00:11:20.578 or even when you just have a

NOTE Confidence: 0.91823715

00:11:20.578 --> 00:11:22.506 family history is to lose weight

NOTE Confidence: 0.91823715

00:11:22.506 --> 00:11:24.462 because you will reduce your risk

NOTE Confidence: 0.91823715

00:11:24.462 --> 00:11:26.518 of getting pancreatic cancer,

NOTE Confidence: 0.91823715

00:11:26.520 --> 00:11:29.026 or at least having the pancreatic cancer

NOTE Confidence: 0.91823715

00:11:29.026 --> 00:11:31.738 be as aggressive as it otherwise could be.

NOTE Confidence: 0.9314413

00:11:32.010 --> 00:11:33.362 That's right, that's what

NOTE Confidence: 0.9314413

00:11:33.362 --> 00:11:34.714 our studies are suggesting,

NOTE Confidence: 0.9314413

00:11:34.720 --> 00:11:36.538 both in humans from the epidemiology

NOTE Confidence: 0.9314413

00:11:36.538 --> 00:11:38.492 and also in our mouse models

NOTE Confidence: 0.9314413

00:11:38.492 --> 00:11:40.182 that actually weight loss might

NOTE Confidence: 0.9314413

00:11:40.182 --> 00:11:42.020 be helpful in reducing the

NOTE Confidence: 0.9314413

00:11:42.020 --> 00:11:43.536 risk of pancreatic cancer.

00:11:46.590 --> 00:11:49.014 And so does the

NOTE Confidence: 0.9314413

00:11:49.014 --> 00:11:51.327 same thing apply to quitting smoking?

NOTE Confidence: 0.9314413

00:11:51.330 --> 00:11:53.318 That is less well studied in

NOTE Confidence: 0.9314413

00:11:53.318 --> 00:11:55.399 the realm of pancreatic cancer.

NOTE Confidence: 0.9314413

00:11:55.400 --> 00:11:57.100 We do know, for example,

NOTE Confidence: 0.9314413

00:11:57.100 --> 00:11:59.122 in heart disease that quitting smoking

NOTE Confidence: 0.9314413

00:11:59.122 --> 00:12:01.258 can have a dramatic improvement in

NOTE Confidence: 0.9314413

00:12:01.258 --> 00:12:03.436 reducing the risk of heart disease.

NOTE Confidence: 0.9314413

00:12:03.440 --> 00:12:05.474 And losing weight or reducing obesity

NOTE Confidence: 0.9314413

00:12:05.474 --> 00:12:06.830 also has cardiovascular benefits.

NOTE Confidence: 0.9314413

00:12:06.830 --> 00:12:08.864 So in terms of heart disease

NOTE Confidence: 0.9314413

00:12:08.864 --> 00:12:10.220 as well as cancer,

00:12:14.391 --> 00:12:16.652 and as challenging

NOTE Confidence: 0.9314413

00:12:16.652 --> 00:12:19.178 as it may be to reduce or stop

NOTE Confidence: 0.9314413

00:12:19.178 --> 00:12:20.970 smoking and to lose some weight

NOTE Confidence: 0.9314413

00:12:20.970 --> 00:12:23.000 it might be very helpful in terms of

NOTE Confidence: 0.9314413

00:12:23.000 --> 00:12:25.139 not only improving general health,

NOTE Confidence: 0.9314413

00:12:25.140 --> 00:12:26.073 including cardiovascular disease,

NOTE Confidence: 0.9314413

00:12:26.073 --> 00:12:27.939 but also might play a role

NOTE Confidence: 0.9314413

00:12:27.939 --> 00:12:29.199 in cancer prevention.

NOTE Confidence: 0.9314413

00:12:29.200 --> 00:12:30.560 Yeah, it sounds like

NOTE Confidence: 0.9271773

00:12:30.560 --> 00:12:32.968 those two things

NOTE Confidence: 0.9271773

00:12:32.968 --> 00:12:35.940 if you want to live longer and better

NOTE Confidence: 0.9271773

00:12:35.940 --> 00:12:38.372 are two things that should be at the

NOTE Confidence: 0.9271773

00:12:38.372 --> 00:12:41.317 top of the ticket. You talked about

NOTE Confidence: 0.9271773

00:12:41.320 --> 00:12:43.903 genetically or doing

NOTE Confidence: 0.9271773

00:12:43.903 --> 00:12:46.466 dietary tricks to get mice to lose weight

NOTE Confidence: 0.9271773

00:12:46.466 --> 00:12:49.040 and so we can make mice lose weight,

NOTE Confidence: 0.9271773

00:12:49.040 --> 00:12:51.728 it's harder to get people to lose weight.

NOTE Confidence: 0.9271773

00:12:51.730 --> 00:12:54.202 Do you have any tricks or tips on

NOTE Confidence: 0.9271773

00:12:54.202 --> 00:12:56.570 studies that have been done that may

NOTE Confidence: 0.9271773

00:12:56.570 --> 00:12:58.790 have helped people to lose weight?

NOTE Confidence: 0.9271773

00:12:58.790 --> 00:13:00.470 So this is a big

NOTE Confidence: 0.9291674

00:13:00.470 --> 00:13:02.486 problem. And how do we get

NOTE Confidence: 0.9291674

00:13:02.486 --> 00:13:03.830 people to lose weight?

NOTE Confidence: 0.9291674

00:13:03.830 --> 00:13:07.432 And a lot of it is genetics?

NOTE Confidence: 0.9291674

00:13:07.432 --> 00:13:09.388 Some of it can be genetic,

NOTE Confidence: 0.9291674

00:13:09.390 --> 00:13:11.991 some of it is trying to maintain the weight

NOTE Confidence: 0.9291674

00:13:11.991 --> 00:13:14.278 when people have already lost weight.

NOTE Confidence: 0.9291674

00:13:14.280 --> 00:13:16.744 I can't speak to any specific tricks

NOTE Confidence: 0.9291674

00:13:16.744 --> 00:13:19.168 or tips that would be very helpful.

NOTE Confidence: 0.9291674

00:13:19.170 --> 00:13:20.800 There are clinics now,

NOTE Confidence: 0.9291674

00:13:20.800 --> 00:13:22.032 including here at Yale,

NOTE Confidence: 0.9291674

00:13:22.032 --> 00:13:23.880 obesity clinics that do use

NOTE Confidence: 0.9291674

00:13:23.935 --> 00:13:25.750 adjunctive medications that can be

NOTE Confidence: 0.9291674

00:13:25.750 --> 00:13:27.565 very helpful in reducing weight

NOTE Confidence: 0.9291674

00:13:27.620 --> 00:13:29.270 and keeping the weight off.

NOTE Confidence: 0.9291674

00:13:29.270 --> 00:13:31.580 and I would suggest that for those

NOTE Confidence: 0.9291674

00:13:31.580 --> 00:13:33.644 individuals that are having a hard time

NOTE Confidence: 0.9291674

00:13:33.644 --> 00:13:35.660 through just altering their diet or

NOTE Confidence: 0.9291674

00:13:35.660 --> 00:13:37.799 exercising to lose weight that trying to

NOTE Confidence: 0.9291674

00:13:37.800 --> 00:13:39.160 take advantage of some of

NOTE Confidence: 0.9291674

00:13:39.160 --> 00:13:39.704 these opportunities,

NOTE Confidence: 0.9291674

00:13:39.710 --> 00:13:41.306 including potentially going to some of

NOTE Confidence: 0.9291674

00:13:41.306 --> 00:13:42.989 these clinics might be very helpful.

