0:00:00 –> 0:00:02.485 Support for Yale Cancer Answers

0:00:02.485 –> 0:00:05.592 comes from AstraZeneca, committed to

0:00:05.592 –> 0:00:08.307 pioneering the next generation of

0:00:08.307 –> 0:00:10.479 innovative lung cancer treatments.

0:00:10.48 –> 0:00:14.148 Learn more at astrazeneca-us.com.

0:00:14.15 –> 0:00:16.316 Welcome to Yale Cancer Answers with

0:00:16.316 –> 0:00:18.69 your host doctor Anees Chagpar.

0:00:18.69 –> 0:00:20.55 Yale Cancer Answers features the

0:00:20.55 –> 0:00:22.841 latest information on cancer care by

0:00:22.841 –> 0:00:24.309 welcoming oncologists and specialists

0:00:24.309 –> 0:00:26.765 who are on the forefront of the

0:00:26.765 –> 0:00:28.457 battle to fight cancer. This week,

0:00:28.46 –> 0:00:30.205 it's a conversation about lung

0:00:30.205 –> 0:00:31.95 cancer with Doctor Sarah Goldberg.

0:00:31.95 –> 0:00:33.8 Doctor Goldberg is an associate

0:00:33.8 –> 0:00:35.65 professor of internal medicine and

0:00:35.712 –> 0:00:37.728 medical oncology at the Yale School

0:00:37.728 –> 0:00:39.781 of Medicine where Doctor Chagpar

0:00:39.781 –> 0:00:41.713 is a professor of surgical oncology.

0:00:42.61 –> 0:00:45.589 Sarah, maybe we can start off

0:00:45.59 –> 0:00:48.187 by talking about lung cancer.

0:00:48.19 –> 0:00:50.794 I mean when many people think

0:00:50.794 –> 0:00:53.398 about lung cancer, they think of it

0:00:53.398 –> 0:00:55.63 as kind of a devastating disease.

0:00:55.63 –> 0:00:58.136 Tell us a little bit more

0:00:58.136 –> 0:01:00.469 about how many people get it,

0:01:00.47 –> 0:01:02.33 who gets it, and historically,

0:01:02.33 –> 0:01:04.546 what has been the prognosis?

0:01:04.546 –> 0:01:06.069 So lung cancer is

0:01:06.07 –> 0:01:07.494 a very common cancer.

0:01:07.494 –> 0:01:09.63 It's the second most common cancer

1

0:01:09.694 –> 0:01:11.918 in the US among both men and women.

0:01:11.92 –> 0:01:14.616 But you're right, it absolutely can be a

0:01:14.616 –> 0:01:16.467 devastating illness and because of that,

0:01:16.47 –> 0:01:19.07 it's the number one cause of cancer deaths

0:01:19.07 –> 0:01:21.02 among both men and women.

0:01:21.02 –> 0:01:23.298 So it's common, and it's a common

0:01:23.298 –> 0:01:24.918 cause of death from cancer.

0:01:24.92 –> 0:01:27.195 But I think a lot has changed

0:01:27.195 –> 0:01:28.17 in recent years.

0:01:28.17 –> 0:01:31.095 I know we'll talk about a lot of that,

0:01:31.1 –> 0:01:33.82 but some of the things that we've

0:01:33.82 –> 0:01:36.32 known for a long time now is that

0:01:36.32 –> 0:01:38.134 people tend to be older when

0:01:38.134 –> 0:01:39.346 they get lung cancer,

0:01:39.346 –> 0:01:41.467 although some people are quite young.

0:01:41.47 –> 0:01:43.894 Smoking is a risk factor for lung cancer,

0:01:43.9 –> 0:01:44.486 but again,

0:01:44.486 –> 0:01:45.951 some people have never smoked

0:01:45.951 –> 0:01:48.119 a day in their life and they

0:01:48.119 –> 0:01:49.649 can still get the disease.

0:01:53.074 –> 0:01:54.454 Does genetics play into it?

0:01:54.46 –> 0:01:56.428 I mean on this show we talk a

0:01:56.428 –> 0:01:58.06 lot about genetics as well,

0:01:58.06 –> 0:01:59.999 but when it comes to lung cancer,

0:02:00 –> 0:02:01.96 most of us think that this

0:02:01.96 –> 0:02:03.878 is really a smoking related cancer.

0:02:03.88 –> 0:02:05.656 Although as you say there are

0:02:05.656 –> 0:02:07.646 people who never smoked a day in

0:02:07.646 –> 0:02:09.134 their life who get lung cancer.

0:02:09.14 –> 0:02:11.624 So for them, is it really genetics?

0:02:11.63 –> 0:02:12.47 What's an underlying

0:02:12.47 –> 0:02:13.295 cause for that?

0:02:13.295 –> 0:02:14.945 There's a lot about lung cancer

0:02:14.945 –> 0:02:16.34 that we still don't know.

0:02:16.34 –> 0:02:18.279 And your question is a great one,

0:02:18.28 –> 0:02:20.247 and it's something that we still don't

0:02:20.247 –> 0:02:21.699 fully understand about lung cancer

0:02:21.7 –> 0:02:25.436 because smoking is such a common risk

0:02:25.44 –> 0:02:29.184 factor for lung cancer.

0:02:29.19 –> 0:02:30.918 When we see someone who's smoked,

0:02:30.92 –> 0:02:33.44 who gets lung cancer, we think that it's

0:02:33.44 –> 0:02:35.237 probably related in some way.

0:02:35.24 –> 0:02:37.236 But again, when people have never smoked,

0:02:37.236 –> 0:02:38.904 we really don't understand the cause

0:02:38.904 –> 0:02:40.997 for the vast majority of those cancers.

0:02:41 –> 0:02:42.42 When you think of

0:02:42.42 –> 0:02:44.17 genetics in terms of

0:02:44.17 –> 0:02:45.946 inheriting a gene from your parents

0:02:45.946 –> 0:02:47.619 or passing it along to kids,

0:02:47.62 –> 0:02:49.25 that's not really common at all

0:02:49.25 –> 0:02:50.93 in lung cancer like it is in

0:02:50.93 –> 0:02:52.809 other cancers like breast cancer,

0:02:52.81 –> 0:02:54.526 which tends to be more common.

0:02:54.53 –> 0:02:56.258 We just don't see that very

0:02:56.258 –> 0:02:57.41 much in lung cancer,

0:02:57.41 –> 0:02:59.356 so why some people who have never

0:02:59.356 –> 0:03:01.198 smoked get it is still really

0:03:01.2 –> 0:03:03.42 an outstanding question in the field.

0:03:03.42 –> 0:03:05.64 There are some other environmental risks,

0:03:05.64 –> 0:03:06.38 but much,

0:03:06.38 –> 0:03:08.97 much lower than the risk of smoking.

0:03:08.97 –> 0:03:11.56 So secondhand smoke is also a risk,

0:03:11.56 –> 0:03:13.636 but again, much lower.

0:03:13.636 –> 0:03:16.369 Radon is always a question.

0:03:16.37 –> 0:03:18.59 There probably is some risk there,

0:03:18.59 –> 0:03:20.44 but how to quantify that?