00:13:45.440 --> 00:13:47.480 There's a lot of focus from a public

NOTE Confidence: 0.9291674

00:13:47.480 --> 00:13:48.988 health standpoint in reducing obesity.

NOTE Confidence: 0.9291674

00:13:48.990 --> 00:13:50.628 I don't think anyone has a

NOTE Confidence: 0.9291674

00:13:50.628 --> 00:13:51.447 Magic Bullet,

NOTE Confidence: 0.9291674

00:13:51.450 --> 00:13:53.394 but I do think that there are dietary,

NOTE Confidence: 0.9291674

00:13:53.394 --> 00:13:55.423 exercise as well as medications that might

NOTE Confidence: 0.9291674

00:13:55.423 --> 00:13:57.459 be helpful for large fraction of people.

NOTE Confidence: 0.9291674

00:13:57.460 --> 00:13:58.820 And as I've discussed already,

NOTE Confidence: 0.9291674

00:13:58.820 --> 00:14:00.458 I think that is really important,

NOTE Confidence: 0.9291674

00:14:00.460 --> 00:14:02.364 not only for a general health outcomes,

NOTE Confidence: 0.9291674

00:14:02.370 --> 00:14:04.043 but I think it actually plays an

NOTE Confidence: 0.9291674

00:14:04.043 --> 00:14:05.649 important role for cancer prevention.

NOTE Confidence: 0.9291674

00:14:05.650 --> 00:14:07.554 For again, a large fractions of cancers.

00:14:07.832 --> 00:14:08.648 Well thank you

NOTE Confidence: 0.9266817

00:14:08.650 --> 00:14:10.730 so much for that. We are going to

NOTE Confidence: 0.9266817

00:14:10.730 --> 00:14:12.889 take a quick break for a medical

NOTE Confidence: 0.9266817

00:14:12.890 --> 00:14:15.692 minute please stay tuned to learn

NOTE Confidence: 0.9266817

00:14:15.692 --> 00:14:17.560 more about pancreatic cancer,

NOTE Confidence: 0.9266817

00:14:17.560 --> 00:14:21.300 the role of genetics and the environment with

NOTE Confidence: 0.9134125

00:14:21.300 --> 00:14:24.096 my guest doctor, Mandar Deepak Muzumdar.

NOTE Confidence: 0.9134125

00:14:24.100 --> 00:14:26.970 Support for Yale Cancer Answers

NOTE Confidence: 0.9134125

00:14:26.970 --> 00:14:29.840 comes from AstraZeneca, dedicated

NOTE Confidence: 0.9134125

00:14:29.937 --> 00:14:32.677 to advancing options and providing

NOTE Confidence: 0.9134125

00:14:32.677 --> 00:14:35.417 hope for people living with

NOTE Confidence: 0.9134125

00:14:33.440 --> 00:14:35.020 cancer. More information is at astrazeneca-us.com.

NOTE Confidence: 0.9134125

00:14:35.020 --> 00:14:38.227 This is a medical minute about lung cancer.

NOTE Confidence: 0.9134125

00:14:38.230 --> 00:14:40.750 More than 85% of lung cancer diagnosis

NOTE Confidence: 0.9134125

00:14:40.750 --> 00:14:43.640 are related to smoking and quitting even

NOTE Confidence: 0.9134125

00:14:43.640 --> 00:14:46.250 after decades of use can significantly

NOTE Confidence: 0.9134125

00:14:46.318 --> 00:14:48.682 reduce your risk of developing lung

NOTE Confidence: 0.9134125

00:14:48.682 --> 00:14:50.649 cancer. For lung cancer patients,

NOTE Confidence: 0.9134125

00:14:50.649 --> 00:14:52.594 clinical trials are currently under

NOTE Confidence: 0.9134125

00:14:52.594 --> 00:14:55.069 way to test innovative new treatments.

NOTE Confidence: 0.9134125

00:14:55.070 --> 00:14:58.076 Advances are being made by utilizing

NOTE Confidence: 0.9134125

00:14:58.076 --> 00:15:00.080 targeted therapies and immunotherapies.

NOTE Confidence: 0.9134125

00:15:00.149 --> 00:15:02.389 The battle 2 trial aims to learn if

NOTE Confidence: 0.9134125

00:15:02.389 --> 00:15:05.058 a drug or combination of drugs based

NOTE Confidence: 0.9134125

00:15:05.058 --> 00:15:07.635 on personal biomarkers can help to

NOTE Confidence: 0.9134125

00:15:07.635 --> 00:15:10.845 control non small cell lung cancer.

NOTE Confidence: 0.9134125

00:15:10.850 --> 00:15:13.590 More information is available at

NOTE Confidence: 0.9134125

00:15:13.590 --> 00:15:14.138 yalecancercenter.org.

NOTE Confidence: 0.9134125

00:15:14.140 --> 00:15:18.376 You're listening to Connecticut public radio.

NOTE Confidence: 0.9134125

00:15:18.380 --> 00:15:18.720 Welcome

NOTE Confidence: 0.9350742

00:15:18.720 --> 00:15:20.400 back to Yale Cancer Answers.

NOTE Confidence: 0.9350742

00:15:20.400 --> 00:15:22.759 This is doctor Anees Chagpar and

NOTE Confidence: 0.9350742

00:15:22.760 --> 00:15:25.119 I'm joined tonight by my guest doctor

NOTE Confidence: 0.9350742

00:15:25.120 --> 00:15:26.560 Mandar Deepak Muzumdar.

NOTE Confidence: 0.9350742

00:15:26.560 --> 00:15:27.640 We're discussing pancreatic

NOTE Confidence: 0.9350742

00:15:27.640 --> 00:15:29.678 cancer and the role of genetics

NOTE Confidence: 0.9350742

00:15:29.678 --> 00:15:31.188 and the environment in cancer,

NOTE Confidence: 0.9350742

00:15:31.190 --> 00:15:33.590 and one of the things that we talked

NOTE Confidence: 0.9350742

00:15:33.590 --> 00:15:36.066 about right before the break is that

NOTE Confidence: 0.9350742

00:15:36.066 --> 00:15:38.260 while pancreatic cancer is pretty rare,

NOTE Confidence: 0.9350742

00:15:38.260 --> 00:15:39.271 10th or 11th,

NOTE Confidence: 0.9350742

00:15:39.271 --> 00:15:41.630 most common cancer in the United States,

NOTE Confidence: 0.9350742

00:15:41.630 --> 00:15:44.174 it is rapidly becoming one of the most

NOTE Confidence: 0.9350742

00:15:44.174 --> 00:15:46.347 common causes of cancer related death.

NOTE Confidence: 0.9350742

00:15:46.350 --> 00:15:48.474 Getting up there into the second

NOTE Confidence: 0.9350742

00:15:48.474 --> 00:15:50.150 or third leading cause of

NOTE Confidence: 0.9350742

00:15:50.150 --> 00:15:51.302 cancer related deaths.

NOTE Confidence: 0.9350742

00:15:51.302 --> 00:15:53.222 So something really to think

NOTE Confidence: 0.9350742

00:15:53.222 --> 00:15:55.508 about and what you had mentioned

NOTE Confidence: 0.9350742

00:15:55.510 --> 00:15:58.302 was that there are a number

NOTE Confidence: 0.9350742

00:15:58.302 --> 00:16:00.867 of things that increase our risk.

NOTE Confidence: 0.9350742

00:16:00.870 --> 00:16:02.790 Some things we can't control.

NOTE Confidence: 0.9350742

00:16:02.790 --> 00:16:04.700 Our genetics, our family history.

NOTE Confidence: 0.9350742

00:16:04.700 --> 00:16:06.620 Some things we can control,

NOTE Confidence: 0.9350742

00:16:06.620 --> 00:16:07.865 quitting smoking,

NOTE Confidence: 0.9350742

00:16:07.865 --> 00:16:09.940 losing weight

NOTE Confidence: 0.9350742

00:16:09.940 --> 00:16:12.020 to reduce your risk

NOTE Confidence: 0.9350742

00:16:12.020 --> 00:16:13.604 of developing pancreatic cancer

NOTE Confidence: 0.9350742

00:16:13.604 --> 00:16:15.815 and reducing the stage at which

NOTE Confidence: 0.9350742

00:16:15.815 --> 00:16:17.723 it's likely going to present at.

NOTE Confidence: 0.9350742

00:16:17.730 --> 00:16:20.551 But I wanted to go back and

NOTE Confidence: 0.9350742

00:16:20.551 --> 00:16:21.760 talk about genetics.

NOTE Confidence: 0.9350742

00:16:21.760 --> 00:16:23.832 We had talked about

NOTE Confidence: 0.9350742

00:16:23.832 --> 00:16:25.832 the fact that people

NOTE Confidence: 0.9350742

00:16:25.832 --> 00:16:27.228 have a family history.

NOTE Confidence: 0.9350742

00:16:27.230 --> 00:16:29.168 They may have a genetic mutation.

NOTE Confidence: 0.9350742

00:16:29.170 --> 00:16:31.221 Tell us a little bit more about

NOTE Confidence: 0.9350742

00:16:31.221 --> 00:16:33.350 the work that you've been doing

NOTE Confidence: 0.9350742

00:16:33.350 --> 00:16:34.960 looking at genetics and pancreatic

NOTE Confidence: 0.9350742

00:16:34.960 --> 00:16:36.570 cancer and and how that

NOTE Confidence: 0.9324422

00:16:36.570 --> 00:16:37.742 might actually affect people.

NOTE Confidence: 0.9324422

00:16:37.742 --> 00:16:39.500 So a number of mutations have

NOTE Confidence: 0.9324422

00:16:39.555 --> 00:16:40.947 been identified in pancreatic

NOTE Confidence: 0.9324422

00:16:40.947 --> 00:16:42.687 cancer and specific cancer genes

NOTE Confidence: 0.9324422

00:16:42.690 --> 00:16:44.376 and that's given us a great

NOTE Confidence: 0.9324422

00:16:44.376 --> 00:16:45.966 understanding in terms of how

NOTE Confidence: 0.9324422

00:16:45.966 --> 00:16:47.199 pancreatic cancers develop.

NOTE Confidence: 0.9324422

00:16:47.200 --> 00:16:48.810 One of the hallmark genes

NOTE Confidence: 0.9324422

00:16:48.810 --> 00:16:50.420 in the disease is really

NOTE Confidence: 0.9324422

00:16:50.420 --> 00:16:52.646 the gene KRAS which

NOTE Confidence: 0.9324422

00:16:52.646 --> 00:16:55.028 is mutated in more than 90% of

NOTE Confidence: 0.9324422

00:16:55.028 --> 00:16:56.740 all human pancreatic cancers.

NOTE Confidence: 0.9324422

00:16:56.740 --> 00:16:58.910 And it's clear that it's important in

NOTE Confidence: 0.9324422

00:16:58.910 --> 00:17:00.607 the development of pancreatic cancer

NOTE Confidence: 0.9324422

00:17:00.607 --> 00:17:02.725 when we engineer mice with KRAS,

NOTE Confidence: 0.9324422

00:17:02.730 --> 00:17:04.122 mutations in the pancreas,

NOTE Confidence: 0.9324422

00:17:04.122 --> 00:17:06.210 they get pancreatic cancers that look

NOTE Confidence: 0.9324422

00:17:06.274 --> 00:17:08.395 and behave just like the human disease.

NOTE Confidence: 0.9324422

00:17:08.400 --> 00:17:10.549 We also know that KRAS mutations

NOTE Confidence: 0.9324422

00:17:10.549 --> 00:17:12.592 can promote the growth and development

NOTE Confidence: 0.9324422

00:17:12.592 --> 00:17:14.716 of tumors in many other organs,

NOTE Confidence: 0.9324422

00:17:14.720 --> 00:17:16.718 including the lungs and the colon.

NOTE Confidence: 0.9324422

00:17:16.720 --> 00:17:17.386 In fact,

00:17:19.384 --> 00:17:21.718 30% of lung cancers and in about 50%

NOTE Confidence: 0.9324422

00:17:21.720 --> 00:17:23.380 of colon and rectal cancers.

NOTE Confidence: 0.9324422

00:17:23.380 --> 00:17:25.438 And we know from cell studies

NOTE Confidence: 0.9324422

00:17:25.438 --> 00:17:26.810 that KRAS really promotes

NOTE Confidence: 0.9324422

00:17:26.810 --> 00:17:27.534 cell proliferation,

NOTE Confidence: 0.9324422

00:17:27.534 --> 00:17:29.344 their ability to duplicate themselves is

NOTE Confidence: 0.9324422

00:17:29.350 --> 00:17:31.884 a hallmark of cancer development.

NOTE Confidence: 0.9324422

00:17:31.890 --> 00:17:32.251 Now

NOTE Confidence: 0.9324422

00:17:32.251 --> 00:17:32.612 importantly,

NOTE Confidence: 0.9324422

00:17:32.612 --> 00:17:34.778 KRAS has

00:17:36.250 --> 00:17:39.146 been known for nearly four decades now,

NOTE Confidence: 0.9324422

00:17:39.150 --> 00:17:41.582 and we know from other tumor types in

NOTE Confidence: 0.9324422

00:17:41.582 --> 00:17:43.498 which we've identified the hallmark

NOTE Confidence: 0.9324422

00:17:43.498 --> 00:17:46.403 genetic mutations that we can often target

NOTE Confidence: 0.9324422

00:17:46.410 --> 00:17:47.862 those mutations with therapies

NOTE Confidence: 0.9324422

00:17:47.862 --> 00:17:49.677 that can be quite effective.

NOTE Confidence: 0.9324422

00:17:49.680 --> 00:17:50.034 Unfortunately,

NOTE Confidence: 0.9324422

00:17:50.034 --> 00:17:51.096 for KRAS

NOTE Confidence: 0.9324422

00:17:51.096 --> 00:17:53.650 it's actually been very hard to develop

NOTE Confidence: 0.9324422

00:17:53.650 --> 00:17:55.846 drugs that can block its function,

NOTE Confidence: 0.9324422

00:17:55.850 --> 00:17:59.135 and so one of the things that is actually

NOTE Confidence: 0.9324422

00:17:59.135 --> 00:18:02.120 emerged recently is new developments in

NOTE Confidence: 0.9324422

00:18:02.120 --> 00:18:04.504 drugs and one of those is a specific

NOTE Confidence: 0.9324422

00:18:04.504 --> 00:18:06.313 drug that targets a specific

NOTE Confidence: 0.9324422

00:18:06.313 --> 00:18:08.218 flavor or mutation of KRAS

NOTE Confidence: 0.9324422

00:18:08.220 --> 00:18:10.260 which we call the G12C Mutation,

NOTE Confidence: 0.9324422

00:18:10.260 --> 00:18:12.288 which is found in about 14%

NOTE Confidence: 0.9324422

00:18:12.290 --> 00:18:13.646 of all lung cancers,

NOTE Confidence: 0.9324422

00:18:13.646 --> 00:18:16.694 but only about 2 to 3% of pancreatic cancers.