0:03:20.44 –> 0:03:21.92 It is very difficult,

0:03:21.92 –> 0:03:24.88 so for many people who haven't

0:03:24.88 –> 0:03:27.1 smoked or haven't smoked much,

0:03:27.1 –> 0:03:28.95 it's still very unclear

0:03:28.95 –> 0:03:30.8 why they get this disease.

0:03:30.8 –> 0:03:32.888 You know the other thing

0:03:32.888 –> 0:03:35.41 that we talked about in a lot

0:03:35.41 –> 0:03:37.534 of different cancers is that any

0:03:37.534 –> 0:03:39.26 particular cancer lung cancer,

0:03:39.26 –> 0:03:40.724 breast cancer, colon cancer,

0:03:40.724 –> 0:03:42.554 whatever, it is rarely one disease, is

0:03:42.554 –> 0:03:44.75 lung cancer like that as well?

0:03:44.75 –> 0:03:47.298 Or are all lung

0:03:47.298 –> 0:03:49.14 cancers essentially the same?

0:03:49.99 –> 0:03:52.526 So this is one of the things that

0:03:52.526 –> 0:03:54.732 I think is the most interesting and

0:03:54.732 –> 0:03:56.298 probably exciting about lung cancer.

0:03:56.298 –> 0:03:59.431 Up until a couple years ago we really

0:03:59.431 –> 0:04:01.999 thought there were two types of lung cancer,

0:04:02 –> 0:04:04.528 small cell and non small cell lung cancer.

0:04:04.53 –> 0:04:06.861 But over the last really 10 or 15 years

0:04:06.861 –> 0:04:08.977 it's become clear that it's multiple

0:04:08.977 –> 0:04:11.468 diseases that are all labeled as lung

0:04:11.468 –> 0:04:13.364 cancer because of where it started,

0:04:13.37 –> 0:04:15.589 where the cancer started in the lung.

0:04:15.59 –> 0:04:17.742 And this is one of the biggest advances

0:04:17.742 –> 0:04:20.341 in the field over the last several years

0:04:20.341 –> 0:04:22.56 is the understanding of the different

0:04:22.56 –> 0:04:25.206 types of lung cancer and it's not just so

0:04:25.206 –> 0:04:28.116 that we can define things in a different way.

0:04:28.12 –> 0:04:29.686 It's really because it impacts treatment

0:04:29.686 –> 0:04:31.542 and how well different cancers

0:04:31.542 –> 0:04:33.07 respond to different treatments.

0:04:33.07 –> 0:04:34.924 How well someone is going to

0:04:34.924 –> 0:04:36.16 do with various treatments,

0:04:36.16 –> 0:04:37.416 and so differentiating these

0:04:37.416 –> 0:04:39.3 different types of lung cancers is

0:04:39.355 –> 0:04:41.089 absolutely critical so that we can

0:04:41.089 –> 0:04:42.949 get the best treatments for patients.

0:04:42.95 –> 0:04:44.762 We still do think about small

0:04:44.762 –> 0:04:46.35 cell and non small cell,

0:04:46.35 –> 0:04:48.38 but mostly within the realm of non

0:04:48.38 –> 0:04:50.202 small cell lung cancer is where

0:04:50.202 –> 0:04:51.978 we've been able to divide things

0:04:51.978 –> 0:04:53.789 up even more and understand

0:04:53.79 –> 0:04:58.116 mostly the molecular basis of lung cancer.

0:04:58.12 –> 0:05:00.22 Meaning that the cancer has different

0:05:00.22 –> 0:05:01.994 mutations and that is really

0:05:01.994 –> 0:05:03.529 part of what defines it.

0:05:03.53 –> 0:05:06.446 Now you just asked me about mutations and I

0:05:06.446 –> 0:05:09.268 said it's not very common in lung cancer,

0:05:09.27 –> 0:05:11.298 but I'm talking about a different

0:05:11.298 –> 0:05:12.65 type of mutation here,

0:05:12.65 –> 0:05:15.354 so it's not very common that people have

0:05:16.034 –> 0:05:18.056 a genetic predisposition to lung cancer.

0:05:18.06 –> 0:05:20.028 But finding mutations in the cancer

0:05:20.028 –> 0:05:21.78 itself is actually quite common.

0:05:22.46 –> 0:05:24.924 Yeah, we've had

0:05:24.924 –> 0:05:27.963 other guests on the show here as well who

0:05:27.963 –> 0:05:30.289 talk about this concept where

0:05:30.29 –> 0:05:33.314 a biopsy is taken and the tumor is

0:05:33.314 –> 0:05:35.919 profiled for a number of mutations,

0:05:35.92 –> 0:05:38.155 genetic mutations that it could

0:05:38.155 –> 0:05:40.853 have that could tailor

0:05:40.853 –> 0:05:43.513 therapy and it sounds like lung cancer

0:05:43.513 –> 0:05:46.365 is in that realm as well.

0:05:46.37 –> 0:05:48.59 Tell us more about the mutations

0:05:48.59 –> 0:05:52.185 that you look for and the sub

0:05:52.185 –> 0:05:54.22 classifications that you think about

0:05:54.3 –> 0:05:56.82 when you're treating a lung cancer

0:05:56.82 –> 0:05:57.52 patient.

0:05:57.52 –> 0:05:59.62 Lung cancer is a great example

0:05:59.62 –> 0:06:02.289 of a disease where the molecular

0:06:02.289 –> 0:06:04.193 classifications are so important,

0:06:04.2 –> 0:06:06.503 and so whenever we see a patient

0:06:06.503 –> 0:06:09.34 with a non small cell lung cancer,

0:06:09.34 –> 0:06:10.393 that's advanced

0:06:10.393 –> 0:06:12.499 meaning at stage four, it's critical

0:06:12.499 –> 0:06:14.837 to get molecular or mutation testing.

0:06:14.84 –> 0:06:17.036 People will call it different things.

0:06:17.04 –> 0:06:18.508 Molecular testing, mutation testing.

0:06:18.508 –> 0:06:20.343 Tumor profiling is sometimes used,

0:06:20.35 –> 0:06:22.95 and so that is now entirely a standard

0:06:22.95 –> 0:06:25.319 part of treatment and what's really

0:06:25.319 –> 0:06:28.07 changed over the years is what we

0:06:28.07 –> 0:06:30.725 need to test and

0:06:30.73 –> 0:06:32.816 when I first started in this field

0:06:32.816 –> 0:06:34.855 now 10 years ago there was really

0:06:34.855 –> 0:06:36.836 just one mutation that we can target

6

0:06:36.836 –> 0:06:38.901 and that was the EGFR mutation and

0:06:38.901 –> 0:06:40.952 that was so exciting at the time

0:06:41.011 –> 0:06:42.799 because it was really the first

0:06:42.799 –> 0:06:44.735 time in lung cancer that we could

0:06:44.735 –> 0:06:47.145 get a biopsy as you say and do the

0:06:47.145 –> 0:06:49.364 mutation testing and if we found this

0:06:49.364 –> 0:06:51.291 mutation we had a great treatment

0:06:51.291 –> 0:06:53.384 which is a targeted therapy pill,

0:06:53.384 –> 0:06:55.253 EGFR inhibitor and that is still the

0:06:55.253 –> 0:06:57.112 case today where we're looking for

0:06:57.112 –> 0:06:59.08 EGFR mutations and we will target

0:06:59.08 –> 0:07:00.994 those cancers with pills that treat

0:07:00.994 –> 0:07:02.869 that specific abnormality in the cancer.