NOTE Confidence: 0.9324422

00:18:16.694 --> 00:18:18.722 Nonetheless, this

NOTE Confidence: 0.9324422

00:18:18.730 --> 00:18:21.386 class of drugs is now being tested

NOTE Confidence: 0.9324422

00:18:21.386 --> 00:18:23.818 in clinical trials and in lung cancer

NOTE Confidence: 0.9324422

00:18:23.820 --> 00:18:25.926 at least the data are quite

NOTE Confidence: 0.9324422

00:18:25.926 --> 00:18:28.023 promising that they can lead to

NOTE Confidence: 0.9324422

00:18:28.023 --> 00:18:29.883 shrinkage of the tumors in

NOTE Confidence: 0.9324422

00:18:29.883 --> 00:18:32.019 a large fraction of patients.

NOTE Confidence: 0.9324422

00:18:32.020 --> 00:18:34.396 Now it remains to be seen whether the

NOTE Confidence: 0.9324422

00:18:34.396 --> 00:18:36.818 effect will be true in pancreatic cancer,

NOTE Confidence: 0.9324422

00:18:36.820 --> 00:18:38.740 but we're excited that now for

NOTE Confidence: 0.9324422

00:18:38.740 --> 00:18:39.700 the first time,

NOTE Confidence: 0.9324422

00:18:39.700 --> 00:18:41.512 we actually have a drug that

NOTE Confidence: 0.9324422

00:18:41.512 --> 00:18:43.486 can target at least a specific

NOTE Confidence: 0.9324422

00:18:43.486 --> 00:18:44.500 mutation in pancreatic

NOTE Confidence: 0.93368804

00:18:44.500 --> 00:18:46.726 cancer, so I just wanted to clarify

NOTE Confidence: 0.93368804

00:18:46.726 --> 00:18:48.340 for our listeners out there,

NOTE Confidence: 0.93368804

00:18:48.340 --> 00:18:50.206 there's a difference in terms of

NOTE Confidence: 0.93368804

00:18:50.206 --> 00:18:51.832 genetics that are germline genetics

NOTE Confidence: 0.93368804

00:18:51.832 --> 00:18:53.457 and cancer genetics. Can you

NOTE Confidence: 0.93368804

00:18:53.460 --> 00:18:55.700 clarify that a little bit?

NOTE Confidence: 0.93368804

00:18:55.700 --> 00:18:57.300 Because I think when we've

NOTE Confidence: 0.93368804

00:18:57.300 --> 00:18:58.260 talked about genetics,

NOTE Confidence: 0.93368804

00:18:58.260 --> 00:18:59.860 we've talked about, you know,

NOTE Confidence: 0.93368804

00:18:59.860 --> 00:19:02.420 going and if you have a family history,

NOTE Confidence: 0.93368804

00:19:02.420 --> 00:19:04.765 seeing a geneticists and seeing if you

NOTE Confidence: 0.93368804

00:19:04.770 --> 00:19:07.749 carry a genetic mutation like BRC and so on,

NOTE Confidence: 0.93368804

00:19:07.750 --> 00:19:10.150 and then we kind of transitioned and we

NOTE Confidence: 0.93368804

00:19:10.150 --> 00:19:12.377 talked about looking at cancer genetics,

NOTE Confidence: 0.93368804

00:19:12.380 --> 00:19:14.697 the genetic mutations of a cancer cell.

NOTE Confidence: 0.93368804

00:19:14.700 --> 00:19:16.500 Can you talk about and clarify

NOTE Confidence: 0.93368804

00:19:16.500 --> 00:19:18.080 that difference just so that

NOTE Confidence: 0.93368804

00:19:18.080 --> 00:19:20.012 I make sure that everybody out

NOTE Confidence: 0.93368804

00:19:20.012 --> 00:19:21.650 there understands that difference?

NOTE Confidence: 0.93368804

00:19:21.650 --> 00:19:23.636 Absolutely so germline genetics is really

NOTE Confidence: 0.9234341

00:19:23.640 --> 00:19:26.048 based on mutations that are rise from

NOTE Confidence: 0.9234341

00:19:26.048 --> 00:19:28.350 the very beginning that you inherit or

NOTE Confidence: 0.9234341

00:19:28.350 --> 00:19:30.590 have been there from the very start.

NOTE Confidence: 0.9234341

00:19:30.590 --> 00:19:32.612 So those are mutations that are

NOTE Confidence: 0.9234341

00:19:32.612 --> 00:19:34.819 found in all of your cells.

NOTE Confidence: 0.9234341

00:19:34.820 --> 00:19:37.018 And we think some of them predispose

NOTE Confidence: 0.9234341

00:19:37.018 --> 00:19:38.616 to cancer development because they

NOTE Confidence: 0.9234341

00:19:38.616 --> 00:19:40.702 affect the ability of your body to

NOTE Confidence: 0.9234341

00:19:40.702 --> 00:19:42.740 maintain fidelity or to maintain the

NOTE Confidence: 0.9234341

00:19:42.740 --> 00:19:44.420 DNA without creating new mutations.

NOTE Confidence: 0.9234341

00:19:44.420 --> 00:19:47.300 So these are what we call DNA repair genes

NOTE Confidence: 0.9234341

00:19:47.300 --> 00:19:49.220 they get when they get mutated.

NOTE Confidence: 0.9234341

00:19:49.220 --> 00:19:51.140 Now when the cells duplicate themselves

NOTE Confidence: 0.9234341

00:19:51.140 --> 00:19:52.740 during development, they make errors.

NOTE Confidence: 0.9234341

00:19:52.740 --> 00:19:54.340 And new mutations can occur.

NOTE Confidence: 0.9234341

00:19:54.340 --> 00:19:56.342 So that includes genes such as BRCA1

NOTE Confidence: 0.9234341

00:19:56.342 --> 00:19:58.498 and 2 has been discussed,

NOTE Confidence: 0.9234341

00:19:58.500 --> 00:20:00.180 as well as other genes

NOTE Confidence: 0.9234341

00:20:00.180 --> 00:20:02.483 that are involved in DNA repair pathways

NOTE Confidence: 0.9234341

00:20:02.483 --> 00:20:04.845 and we've gotten to actually be able

NOTE Confidence: 0.9234341

00:20:04.845 --> 00:20:06.819 to take advantage of these mutations.

NOTE Confidence: 0.9234341

00:20:06.820 --> 00:20:08.695 from a therapeutic standpoint because

NOTE Confidence: 0.9234341

00:20:08.695 --> 00:20:10.570 it turns out certain chemotherapeutic

NOTE Confidence: 0.9234341

00:20:10.620 --> 00:20:12.270 agents in certain drugs can actually

NOTE Confidence: 0.9234341

00:20:12.270 --> 00:20:14.100 be more helpful in patients who

NOTE Confidence: 0.9234341

00:20:14.100 --> 00:20:15.120 have those mutations.

NOTE Confidence: 0.9234341

00:20:15.120 --> 00:20:16.812 So one of the things that's

NOTE Confidence: 0.9234341

00:20:16.812 --> 00:20:19.183 emerged is that as we sequence more

NOTE Confidence: 0.9234341

00:20:19.183 --> 00:20:20.759 and more pancreatic cancers,

NOTE Confidence: 0.9234341

00:20:20.760 --> 00:20:22.370 we're finding that we're starting

NOTE Confidence: 0.9234341

00:20:22.370 --> 00:20:25.025 to find more and more of these DNA

NOTE Confidence: 0.9234341

00:20:25.025 --> 00:20:26.993 repair gene mutations in those cancers

NOTE Confidence: 0.9234341

00:20:26.993 --> 00:20:29.050 such that we actually believe as

NOTE Confidence: 0.9234341

00:20:29.050 --> 00:20:31.106 a community that everyone who is

NOTE Confidence: 0.9234341

00:20:31.106 --> 00:20:32.650 diagnosed with pancreatic cancer

NOTE Confidence: 0.9234341

00:20:32.650 --> 00:20:34.415 should have their tumors looked

NOTE Confidence: 0.9234341

00:20:34.415 --> 00:20:36.180 at for these particular mutations

NOTE Confidence: 0.9234341

00:20:36.237 --> 00:20:37.995 with the hope of potentially using

NOTE Confidence: 0.9234341

00:20:37.995 --> 00:20:39.660 that again to guide therapy.

NOTE Confidence: 0.9234341

00:20:39.660 --> 00:20:41.998 Now there's a second class of mutations,

NOTE Confidence: 0.9234341

00:20:42.000 --> 00:20:42.963 not germ line,

NOTE Confidence: 0.9234341

00:20:42.963 --> 00:20:44.568 but these are mutations that

NOTE Confidence: 0.9234341

00:20:44.568 --> 00:20:46.638 occur in individual cells in the

NOTE Confidence: 0.9234341

00:20:46.638 --> 00:20:48.678 body at some point after birth,

NOTE Confidence: 0.9234341

00:20:48.680 --> 00:20:51.344 and these are what we call somatic mutations.

NOTE Confidence: 0.9234341

00:20:51.350 --> 00:20:52.960 These are mutations that can

NOTE Confidence: 0.9234341

00:20:52.960 --> 00:20:54.570 drive the growth

NOTE Confidence: 0.9234341

00:20:54.631 --> 00:20:56.027 and development of tumors.

NOTE Confidence: 0.9234341

00:20:56.030 --> 00:20:58.375 One of these mutations that falls into

NOTE Confidence: 0.9234341

00:20:58.375 --> 00:21:01.153 this class is the mutation in KRAS and

NOTE Confidence: 0.9234341

00:21:01.153 --> 00:21:03.768 so these are mutations that we think are

NOTE Confidence: 0.9234341

00:21:03.770 --> 00:21:05.258 integral to the formation

NOTE Confidence: 0.9234341

00:21:05.258 --> 00:21:06.746 of particular cancer types.

NOTE Confidence: 0.9234341

00:21:06.750 --> 00:21:08.146 KRAS and pancreatic cancer.

NOTE Confidence: 0.9234341

00:21:08.146 --> 00:21:11.229 But they are not there from the very beginning.

NOTE Confidence: 0.9234341

00:21:11.230 --> 00:21:12.670 From when you're born,

NOTE Confidence: 0.9234341

00:21:12.670 --> 00:21:15.330 they emerged at a later time point,

NOTE Confidence: 0.9234341

00:21:15.330 --> 00:21:17.941 but clearly play an important role in

NOTE Confidence: 0.9234341

00:21:17.941 --> 00:21:19.810 cancer development and play a

NOTE Confidence: 0.9234341

00:21:19.810 --> 00:21:21.302 potentially important role in

NOTE Confidence: 0.9234341

00:21:21.302 --> 00:21:22.048 guiding treatment.

NOTE Confidence: 0.9234341

00:21:22.050 --> 00:21:24.654 Again using targeted drugs that target these

NOTE Confidence: 0.9284656

00:21:24.660 --> 00:21:26.556 specific mutations and you

NOTE Confidence: 0.9284656

00:21:26.556 --> 00:21:29.191 make a very good point about

NOTE Confidence: 0.9284656

00:21:29.191 --> 00:21:31.366 when you're diagnosed with cancer,

NOTE Confidence: 0.9284656

00:21:31.370 --> 00:21:32.633 like pancreatic cancer,

NOTE Confidence: 0.9284656

00:21:32.633 --> 00:21:33.896 getting that

NOTE Confidence: 0.9284656

00:21:33.900 --> 00:21:36.216 evaluated to look for these genetic

NOTE Confidence: 0.9284656

00:21:36.216 --> 00:21:38.576 mutations because there may be drugs

NOTE Confidence: 0.9284656

00:21:38.576 --> 00:21:40.456 that can target that specifically.

NOTE Confidence: 0.9284656

00:21:40.460 --> 00:21:43.085 You mentioned in lung cancer the

NOTE Confidence: 0.9284656

00:21:43.085 --> 00:21:46.014 fact that we have drugs against

NOTE Confidence: 0.9284656

00:21:46.014 --> 00:21:48.594 KRAS that have shown promise and

NOTE Confidence: 0.9284656

00:21:48.676 --> 00:21:51.364 that the data are out in terms of

NOTE Confidence: 0.9284656

00:21:51.364 --> 00:21:53.258 that fact with pancreatic cancer.

NOTE Confidence: 0.9284656

00:21:53.258 --> 00:21:55.288 Are there clinical trials looking

NOTE Confidence: 0.9284656

00:21:55.288 --> 00:21:56.669 at that?

NOTE Confidence: 0.91221124

00:21:56.670 --> 00:21:58.872 There are clinical trials using those same

NOTE Confidence: 0.91221124

00:21:58.872 --> 00:22:01.690 agents in a broad array of cancer

NOTE Confidence: 0.91221124

00:22:01.690 --> 00:22:03.815 types that have KRAS mutations.

NOTE Confidence: 0.91221124

00:22:03.820 --> 00:22:05.750 Specifically with that one particular

NOTE Confidence: 0.91221124

00:22:05.750 --> 00:22:08.722 mutation, that G12C mutation, and so there are

NOTE Confidence: 0.91221124

00:22:08.722 --> 00:22:10.696 clinical trials that might be available.

NOTE Confidence: 0.91221124

00:22:10.700 --> 00:22:12.505 Again, it's not that common

NOTE Confidence: 0.91221124

00:22:12.505 --> 00:22:13.588 in pancreatic cancer,

NOTE Confidence: 0.91221124

00:22:13.590 --> 00:22:16.848 so a lot of patients would not be eligible.

NOTE Confidence: 0.91221124

00:22:16.850 --> 00:22:19.195 There is clearly a push to

NOTE Confidence: 0.91221124

00:22:19.195 --> 00:22:21.432 develop KRAS drugs that target a

NOTE Confidence: 0.91221124

00:22:21.432 --> 00:22:23.367 larger number of KRAS mutations

NOTE Confidence: 0.91221124

00:22:23.370 --> 00:22:26.018 and there is a tremendous

NOTE Confidence: 0.91221124

00:22:26.018 --> 00:22:28.438 amount of research to develop this.

NOTE Confidence: 0.91221124

00:22:28.440 --> 00:22:30.258 In fact, the National Cancer Institute

NOTE Confidence: 0.91221124

00:22:30.258 --> 00:22:32.375 has a whole KRAS initiative which

NOTE Confidence: 0.91221124

00:22:32.375 --> 00:22:34.500 is really focused on developing

NOTE Confidence: 0.91221124

00:22:34.500 --> 00:22:35.775 more fundamental understanding.

NOTE Confidence: 0.91221124

00:22:35.780 --> 00:22:36.752 of KRAS

NOTE Confidence: 0.91221124

00:22:36.752 --> 00:22:38.696 and other proteins and trying to

NOTE Confidence: 0.91221124

00:22:38.696 --> 00:22:40.280 develop new structures and drugs

NOTE Confidence: 0.91221124

00:22:40.280 --> 00:22:42.500 that we can use to target these.