0:07:03.448 –> 0:07:05.182 Some people will call it targeted therapy

0:07:05.182 –> 0:07:06.979 or precision or personalized medicine,

0:07:06.98 –> 0:07:08.768 but now instead of just one

0:07:08.768 –> 0:07:10.46 mutation that we can target,

0:07:10.46 –> 0:07:12.098 we have several that have been

0:07:12.098 –> 0:07:14.027 discovered in lung cancer that have

0:07:14.027 –> 0:07:15.2 associated targeted therapies.

0:07:15.2 –> 0:07:17.244 So we've really come a

0:07:17.244 –> 0:07:19.834 long way in just a couple of years

0:07:19.834 –> 0:07:21.83 where now we don't test one,

0:07:21.83 –> 0:07:23.93 but we test many genes because we

0:07:23.93 –> 0:07:26.206 may be able to find a mutation

0:07:26.206 –> 0:07:27.836 that is important in that

0:07:27.84 –> 0:07:29.42 cancer.

0:07:29.42 –> 0:07:31 Tell us the other mutations that you

0:07:31 –> 0:07:33.464 look for.

0:07:33.464 –> 0:07:35.984 Thinking about a timeline, so ALK was probably

0:07:35.984 –> 0:07:38.156 the next one that was discovered.

7

0:07:38.16 –> 0:07:41.016 Alk is a mutation in a gene that

0:07:41.016 –> 0:07:43.945 again can be part of a lung cancer,

0:07:43.95 –> 0:07:45.006 especially lung adenocarcinomas.

0:07:45.006 –> 0:07:47.118 Most of these mutations really all

0:07:47.118 –> 0:07:49.37 these mutations are mostly found in

0:07:49.37 –> 0:07:51.188 adenocarcinomas, which is a type

0:07:51.188 –> 0:07:53.36 of non small cell lung cancer.

0:07:53.36 –> 0:07:56.576 And so ALK is another mutation like the

0:07:56.576 –> 0:07:59.504 EGFR mutation where if we find it

0:07:59.51 –> 0:08:02.016 I get very excited for patients because

0:08:02.016 –> 0:08:04.289 we have fantastic therapies for Alk.

0:08:04.29 –> 0:08:05.55 So that's another one.

0:08:05.55 –> 0:08:07.765 It's rare, ALK rearrangements are found

0:08:07.765 –> 0:08:10.204 in just a couple percent of lung cancers.

0:08:10.21 –> 0:08:11.053 But again,

0:08:11.053 –> 0:08:12.739 absolutely critical to look for because

0:08:12.739 –> 0:08:14.646 of the great options for treatment,

0:08:14.65 –> 0:08:16.378 we have another another gene that

0:08:16.378 –> 0:08:18.5 we always test is called RAS one,

0:08:18.5 –> 0:08:20.46 and that also can have a mutation

0:08:20.46 –> 0:08:22.938 in it and the list keeps going on.

0:08:22.94 –> 0:08:25.01 So that was really all we had

0:08:25.01 –> 0:08:26.485 for a couple of years.

0:08:26.49 –> 0:08:27.074 But really,

0:08:27.074 –> 0:08:29.75 in the last I would say year or two,

0:08:29.75 –> 0:08:31.225 there's been even more of

0:08:31.225 –> 0:08:32.11 discovery of alterations,

0:08:32.11 –> 0:08:33.972 so now we always will need to

0:08:33.972 –> 0:08:35.42 assess for BRAF mutations.

0:08:35.42 –> 0:08:37.572 BRAF is a gene that

0:08:37.572 –> 0:08:39.699 commonly has mutations in Melanoma,

0:08:39.7 –> 0:08:41.446 but more recently was also found

0:08:41.446 –> 0:08:43.38 to have mutations in lung cancers.

0:08:43.38 –> 0:08:45.333 Again just a couple of percent of

0:08:45.333 –> 0:08:47.05 lung cancers have BNRAF mutations,

0:08:47.05 –> 0:08:48.94 but now we have targeted therapies

0:08:48.94 –> 0:08:51.335 that we can use for that and then

0:08:51.335 –> 0:08:53.054 really recently within just the last

0:08:53.054 –> 0:08:55.351 couple of months or year we look at

0:08:55.351 –> 0:08:57.146 MET mutations and ntrk mutations,

0:08:57.15 –> 0:08:59.614 RET I might have forgotten a couple

0:08:59.614 –> 0:09:01.737 there's getting to be so many.

0:09:02.655 –> 0:09:04.485 We have now several new FDA

0:09:04.485 –> 0:09:05.469 approvals for these

0:09:05.47 –> 0:09:06.15 targeted therapies,

0:09:06.15 –> 0:09:09.29 but if you don't know the mutation is there,

0:09:09.29 –> 0:09:11.719 you're not going to use the drug,

0:09:11.72 –> 0:09:13.45 so it's really become very

0:09:13.45 –> 0:09:14.834 important to test even

0:09:14.84 –> 0:09:16.176 more than ever before.

0:09:16.176 –> 0:09:18.18 And you mentioned

0:09:18.255 –> 0:09:19.699 that this is standard,

0:09:19.7 –> 0:09:21.088 but you've mentioned now

0:09:21.088 –> 0:09:23.86 at least half a

0:09:23.86 –> 0:09:25.94 dozen mutations that you look for.

0:09:25.94 –> 0:09:27.675 So is that something that

0:09:27.675 –> 0:09:29.063 is standard of care?

0:09:29.07 –> 0:09:30.8 So any of our listeners,

0:09:30.8 –> 0:09:32.54 no matter where they go,

0:09:32.54 –> 0:09:34.616 whether they go to

0:09:34.62 –> 0:09:36.032 a large academic Cancer

0:09:36.032 –> 0:09:38.15 Center or whether they go to

0:09:38.15 –> 0:09:40.73 a local private practice oncologist,

0:09:40.73 –> 0:09:43.202 is that something that is going

0:09:43.202 –> 0:09:46.264 to be tested for them for

0:09:46.264 –> 0:09:48.464 their lung cancer across the

0:09:48.47 –> 0:09:50.676 board and across the country?

0:09:50.676 –> 0:09:53.882 Or is this still something that really

0:09:53.882 –> 0:09:56.64 hasn't found its way out of academe

0:09:56.64 –> 0:09:58.78 yet?

0:09:58.78 –> 0:10:00.964 It absolutely should be standard of care

0:10:00.964 –> 0:10:02.979 because we have FDA approved therapies

0:10:02.98 –> 0:10:05.255 when you find one of these targets

0:10:05.255 –> 0:10:06.882 that aren't useful unless the

0:10:06.882 –> 0:10:08.94 target is there and you don't know

0:10:08.94 –> 0:10:11.078 to use it unless you find it so,

0:10:11.08 –> 0:10:12.748 this should be part of standard

0:10:12.748 –> 0:10:14.38 of care for every patient,

0:10:14.38 –> 0:10:15.88 no matter where they are.

0:10:15.88 –> 0:10:17.38 The testing is available anywhere.

0:10:18.28 –> 0:10:20.08 We do the testing in house,

0:10:20.08 –> 0:10:21.88 so our pathology Department is fantastic.

0:10:21.88 –> 0:10:23.98 They do the testing here, but there's

0:10:23.98 –> 0:10:25.78 companies that do this testing now,

0:10:25.78 –> 0:10:28.324 so it is available anywhere in the US.

0:10:28.33 –> 0:10:30.78 It's a matter of whether it's done,

0:10:30.78 –> 0:10:33.23 and I think that's the bigger question,

0:10:33.23 –> 0:10:34.558 so I think now,

0:10:34.558 –> 0:10:36.218 because EGFR mutations have been

0:10:36.218 –> 0:10:38.13 part of the standard testing,

0:10:38.13 –> 0:10:40.93 you really have to test for EGFR mutations,

0:10:40.93 –> 0:10:43.03 and that's been for 2004 was

0:10:44.43 –> 0:10:46.18 when the mutation was first discovered,

0:10:46.18 –> 0:10:47.251 so we've

0:10:47.251 –> 0:10:49.036 known about EGFR mutations

0:10:49.036 –> 0:10:50.729 for well over a decade.

0:10:50.73 –> 0:10:53.117 I think that's become very standard to

0:10:53.117 –> 0:10:55.978 test and then the other ones I mentioned,

0:10:55.98 –> 0:10:57.348 initially, Alk and RAS,

0:10:57.348 –> 0:10:59.824 those have become more common because

0:10:59.824 –> 0:11:01.996 they've been around for awhile too.

0:11:02 –> 0:11:03.838 But the other ones that I

0:11:03.838 –> 0:11:05.058 mentioned are equally important.

0:11:05.058 –> 0:11:07.144 The issue is that there are more

0:11:07.144 –> 0:11:09.038 recent so that sometimes

0:11:09.038 –> 0:11:10.892 things take longer to catch on,

0:11:10.9 –> 0:11:12.44 and they're also really rare,

0:11:12.44 –> 0:11:15.194 so each one of the other ones I mentioned,

0:11:16.428 –> 0:11:18.647 are no more than 2% of lung adenocarcinomas,

0:11:18.647 –> 0:11:20.621 so they are rare but really

0:11:20.621 –> 0:11:21.648 important to test for,

0:11:21.65 –> 0:11:23.682 so I would hope and expect that they

0:11:23.682 –> 0:11:26.02 are being tested in every patient with

0:11:26.02 –> 0:11:27.79 an advanced form of adenocarcinoma,

0:11:27.79 –> 0:11:30.016 but I suspect that that's not always

0:11:30.016 –> 0:11:32.089 happening because of the rarity of them,

0:11:32.09 –> 0:11:33.266 and because it's

0:11:33.266 –> 0:11:34.736 a relatively

0:11:34.736 –> 0:11:36.21 recent advance in lung cancer,

0:11:36.21 –> 0:11:38.506 but they should be tested.

0:11:38.51 –> 0:11:40.477 Now we actually test for a whole

0:11:40.477 –> 0:11:42.258 lot of other genes at Yale,

0:11:42.26 –> 0:11:44.276 and I think that a lot of

0:11:44.276 –> 0:11:45.14 other academic centers,

0:11:45.14 –> 0:11:47.436 so that part is maybe not as necessary.

0:11:47.44 –> 0:11:49.71 You know, we test for

0:11:49.71 –> 0:11:52.185 at least 50 genes at Yale and some of

0:11:52.185 –> 0:11:54.775 that is trying to think about clinical

0:11:54.775 –> 0:11:57.189 trials for patients and other things,

0:11:57.19 –> 0:11:57.87 but those,

0:11:57.87 –> 0:11:58.89 as you said,

0:11:58.89 –> 0:12:00.25 more than half a

0:12:00.25 –> 0:12:01.95 dozen genes are standard care.

0:12:01.95 –> 0:12:03.31 Obviously, important to test for

0:12:03.31 –> 0:12:05.35 and is that covered by insurance?

0:12:05.35 –> 0:12:07.05 I mean, is that expensive?

0:12:07.05 –> 0:12:09.506 I'm kind of trying

0:12:09.506 –> 0:12:12.273 to think of this from the standpoint of

0:12:12.273 –> 0:12:14.868 our listeners who may have lung cancer,

0:12:14.87 –> 0:12:17.066 may have family members or friends

0:12:17.066 –> 0:12:19.212 who have been recently diagnosed

0:12:19.212 –> 0:12:21.676 and who may not have known to ask.

0:12:21.68 –> 0:12:25.235 You know what is my ALK status, you know?

0:12:25.235 –> 0:12:27.21 Do I have a RAS

0:12:27.21 –> 0:12:29.19 mutation and so you know,

0:12:29.19 –> 0:12:32.088 in broaching that subject, one of the

0:12:32.088 –> 0:12:35.108 issues that always comes up is number one,

0:12:35.11 –> 0:12:37.48 what is the cost and #2,

0:12:37.48 –> 0:12:39.85 is it covered by my insurance?

0:12:39.85 –> 0:12:41.83 And then of course #3,

0:12:41.83 –> 0:12:44.99 can I really avail myself of the therapies?

0:12:44.99 –> 0:12:46.965 But we'll get to the

0:12:46.965 –> 0:12:48.94 therapies part in a moment.

0:12:48.94 –> 0:12:50.52 What about the testing?

0:12:50.52 –> 0:12:52.89 Is it covered or not covered?

0:12:52.89 –> 0:12:53.928 Is it expensive?

0:12:53.928 –> 0:12:55.658 If people haven't been tested,

0:12:55.66 –> 0:12:57.753 can they get their own specimens and

0:12:57.753 –> 0:13:00.289 send them off to some lab that can do

0:13:00.289 –> 0:13:02.3 a commercial test if they so wanted?

0:13:02.3 –> 0:13:03.75 How does that all work?

0:13:04.44 –> 0:13:06.355 Right, so because the testing

0:13:06.355 –> 0:13:08.637 and the treatment is standard of

0:13:08.637 –> 0:13:10.419 care and approved by the FDA,

0:13:10.42 –> 0:13:12.18 it's covered by insurance,

0:13:12.18 –> 0:13:13.94 so these tests are expensive.

0:13:13.94 –> 0:13:15.66 It's all genetic testing DNA

0:13:15.66 –> 0:13:17.38 sequencing things like that

0:13:17.441 –> 0:13:19.216 but it's covered it's standard,

0:13:19.22 –> 0:13:20.98 so it's covered by insurance.

0:13:20.98 –> 0:13:24.5 So in terms of if someone could just go,

0:13:24.5 –> 0:13:26.618 you know, do their own testing,

0:13:26.62 –> 0:13:29.084 the nice thing is

0:13:29.084 –> 0:13:31.188 that once you've had a biopsy,

0:13:31.19 –> 0:13:34.187 it goes to the lab and it stays there

0:13:34.187 –> 0:13:36.753 for as far as I understand, decades.