NOTE Confidence: 0.91221124

00:22:42.500 --> 00:22:43.415 In the lab,

NOTE Confidence: 0.91221124

00:22:43.415 --> 00:22:45.245 we've tried to model what would

NOTE Confidence: 0.91221124

00:22:45.245 --> 00:22:47.418 happen if you inhibit KRAS using

NOTE Confidence: 0.91221124

00:22:47.418 --> 00:22:49.218 genetic technologies because we did

NOTE Confidence: 0.91221124

00:22:49.287 --> 00:22:51.254 not have these drugs for many years

NOTE Confidence: 0.91221124

00:22:51.254 --> 00:22:53.590 and so we can actually use

NOTE Confidence: 0.91221124

00:22:53.590 --> 00:22:55.484 genetic tricks to disrupt or knockout

NOTE Confidence: 0.91221124

00:22:55.484 --> 00:22:57.536 all function.

NOTE Confidence: 0.91221124

00:22:57.540 --> 00:22:59.780 And we've done that in pancreatic cancer.

NOTE Confidence: 0.91221124

00:22:59.780 --> 00:23:01.796 We see that it can be quite

NOTE Confidence: 0.91221124

00:23:01.796 --> 00:23:03.775 effective in reducing the growth of

NOTE Confidence: 0.91221124

00:23:03.775 --> 00:23:05.535 many pancreatic cancer cell lines.

NOTE Confidence: 0.91221124

00:23:05.540 --> 00:23:07.410 But a subset of them

NOTE Confidence: 0.91221124

00:23:07.410 --> 00:23:09.811 seem to continue to survive

NOTE Confidence: 0.91221124

00:23:09.811 --> 00:23:11.509 despite complete loss of KRAS,

NOTE Confidence: 0.91221124

00:23:11.510 --> 00:23:13.520 suggesting that even with these drugs

NOTE Confidence: 0.91221124

00:23:13.520 --> 00:23:16.299 there is likely to be some resistance now.

NOTE Confidence: 0.91221124

00:23:16.300 --> 00:23:17.290 The encouraging

NOTE Confidence: 0.91221124

00:23:17.290 --> 00:23:20.020 part is we can use these models to

NOTE Confidence: 0.91221124

00:23:20.020 --> 00:23:22.456 study how cells aid KRAS inhibition,

NOTE Confidence: 0.91221124

00:23:22.460 --> 00:23:23.483 how they resist,

NOTE Confidence: 0.91221124

00:23:23.483 --> 00:23:25.188 how they continue to survive,

NOTE Confidence: 0.91221124

00:23:25.190 --> 00:23:27.286 and using this data we can now

NOTE Confidence: 0.91221124

00:23:27.286 --> 00:23:29.546 use that to bring it into our clinical

NOTE Confidence: 0.91221124

00:23:29.546 --> 00:23:31.672 trials and try and design better

NOTE Confidence: 0.91221124

00:23:31.672 --> 00:23:33.560 combination therapies that might

NOTE Confidence: 0.91221124

00:23:33.560 --> 00:23:35.448 overcome the resistance mechanisms

NOTE Confidence: 0.91221124

00:23:35.450 --> 00:23:37.730 that developed with KRAS.

NOTE Confidence: 0.91221124

00:23:37.730 --> 00:23:38.702 Now we're excited

NOTE Confidence: 0.91221124

00:23:38.702 --> 00:23:40.646 we finally have drugs that target

NOTE Confidence: 0.91221124

00:23:40.646 --> 00:23:42.713 KRAS to really test these hypothesis

NOTE Confidence: 0.91221124

00:23:42.713 --> 00:23:44.926 and really see whether we can

NOTE Confidence: 0.91221124

00:23:44.926 --> 00:23:45.870 overcome resistance.

NOTE Confidence: 0.91221124

00:23:45.870 --> 00:23:47.982 But because of the genetic studies

NOTE Confidence: 0.91221124

00:23:47.982 --> 00:23:50.120 that we and others have done,

NOTE Confidence: 0.91221124

00:23:50.120 --> 00:23:52.052 it gives us some advanced insight

NOTE Confidence: 0.91221124

00:23:52.052 --> 00:23:54.144 into how to really combine drugs

NOTE Confidence: 0.91221124

00:23:54.144 --> 00:23:56.340 into ways that might help patients

NOTE Confidence: 0.91221124

00:23:56.340 --> 00:23:58.578 even earlier in terms of overcoming

NOTE Confidence: 0.91221124

00:23:58.578 --> 00:24:00.378 resistance to KRAS inhibitors

NOTE Confidence: 0.91221124

00:24:00.378 --> 00:24:01.799 as they continue to

NOTE Confidence: 0.92225844

00:24:01.800 --> 00:24:04.928 emerge. So now that we have these inhibitors

NOTE Confidence: 0.92225844

00:24:04.928 --> 00:24:07.805 against the G12 mutation of KRAS,

NOTE Confidence: 0.92225844

00:24:07.810 --> 00:24:10.394 have you looked at mice who have that

NOTE Confidence: 0.92225844

00:24:10.394 --> 00:24:12.987 mutation and see whether these drugs work?

NOTE Confidence: 0.92225844

00:24:12.990 --> 00:24:14.580 Whether there is a significant

NOTE Confidence: 0.92225844

00:24:14.580 --> 00:24:16.780 proportion of them that are resistant,

NOTE Confidence: 0.92225844

00:24:16.780 --> 00:24:19.034 or whether most of them actually will

NOTE Confidence: 0.92225844

00:24:19.034 --> 00:24:21.608 respond like the lung cancer patients have?

NOTE Confidence: 0.92225844

00:24:21.610 --> 00:24:23.680 so there are studies that have

NOTE Confidence: 0.9248166

00:24:23.680 --> 00:24:25.714 been done using human cell lines

NOTE Confidence: 0.9248166

00:24:25.714 --> 00:24:27.480 that have particular disk error.

NOTE Confidence: 0.9248166

00:24:27.480 --> 00:24:29.678 Gee, 12 Mutation and put them into

NOTE Confidence: 0.9248166

00:24:29.678 --> 00:24:31.916 mice and then treated the mice with

NOTE Confidence: 0.9248166

00:24:31.916 --> 00:24:34.267 the drugs and they can be quite

NOTE Confidence: 0.9248166

00:24:34.267 --> 00:24:36.447 effective in shrinking the tumors.

NOTE Confidence: 0.9248166

00:24:36.450 --> 00:24:38.568 Now we do see that again.

NOTE Confidence: 0.9248166

00:24:38.570 --> 00:24:40.628 Subset of those tumors will recur,

NOTE Confidence: 0.9248166

00:24:40.630 --> 00:24:44.070 and a lot of work is being done

NOTE Confidence: 0.9248166

00:24:44.070 --> 00:24:45.910 now to try to identify those resistance

NOTE Confidence: 0.9248166

00:24:45.910 --> 00:24:47.382 mechanisms and then hopefully

NOTE Confidence: 0.9248166

00:24:47.382 --> 00:24:49.228 bring that quicker to the clinic.