0:13:36.753 –> 0:13:38.451 So if someone

0:13:38.451 –> 0:13:39.3 asked their oncologist,

0:13:39.3 –> 0:13:42.27 have I had this test and the answer is no.

0:13:42.27 –> 0:13:44.16 Actually we didn't test for all these.

0:13:44.16 –> 0:13:45.78 It's not like all is lost.

0:13:45.78 –> 0:13:47.13 You can still test it.

0:13:47.13 –> 0:13:48.516 So I think that has to be

0:13:48.516 –> 0:13:49.925 done from the doctor's office

0:13:49.925 –> 0:13:51.449 and the pathology Department,

0:13:51.45 –> 0:13:53.07 but it absolutely could be done

0:13:53.61 –> 0:13:54.42 even years after

0:13:54.42 –> 0:13:55.77 a diagnosis is made.

0:13:55.77 –> 0:13:57.534 Well, we're going to dig more into

0:13:57.534 –> 0:13:59.198 what happens after you have that

0:13:59.198 –> 0:14:00.623 information in terms of treatment,

0:14:00.63 –> 0:14:02.25 right after we take a short

0:14:02.25 –> 0:14:03.33 break for medical minute.

0:14:03.33 –> 0:14:04.6 Please stay tuned to learn

0:14:04.6 –> 0:14:06.212 more about lung cancer with my

0:14:06.212 –> 0:14:07.38 guest doctor Sarah Goldberg.

0:14:07.97 –> 0:14:10.42 Support for Yale Cancer Answers

0:14:10.42 –> 0:14:12.38 comes from AstraZeneca,

0:14:12.38 –> 0:14:16.139 an industry leader in the development of

0:14:16.139 –> 0:14:18.246 breakthrough immunooncology therapies across

0:14:18.246 –> 0:14:21.2 multiple tumor types and stages of cancer.

0:14:21.2 –> 0:14:24.56 Learn more at astrazeneca-us.com.

0:14:24.56 –> 0:14:27.346 This is a medical minute about Melanoma.

0:14:27.35 –> 0:14:29.335 While Melanoma accounts for only

0:14:29.335 –> 0:14:31.578 about 4% of skin cancer cases,

0:14:31.578 –> 0:14:33.75 it causes the most skin cancer

0:14:33.82 –> 0:14:35.7 deaths. When detected early,

0:14:35.7 –> 0:14:37.69 however, Melanoma is easily treated

0:14:37.69 –> 0:14:39.282 and highly curable. Clinical

0:14:39.29 –> 0:14:41.57 trials are currently underway to test

0:14:41.57 –> 0:14:43.66 innovative new treatments for Melanoma.

0:14:43.66 –> 0:14:46.18 The goal of the specialized programs

0:14:46.18 –> 0:14:48.666 of research excellence in skin cancer

0:14:48.666 –> 0:14:51.228 or SPORE grant is to better understand

0:14:51.228 –> 0:14:54.416 the biology of skin cancer with a focus

0:14:54.416 –> 0:14:56.944 on discovering targets that will lead

0:14:56.944 –> 0:14:59.184 to improved diagnosis and treatment.

0:14:59.19 –> 0:15:01.282 More information is available

0:15:01.282 –> 0:15:02.328 at yalecancercenter.org.

0:15:02.33 –> 0:15:07.226 You're listening to Connecticut Public Radio.

0:15:07.23 –> 0:15:07.61 Welcome

0:15:07.61 –> 0:15:09.49 back to Yale Cancer Answers.

0:15:09.49 –> 0:15:12.298 This is doctor Anees Chagpar and I'm

0:15:12.298 –> 0:15:14.648 joined tonight by my guest doctor

0:15:14.648 –> 0:15:16.613 Sarah Goldberg and we're talking about

0:15:16.613 –> 0:15:19.308 lung cancer and right before the break

0:15:19.308 –> 0:15:21.811 Sarah was telling us about how lung

0:15:21.811 –> 0:15:24.17 cancer is actually a much more complex

0:15:24.234 –> 0:15:26.459 disease than we thought previously.

0:15:26.46 –> 0:15:29.628 No longer do we think about it just as

0:15:29.628 –> 0:15:32.866 small cell and non small cell but really,

0:15:32.87 –> 0:15:34.535 lung cancer has burgeoned into

0:15:34.535 –> 0:15:36.725 a whole plethora of of diseases

0:15:36.725 –> 0:15:38.537 based on genetic mutations

0:15:38.54 –> 0:15:42.108 of the cancer itself that can be profiled

0:15:42.108 –> 0:15:44.88 and potentially targeted for therapies,

0:15:44.88 –> 0:15:47.32 and this testing, while expensive,

0:15:47.32 –> 0:15:49.348 is covered by insurance.

0:15:49.348 –> 0:15:52.915 Sarah the one question I wanted

0:15:52.915 –> 0:15:55.848 to pick up on just before we

0:15:55.848 –> 0:15:58.55 move on to the treatments,

0:15:58.55 –> 0:16:01.998 which I think is going to be super

0:16:01.998 –> 0:16:05.155 interesting, is what about for our

0:16:05.155 –> 0:16:07.355 non insured uninsured patients?

0:16:07.36 –> 0:16:10.175 It's great that the testing

0:16:10.175 –> 0:16:12.427 is covered by insurance,

0:16:12.43 –> 0:16:15.24 but if somebody doesn't have

0:16:15.24 –> 0:16:16.926 insurance as many,

15

0:16:16.93 –> 0:16:19.75 many American patients don't,

0:16:19.75 –> 0:16:21.439 what are their

0:16:21.44 –> 0:16:21.831 alternatives?

0:16:21.831 –> 0:16:24.177 Yeah, lack of insurance is

0:16:24.177 –> 0:16:26.908 difficult in a lot of different ways,

0:16:26.91 –> 0:16:28.5 not just with testing.

0:16:28.5 –> 0:16:30.408 It also comes down to doctors

0:16:30.408 –> 0:16:31.68 visits and treatment too,

0:16:31.68 –> 0:16:33.215 so I think that's something

0:16:35.18 –> 0:16:37.357 that we sometimes see and

0:16:37.357 –> 0:16:39.604 we work

0:16:39.604 –> 0:16:41.452 very closely with

0:16:41.452 –> 0:16:43.112 multiple people to try

0:16:43.112 –> 0:16:45.038 to to work on these issues,

0:16:45.04 –> 0:16:46.368 especially our social workers

0:16:46.368 –> 0:16:48.706 and try to make every effort to

0:16:48.706 –> 0:16:50.392 get people the care that they

0:16:50.392 –> 0:16:52.04 need in whatever way possible,

0:16:52.04 –> 0:16:53.408 whether that's helping them

0:16:53.408 –> 0:16:55.118 find insurance or figure out

0:16:55.118 –> 0:16:56.719 other resources

0:16:56.72 –> 0:16:58.634 because it's such an important part

0:16:58.634 –> 0:17:01.129 of care to get this testing done.

0:17:01.13 –> 0:17:03.356 I think that kind of is wrapped

0:17:03.356 –> 0:17:04.86 up in the whole

0:17:04.86 –> 0:17:06.732 issue with diagnosis and

0:17:06.732 –> 0:17:08.59 then finding the right treatment.

0:17:08.59 –> 0:17:10.28 It's all part of that.

0:17:10.28 –> 0:17:12.314 So typically were able to find

0:17:12.314 –> 0:17:14.69 a way to cover this in some

0:17:14.69 –> 0:17:15.706 capacity for patients.

0:17:16.38 –> 0:17:18.621 We could do a whole show on all

0:17:18.621 –> 0:17:21.263 of the implications of having so many

0:17:21.263 –> 0:17:23.5 millions of Americans being uninsured,

0:17:23.5 –> 0:17:25.26 and what that does for

0:17:25.26 –> 0:17:27.56 the health of our nation,

0:17:27.56 –> 0:17:29.356 but that's another show.

0:17:29.356 –> 0:17:32.6 Let's turn to a happier topic,

0:17:32.6 –> 0:17:36.632 which is now that we have an

0:17:36.632 –> 0:17:39.415 understanding of all of these mutations

0:17:39.415 –> 0:17:42.7 that every cancer can exhibit,

0:17:42.7 –> 0:17:46.33 we now can figure out what

0:17:46.42 –> 0:17:50.05 makes one cancer different from another.

0:17:50.05 –> 0:17:52.726 And once we can figure out

0:17:52.726 –> 0:17:55.1 what makes a cancer tick,

0:17:55.1 –> 0:17:56.477 we can potentially

0:17:56.477 –> 0:17:59.231 stop it from ticking through personalized

0:17:59.231 –> 0:18:01.791 therapies and targeted agents that

0:18:01.791 –> 0:18:03.826 can really address these pathways.

0:18:03.83 –> 0:18:07.204 So can you talk a little bit about

0:18:07.204 –> 0:18:09.956 what we know and what are some of

0:18:09.956 –> 0:18:12.94 the exciting drugs that

0:18:12.94 –> 0:18:15.5 address each of these mutations?

0:18:16.07 –> 0:18:17.75 Sure, so as you mentioned,

0:18:17.75 –> 0:18:19.43 there's many different exciting

0:18:19.43 –> 0:18:21.11 drugs for the various mutations,

0:18:21.11 –> 0:18:22.785 and each one generally

0:18:22.785 –> 0:18:24.125 does the same thing.

0:18:24.13 –> 0:18:26.391 It tries to block the activity of

0:18:26.391 –> 0:18:28.135 the abnormal mutation that's

0:18:30.283 –> 0:18:32 causing the cancer

0:18:32 –> 0:18:33.878 cell to grow and be abnormal.

0:18:33.88 –> 0:18:35.89 And if you could block that,

0:18:35.89 –> 0:18:37.57 it could be extremely effective,

0:18:37.57 –> 0:18:40.85 and so that's true regardless of which of

0:18:40.85 –> 0:18:43.48 these mutations are found in the cancer.

0:18:43.48 –> 0:18:46.495 EGFR is a great example,

0:18:46.5 –> 0:18:48.145 because we've known about it

0:18:48.145 –> 0:18:50.18 for the most amount of time,

0:18:50.18 –> 0:18:52.35 there was an EGFR inhibitor

0:18:52.35 –> 0:18:54.869 that we used initially called erlotinib

0:18:54.87 –> 0:18:56.88 and if that was really effective.

0:18:56.88 –> 0:18:59.028 But over the years we've realized

0:18:59.028 –> 0:19:01.235 that other EGFR inhibitors that have

0:19:01.235 –> 0:19:03.353 been developed since then are even

0:19:03.353 –> 0:19:05.523 more effective and seemed to work in

0:19:05.523 –> 0:19:07.592 more people and work for longer,

0:19:07.592 –> 0:19:09.578 because one thing that I haven't

0:19:09.578 –> 0:19:11.289 mentioned is that these drugs,

0:19:11.29 –> 0:19:13.705 while they can be extremely effective and

0:19:13.71 –> 0:19:14.982 help people,

0:19:15.3 –> 0:19:18.144 and shrink the cancer and work for a long,

0:19:18.15 –> 0:19:20.369 long time when the cancer is at

0:19:20.369 –> 0:19:21.32 an advanced stage,

0:19:21.32 –> 0:19:23.816 it's not curable so the drugs can work

0:19:23.816 –> 0:19:26.068 and again they can work for years.

0:19:26.07 –> 0:19:28.182 But at some point the cancer gets smarter

0:19:28.182 –> 0:19:30.51 and grows despite these targeted therapies.

0:19:30.51 –> 0:19:33.046 So as we've developed newer and better drugs,

0:19:33.05 –> 0:19:34.946 they tend to work for longer,

0:19:34.95 –> 0:19:36.708 and so that's really what we're

0:19:36.708 –> 0:19:39.116 trying to do is find drugs that work

0:19:39.116 –> 0:19:41.67 for a really long time and make this

0:19:41.67 –> 0:19:43.866 cancer a chronic disease that people

0:19:43.87 –> 0:19:45.91 may not be able to cure or get

0:19:45.91 –> 0:19:47.12 rid of entirely,

0:19:47.12 –> 0:19:48.525 but they can live

0:19:48.525 –> 0:19:50.36 with it for a long time,

0:19:50.36 –> 0:19:52.488 and so in each of the different

0:19:52.488 –> 0:19:54.053 targeted therapy realms for each

0:19:54.053 –> 0:19:55.543 mutation we have great examples

0:19:55.543 –> 0:19:57.313 of drugs that can give people

0:19:57.313 –> 0:19:59.21 many more years of life than they

0:19:59.21 –> 0:20:01.026 otherwise would have had.

0:20:01.48 –> 0:20:03.904 And with each of these drugs, though

0:20:03.904 –> 0:20:05.52 there's presumably side effects,

0:20:05.52 –> 0:20:08.35 what does that look

0:20:08.35 –> 0:20:09.714 like?

0:20:09.714 –> 0:20:12.216 Any drug can have its share of

0:20:12.216 –> 0:20:14.146 side effects and it's variable

0:20:14.15 –> 0:20:16.04 depending on the drug, but overall,

0:20:16.04 –> 0:20:17.625 the targeted therapies tend to

0:20:17.625 –> 0:20:19.573 have less side effects than kind

0:20:19.573 –> 0:20:21.078 of our classic cancer drugs,

0:20:21.08 –> 0:20:22.04 mainly chemotherapy because

0:20:22.04 –> 0:20:23.64 they're targeted and aimed

0:20:23.64 –> 0:20:24.86 specifically at the mutation.

0:20:24.86 –> 0:20:26.645 That's the abnormality in the

0:20:26.645 –> 0:20:28.43 cancer cells which doesn't exist

0:20:28.496 –> 0:20:30.47 in other cells,

0:20:30.47 –> 0:20:32.417 in the normal cells in the body.

0:20:32.42 –> 0:20:33.676 The non cancer cells.

0:20:33.676 –> 0:20:35.246 The mutation is not there,

0:20:35.25 –> 0:20:37.308 so the drugs don't tend to bother

0:20:37.308 –> 0:20:39.286 the normal cells quite as much

0:20:39.286 –> 0:20:40.315 as with chemotherapy.