NOTE Confidence: 0.9248166

00:24:49.230 --> 00:24:51.170 That's something we've really learned

NOTE Confidence: 0.9248166

00:24:51.170 --> 00:24:52.722 from targeting other mutations

NOTE Confidence: 0.9248166

00:24:52.722 --> 00:24:54.701 and other cancer types like lung

NOTE Confidence: 0.9248166

00:24:54.701 --> 00:24:56.607 cancer that cancers will often find

NOTE Confidence: 0.9248166

00:24:56.607 --> 00:24:58.177 ways to escape the inhibition,

NOTE Confidence: 0.9248166

00:24:58.180 --> 00:25:00.077 but we now know

NOTE Confidence: 0.9248166

00:25:00.077 --> 00:25:02.484 and study that in advance and

NOTE Confidence: 0.9248166

00:25:02.484 --> 00:25:04.016 hopefully design clinical trials

NOTE Confidence: 0.9248166

00:25:04.016 --> 00:25:06.304 and better ways to bring

NOTE Confidence: 0.9248166

00:25:06.304 --> 00:25:07.764 up those combination therapies

NOTE Confidence: 0.9248166

00:25:07.764 --> 00:25:09.682 sooner and hopefully prevent

NOTE Confidence: 0.9248166

00:25:09.682 --> 00:25:12.440 the emergence of resistance to these

NOTE Confidence: 0.93061113

00:25:12.440 --> 00:25:14.310 drugs. So given the choice,

NOTE Confidence: 0.93061113

00:25:14.310 --> 00:25:16.175 if a patient is diagnosed

NOTE Confidence: 0.93061113

00:25:16.175 --> 00:25:17.294 with pancreatic cancer,

NOTE Confidence: 0.93061113

00:25:17.300 --> 00:25:18.792 there are standard chemotherapy

NOTE Confidence: 0.93061113

00:25:18.792 --> 00:25:20.284 regimens that are given,

NOTE Confidence: 0.93061113

00:25:20.290 --> 00:25:22.670 and we know that these

NOTE Confidence: 0.93061113

00:25:22.670 --> 00:25:25.150 may or may not be effective,

NOTE Confidence: 0.93061113

00:25:25.150 --> 00:25:27.495 but if a patient has a particular

NOTE Confidence: 0.93061113

00:25:27.495 --> 00:25:29.966 mutation and there is a clinical trial

NOTE Confidence: 0.93061113

00:25:29.966 --> 00:25:32.054 that is offering them a medication

NOTE Confidence: 0.93061113

00:25:32.127 --> 00:25:34.127 targeted against that mutation,

NOTE Confidence: 0.93061113

00:25:34.130 --> 00:25:36.115 are they better off just

NOTE Confidence: 0.93061113

00:25:36.115 --> 00:25:38.100 statistically to take the clinical

NOTE Confidence: 0.93061113

00:25:38.173 --> 00:25:40.327 trial over the standard of care?

NOTE Confidence: 0.93061113

00:25:40.330 --> 00:25:43.220 Or is it better to do the standard of care?

NOTE Confidence: 0.93061113

00:25:43.220 --> 00:25:44.954 Wait till you fail and then

NOTE Confidence: 0.93061113

00:25:44.954 --> 00:25:46.400 try a targeted therapy?

NOTE Confidence: 0.9149758

00:25:46.400 --> 00:25:47.840 Many of these targeted therapies,

NOTE Confidence: 0.9149758

00:25:47.840 --> 00:25:49.000 when their first initially

NOTE Confidence: 0.9149758

00:25:49.000 --> 00:25:50.450 introduced and tested in patients,

NOTE Confidence: 0.9149758

00:25:50.450 --> 00:25:52.550 are often used after the standard of

NOTE Confidence: 0.9149758

00:25:52.550 --> 00:25:54.753 care is already been given and there may

NOTE Confidence: 0.9149758

00:25:54.753 --> 00:25:57.281 be a point once we show that they are

NOTE Confidence: 0.9149758

00:25:57.281 --> 00:25:59.408 efficacious or they work that they then

NOTE Confidence: 0.9149758

00:25:59.408 --> 00:26:01.424 are brought up to earlier stages.

NOTE Confidence: 0.9149758

00:26:01.430 --> 00:26:02.554 That's true for example,

NOTE Confidence: 0.9149758

00:26:02.554 --> 00:26:04.588 in lung cancer and specific types of

NOTE Confidence: 0.9149758

00:26:04.588 --> 00:26:06.625 mutations in lung cancer that we've observed.

NOTE Confidence: 0.9149758

00:26:06.630 --> 00:26:08.934 But at this point most of these trials,

NOTE Confidence: 0.9149758

00:26:08.940 --> 00:26:11.440 at least the early phase trials, are after

NOTE Confidence: 0.9149758

00:26:11.440 --> 00:26:12.960 the standard of care,

NOTE Confidence: 0.9149758

00:26:12.960 --> 00:26:15.616 so I think that right now standard of

NOTE Confidence: 0.9149758

00:26:15.616 --> 00:26:17.738 care chemotherapy is really our best bet.

NOTE Confidence: 0.9149758

00:26:17.740 --> 00:26:19.612 How we tailor which chemotherapy to

NOTE Confidence: 0.9149758

00:26:19.612 --> 00:26:22.195 give it may depend a little bit

NOTE Confidence: 0.9149758

00:26:22.195 --> 00:26:24.480 on whether there are mutations in DNA

NOTE Confidence: 0.9149758

00:26:24.480 --> 00:26:26.984 repair genes that we can detect in cancer.

NOTE Confidence: 0.9149758

00:26:26.990 --> 00:26:29.111 So I think it's important to talk

NOTE Confidence: 0.9149758

00:26:29.111 --> 00:26:31.084 to your oncologist or doctor about

NOTE Confidence: 0.9149758

00:26:31.084 --> 00:26:32.416 looking at the sequence,

NOTE Confidence: 0.9149758

00:26:32.420 --> 00:26:34.758 because that could affect how you choose

NOTE Confidence: 0.9149758

00:26:34.758 --> 00:26:36.408 the chemotherapies that we typically

NOTE Confidence: 0.9149758

00:26:36.408 --> 00:26:38.480 give and then hopefully down the line

NOTE Confidence: 0.9149758

00:26:38.480 --> 00:26:40.418 some of these targeted drugs will

NOTE Confidence: 0.9149758

00:26:40.418 --> 00:26:42.850 make their way to where they might

NOTE Confidence: 0.9149758

00:26:42.850 --> 00:26:44.548 be helpful in the first line

NOTE Confidence: 0.9149758

00:26:44.548 --> 00:26:46.690 prior to what we have currently,

NOTE Confidence: 0.9149758

00:26:46.690 --> 00:26:48.688 and maybe replace the current therapies

NOTE Confidence: 0.9149758

00:26:48.688 --> 00:26:50.529 in terms of standard of care.

NOTE Confidence: 0.9149758

00:26:50.530 --> 00:26:52.770 I don't think we're quite there yet,

NOTE Confidence: 0.9149758

00:26:52.770 --> 00:26:53.090 and

NOTE Confidence: 0.93288827

00:26:53.090 --> 00:26:54.690 pancreatic cancer for targeted therapies,

NOTE Confidence: 0.93288827

00:26:54.690 --> 00:26:56.652 so when we talked about germline

NOTE Confidence: 0.93288827

00:26:56.652 --> 00:26:58.530 mutations and some people may have,

NOTE Confidence: 0.93288827

00:26:58.530 --> 00:27:00.130 for example a mutation,

NOTE Confidence: 0.93288827

00:27:00.130 --> 00:27:02.218 are you using that information to

NOTE Confidence: 0.93288827

00:27:02.218 --> 00:27:04.609 tailor your therapy as well and if so,

NOTE Confidence: 0.93288827

00:27:04.610 --> 00:27:06.530 can you tell us a little

NOTE Confidence: 0.93288827

00:27:06.530 --> 00:27:09.410 bit about that?