0:20:40.32 –> 0:20:42.078 So again, every drug is different.

0:20:42.08 –> 0:20:43.874 Some of the more common ones

0:20:43.874 –> 0:20:45.609 that we sometimes see is rash,

0:20:45.61 –> 0:20:46.786 sometimes people are more

0:20:46.786 –> 0:20:48.256 tired than they usually are,

0:20:48.26 –> 0:20:50.318 but generally they are much better tolerated.

0:20:50.32 –> 0:20:52.364 So it's almost like a win win.

0:20:52.37 –> 0:20:54.428 They work better than other cancer therapies,

0:20:54.43 –> 0:20:56.488 and they have less side effects,

0:20:56.49 –> 0:20:57.07 so again,

0:20:57.07 –> 0:20:58.81 we find one of these mutations

0:20:58.81 –> 0:21:00.9 that we can target in a patient.

0:21:00.9 –> 0:21:03.007 I am very excited and I think

0:21:03.007 –> 0:21:04.248 hopefully my enthusiasm catches

0:21:04.248 –> 0:21:06.159 on to the page with the patient

0:21:06.159 –> 0:21:07.96 and they get very excited too,

0:21:07.96 –> 0:21:09.718 especially once they see how well

0:21:09.72 –> 0:21:12.044 it works. Now you know when people

0:21:12.044 –> 0:21:13.75 are talking about therapies,

0:21:13.75 –> 0:21:15.94 I mean on the one hand,

0:21:15.94 –> 0:21:17.76 clearly they're really excited about

0:21:17.76 –> 0:21:19.216 these really effective therapies

0:21:19.22 –> 0:21:21.05 that last a really along time,

0:21:21.05 –> 0:21:24.018 but the other thing is that they don't

0:21:24.018 –> 0:21:26.617 really want to come to the hospital

0:21:26.617 –> 0:21:29.438 and have an IV infusion of a therapy.

0:21:29.44 –> 0:21:31.63 And when people think about chemotherapy,

0:21:31.63 –> 0:21:34.19 that's what they think about they think

0:21:34.19 –> 0:21:36.376 about being in the infusion suite,

20

0:21:36.376 –> 0:21:38.196 hooked up to an IV

0:21:38.2 –> 0:21:40.39 losing their hair and getting nauseous,

0:21:40.39 –> 0:21:41.96 and repeating that cycle

0:21:41.96 –> 0:21:44.81 multiple times, so are these therapies

0:21:44.81 –> 0:21:46.558 IV, or are they oral?

0:21:46.558 –> 0:21:50.64 How well do they fit into peoples lives?

0:21:50.64 –> 0:21:53.07 Especially if we're talking about

0:21:53.07 –> 0:21:56.037 taking them for a long time

0:21:56.037 –> 0:21:58.252 and making what was previously

0:21:58.252 –> 0:22:01.329 thought of as a fatal disease,

0:22:01.33 –> 0:22:05.083 more of a chronic one that you can live

0:22:05.083 –> 0:22:09.11 with rather than die from.

0:22:12.166 –> 0:22:13.418 The IV treatments are challenging because

0:22:13.418 –> 0:22:15.554 people usually have to

0:22:15.554 –> 0:22:17.216 come in fairly frequently for them,

0:22:17.22 –> 0:22:18.942 and you spend time here instead

0:22:18.942 –> 0:22:20.509 of where you want to be.

0:22:20.51 –> 0:22:21.88 These drugs are all pills,

0:22:21.88 –> 0:22:23.936 so that does make it a really nice

0:22:23.936 –> 0:22:26.359 part of it is that you take your

0:22:26.359 –> 0:22:28.945 daily pill or twice a day pill like you

0:22:28.945 –> 0:22:30.62 would take your blood pressure pills

0:22:30.62 –> 0:22:33.035 and you don't need to come into the

0:22:33.035 –> 0:22:35.299 hospital nearly as often as an IV medicine.

0:22:35.3 –> 0:22:37.856 I will say that

0:22:37.86 –> 0:22:40.396 as exciting as all of this is,

0:22:40.4 –> 0:22:41.664 and hopefully you can

0:22:41.664 –> 0:22:43.244 sense my enthusiasm for it,

0:22:43.25 –> 0:22:44.814 it still is only

0:22:44.814 –> 0:22:48.17 maybe about 20 or 25% of patients

0:22:48.17 –> 0:22:50.77 with lung cancer that we can find one

0:22:50.844 –> 0:22:53.364 of these mutations that we can target.

0:22:53.37 –> 0:22:55.547 So the numbers are

0:22:55.547 –> 0:22:58.177 going up as we find more mutations,

0:22:58.18 –> 0:22:59.972 but it's still unfortunately

0:22:59.972 –> 0:23:02.212 not everyone and so

0:23:02.22 –> 0:23:04.46 there's been a huge amount of work in

0:23:04.46 –> 0:23:06.482 other areas of lung cancer where

0:23:06.482 –> 0:23:08.46 we can't find a targetable mutation,

0:23:08.46 –> 0:23:10.539 and then the other end

0:23:10.54 –> 0:23:12.02 that's mainly with immune therapies.

0:23:14.396 –> 0:23:16.472 What about the other 75% of people?

0:23:16.472 –> 0:23:17.656 What's in their cancer

0:23:17.66 –> 0:23:19.448 if they don't have targetable mutations,

0:23:19.45 –> 0:23:21.818 and what can we do about that?

0:23:21.82 –> 0:23:24.052 So I think those two areas are so

0:23:24.052 –> 0:23:25.98 critical as well because we

0:23:26.508 –> 0:23:28.092 haven't come far enough to

0:23:28.092 –> 0:23:29.674 figure out a targeted therapy

0:23:29.674 –> 0:23:31.329 strategy for every patient yet.

0:23:31.33 –> 0:23:33.578 And I think that both of those

0:23:33.578 –> 0:23:35.567 issues are are so critical.

0:23:35.567 –> 0:23:37.829 Let's dig into those.

0:23:37.83 –> 0:23:40.08 But before we get there,

0:23:40.08 –> 0:23:42.318 these targeted therapies are,

0:23:42.32 –> 0:23:44.564 for example, in breast cancer we

0:23:44.564 –> 0:23:46.44 have targeted therapies as well,

0:23:46.44 –> 0:23:48.305 which often are given in

0:23:48.305 –> 0:23:49.424 combination with chemotherapy.

0:23:49.43 –> 0:23:51.686 But it sounds like these targeted

0:23:51.686 –> 0:23:54.289 therapies can be used as sole agents.

0:23:54.29 –> 0:23:55.412 Is that right?

0:23:55.412 –> 0:23:56.91 That's right. Yes.

0:23:56.91 –> 0:23:59.523 There is some research going

0:23:59.523 –> 0:24:02.14 on trying to combine them with chemotherapy,

0:24:02.14 –> 0:24:04.39 but you're right at this point,

0:24:04.39 –> 0:24:06.64 the way we use them is

0:24:06.64 –> 0:24:07.928 the targeted therapy alone.