NOTE Confidence: 0.93288827

00:27:09.410 --> 00:27:11.962 We do know that DNA repair pathways

NOTE Confidence: 0.93288827

00:27:11.962 --> 00:27:13.977 are abnormal in patients who have

NOTE Confidence: 0.93288827

00:27:13.980 --> 00:27:16.740 two mutations and it turns out

NOTE Confidence: 0.93288827

00:27:16.740 --> 00:27:18.759 certain chemotherapy therapies that we give

NOTE Confidence: 0.93288827

00:27:18.759 --> 00:27:21.200 can be more effective in that context.

NOTE Confidence: 0.93288827

00:27:21.200 --> 00:27:24.104 Those cells can't repair the DNA

NOTE Confidence: 0.93288827

00:27:24.104 --> 00:27:26.040 damage.

NOTE Confidence: 0.93288827

00:27:26.040 --> 00:27:28.252 It actually induces, which leads them to be

NOTE Confidence: 0.93288827

00:27:28.252 --> 00:27:30.420 more sensitive to those chemotherapies,

NOTE Confidence: 0.93288827

00:27:30.420 --> 00:27:33.642 and so we are tailoring our chemotherapy a

NOTE Confidence: 0.93288827

00:27:33.642 --> 00:27:36.625 little bit in terms of having that mutation.

NOTE Confidence: 0.93288827

00:27:36.630 --> 00:27:38.998 We also know that there is a certain

NOTE Confidence: 0.93288827

00:27:38.998 --> 00:27:41.244 class of drugs called PARP Inhibitors

NOTE Confidence: 0.93288827

00:27:41.244 --> 00:27:44.077 that have been quite helpful in breast

NOTE Confidence: 0.93288827

00:27:44.077 --> 00:27:46.411 and ovarian cancers with RCA mutations

NOTE Confidence: 0.93288827

00:27:46.411 --> 00:27:48.600 that now have shown some efficacy

NOTE Confidence: 0.93288827

00:27:48.600 --> 00:27:50.980 in patients who have be RCA germline

NOTE Confidence: 0.93288827

00:27:51.045 --> 00:27:53.140 mutations in pancreatic cancer and

NOTE Confidence: 0.93288827

00:27:53.140 --> 00:27:55.235 recently was FDA approved actually

NOTE Confidence: 0.93288827

00:27:55.300 --> 00:27:57.610 for that indication in the last month.

NOTE Confidence: 0.93288827

00:27:57.610 --> 00:27:58.816 And so again,

NOTE Confidence: 0.93288827

00:27:58.816 --> 00:28:00.826 the knowledge of these mutations

NOTE Confidence: 0.93288827

00:28:00.826 --> 00:28:03.468 and their presence in the tumors is

NOTE Confidence: 0.93288827

00:28:03.468 --> 00:28:05.949 helping us guide how we treat our

NOTE Confidence: 0.9226711

00:28:05.950 --> 00:28:08.155 patients.

NOTE Confidence: 0.9226711

00:28:08.155 --> 00:28:10.878 Tell me how that impacts overall survival.

NOTE Confidence: 0.9226711

00:28:10.880 --> 00:28:12.770 If we give standard chemotherapy,

NOTE Confidence: 0.9226711

00:28:12.770 --> 00:28:14.286 how efficacious is it?

NOTE Confidence: 0.9226711

00:28:14.286 --> 00:28:16.560 And if we can target something,

NOTE Confidence: 0.9226711

00:28:16.560 --> 00:28:18.828 how much does that improve outcomes?

NOTE Confidence: 0.9226711

00:28:18.830 --> 00:28:19.970 So in terms

NOTE Confidence: 0.9226711

00:28:19.970 --> 00:28:21.104 of overall survival,

NOTE Confidence: 0.9226711

00:28:21.104 --> 00:28:22.994 in standard of care chemotherapy,

NOTE Confidence: 0.9226711

00:28:23.000 --> 00:28:25.660 in which we use really four drugs,

NOTE Confidence: 0.9226711

00:28:25.660 --> 00:28:27.960 three of which are chemotherapies,

NOTE Confidence: 0.9226711

00:28:27.960 --> 00:28:30.081 a regimen which

NOTE Confidence: 0.9226711

00:28:30.081 --> 00:28:32.367 has been around now for nearly a decade,

NOTE Confidence: 0.9226711

00:28:32.370 --> 00:28:34.428 is still the standard of care

NOTE Confidence: 0.9226711

00:28:34.430 --> 00:28:36.854 and it was important when the initial

NOTE Confidence: 0.9226711

00:28:36.854 --> 00:28:38.837 results came out nearly a decade ago,

NOTE Confidence: 0.9226711

00:28:38.840 --> 00:28:40.295 because it really showed that

NOTE Confidence: 0.9226711

00:28:40.295 --> 00:28:41.750 combinations of chemotherapy could be

NOTE Confidence: 0.9226711

00:28:41.799 --> 00:28:43.539 better than a single chemotherapy.

NOTE Confidence: 0.9226711

00:28:43.540 --> 00:28:45.010 In the 2000s,

NOTE Confidence: 0.9226711

00:28:45.010 --> 00:28:47.278 we did a number of trials in which we

NOTE Confidence: 0.9226711

00:28:47.278 --> 00:28:48.874 combined chemotherapies and none of

NOTE Confidence: 0.9226711

00:28:48.874 --> 00:28:51.190 them were better than one drug alone,

NOTE Confidence: 0.9226711

00:28:51.190 --> 00:28:53.262 and so that really showed us that

NOTE Confidence: 0.9226711

00:28:53.262 --> 00:28:54.480 that combination chemotherapy can

NOTE Confidence: 0.9226711

00:28:54.480 --> 00:28:55.890 be helpful in pancreatic cancer,

NOTE Confidence: 0.9226711

00:28:55.890 --> 00:28:58.032 and I think those are still the

NOTE Confidence: 0.9226711

00:28:58.032 --> 00:28:59.908 standard of care at this point.

NOTE Confidence: 0.9226711

00:28:59.910 --> 00:29:00.550 Though again,

NOTE Confidence: 0.9226711

00:29:00.550 --> 00:29:02.790 we can tailor a little bit based

NOTE Confidence: 0.9226711

00:29:02.790 --> 00:29:05.101 on the sequencing and the presence

NOTE Confidence: 0.9226711

00:29:05.101 --> 00:29:07.026 or absence of these general

NOTE Confidence: 0.92699915

00:29:07.030 --> 00:29:08.450 permutation.

00:29:09.520 --> 00:29:11.390 Deepak Muzumdar is an assistant

NOTE Confidence: 0.92699915

00:29:11.390 --> 00:29:13.260 professor of genetics and medical

NOTE Confidence: 0.92699915

00:29:13.323 --> 00:29:15.570 oncology at the Yale School of Medicine.

NOTE Confidence: 0.92699915

00:29:15.570 --> 00:29:16.998 If you have questions,

NOTE Confidence: 0.92699915

00:29:16.998 --> 00:29:18.426 the address is canceranswers@yale.edu

NOTE Confidence: 0.92699915

00:29:18.426 --> 00:29:20.398 and past editions of the program

NOTE Confidence: 0.92699915

00:29:20.398 --> 00:29:22.198 are available in audio and written

NOTE Confidence: 0.92699915

00:29:22.257 --> 00:29:23.760 form at Yalecancercenter.org.

NOTE Confidence: 0.92699915

00:29:23.760 --> 00:29:26.576 We hope you'll join us next week to

NOTE Confidence: 0.92699915

00:29:26.576 --> 00:29:29.313 learn more about the fight against

NOTE Confidence: 0.92699915

00:29:29.313 --> 00:29:32.247 cancer here on Connecticut public radio.