0:24:07.928 –> 0:24:09.538 They've been really in almost

0:24:09.538 –> 0:24:10.839 every case

0:24:10.84 –> 0:24:12.778 there's been trials comparing the targeted

0:24:12.778 –> 0:24:14.07 therapy compared to chemotherapy,

0:24:14.07 –> 0:24:16.324 and it's superior in all the cases.

0:24:16.33 –> 0:24:18.142 Again, when you have the target

0:24:18.142 –> 0:24:19.88 and use the targeted therapy,

0:24:19.88 –> 0:24:21.818 it's better than using chemotherapy,

0:24:21.82 –> 0:24:24.727 and we haven't found a reason to combine it,

0:24:24.73 –> 0:24:25.642 although there again,

0:24:25.642 –> 0:24:27.466 is some research looking at

0:24:27.466 –> 0:24:29.247 if combining it is beneficial.

0:24:29.25 –> 0:24:31.188 The standard is to use the

0:24:31.188 –> 0:24:32.157 targeted therapy alone.

0:24:33.126 –> 0:24:35.712 It's really nice for a logistic point of

0:24:35.712 –> 0:24:38.685 view and side effect point of view as well.

0:24:38.685 –> 0:24:40.73 Yeah, I mean that's so exciting,

0:24:41.75 –> 0:24:44.576 it does kind of sound like if

0:24:44.576 –> 0:24:47.504 you've got one of these mutations, you can

0:24:47.504 –> 0:24:50.914 take a pill and

0:24:50.914 –> 0:24:53.31 have fewer side effects and a better

0:24:53.31 –> 0:24:55.69 outcome than being hooked up to chemo.

0:24:55.69 –> 0:24:57.993 And you can take your pills on

0:24:57.993 –> 0:25:00.085 vacation with you to wherever you're

0:25:00.085 –> 0:25:02.486 going to go and live your life.

0:25:02.49 –> 0:25:05.21 And it sounds like that is just so

0:25:05.21 –> 0:25:07.25 exciting in terms of an advance,

0:25:07.25 –> 0:25:09.602 but it does bring us to the

0:25:09.602 –> 0:25:11.758 question of what if you're not

0:25:11.76 –> 0:25:14.679 in one of those lucky groups that

0:25:14.679 –> 0:25:16.68 has a known targetable mutation,

0:25:16.68 –> 0:25:17.985 you mentioned immunotherapy.

0:25:17.985 –> 0:25:21.03 You know we've talked on this show

0:25:21.101 –> 0:25:23.376 about immunotherapy a little bit,

0:25:23.38 –> 0:25:26.062 and I'd like to dig into

0:25:26.062 –> 0:25:27.85 immunotherapy for lung cancer.

0:25:27.85 –> 0:25:30.769 But the one thing that some have

0:25:30.769 –> 0:25:33.659 found is that for some cancers,

0:25:33.66 –> 0:25:36.372 they actually still will look for

0:25:36.372 –> 0:25:39.477 a checkpoint in order to use a

0:25:39.477 –> 0:25:41.492 checkpoint inhibitor just to

0:25:41.492 –> 0:25:44.439 see what people's PDL1 status is.

0:25:44.44 –> 0:25:46.496 But in other cancers,

0:25:46.496 –> 0:25:48.552 that isn't necessarily something

0:25:48.552 –> 0:25:50.811 that necessarily plays into whether

0:25:50.811 –> 0:25:53.499 or not you can use immune therapy.

0:25:53.5 –> 0:25:56.218 So how does it work in

0:25:56.22 –> 0:25:58.724 lung cancer?

0:25:58.724 –> 0:26:00.927 This has been a huge area of research over the last few years

0:26:00.927 –> 0:26:03 in lung cancer and other cancers.

0:26:03 –> 0:26:04.86 As you mentioned, in lung cancer,

0:26:04.86 –> 0:26:07.016 we have now started using immune therapy,

0:26:07.02 –> 0:26:08.874 for I would say almost every

0:26:08.874 –> 0:26:10.11 patient with advanced cancer.

0:26:10.11 –> 0:26:11.724 Again stage four cancer who does

0:26:11.724 –> 0:26:13.564 not have one of those mutations

0:26:13.564 –> 0:26:15.67 that we were talking about before.

0:26:15.67 –> 0:26:17.902 Again, if you have one of the mutations

0:26:17.902 –> 0:26:19.997 targeted therapies are great options,

0:26:20 –> 0:26:21.605 but otherwise typically immune therapy

0:26:21.605 –> 0:26:24.156 is going to be some part of the

0:26:24.156 –> 0:26:25.626 treatment because of how effective

0:26:25.626 –> 0:26:27.766 it can be and your question about

0:26:27.77 –> 0:26:29.975 the PD L1 status in lung cancer

0:26:29.98 –> 0:26:31.112 is really important.

0:26:31.112 –> 0:26:33.531 So just like we get those mutation tests

0:26:33.531 –> 0:26:35.505 and it's so important for patients

0:26:35.505 –> 0:26:37.85 to find the best treatment for them.

0:26:37.85 –> 0:26:40.06 It's the same with PD L1 status.

0:26:40.06 –> 0:26:42.657 So PD L1 is not a mutation or gene

0:26:42.657 –> 0:26:45.212 like we were talking about with the

0:26:45.212 –> 0:26:47.678 other area in lung cancer treatments.

0:26:47.68 –> 0:26:49.556 But it's a protein on the surface

0:26:49.556 –> 0:26:51.761 of cells of cancer cells or of

0:26:51.761 –> 0:26:52.76 immune system cells.

0:26:52.76 –> 0:26:53.92 But in lung cancer,

0:26:53.92 –> 0:26:56.026 we look at the cancer cells and

0:26:56.026 –> 0:26:58.105 that protein PDL1

0:26:58.105 –> 0:27:00.241 can tell us if immune therapy

0:27:00.241 –> 0:27:02.294 is more or less likely to work.

0:27:02.294 –> 0:27:05.02 So it's not a perfect test by any means.

0:27:05.02 –> 0:27:06.515 I've had patients where the

0:27:06.515 –> 0:27:08.01 PD L1 status is zero,

0:27:08.01 –> 0:27:09.804 which tells you it has a

0:27:09.804 –> 0:27:11 low chance of working.

0:27:11 –> 0:27:11.298 However,

0:27:11.298 –> 0:27:12.49 they've done incredibly well

0:27:12.49 –> 0:27:13.682 with immune therapy,

0:27:13.69 –> 0:27:15.79 and sometimes it's high and the

0:27:15.79 –> 0:27:17.578 drugs doesn't seem to work,

0:27:17.58 –> 0:27:19.428 so it's not a perfect biomarker.

0:27:19.43 –> 0:27:21.414 But we do use it as part of

0:27:21.414 –> 0:27:22.78 standard treatment in lung cancer,

0:27:22.78 –> 0:27:24.716 and so when I meet a new patient

0:27:24.716 –> 0:27:26.649 with lung cancer again at Stage 4,

0:27:26.65 –> 0:27:27.94 advanced form of lung cancer,

0:27:27.94 –> 0:27:29.746 we always will check mutations in PDL1

0:27:30.002 –> 0:27:31.766 and the reason really is if someone

0:27:31.766 –> 0:27:33.62 has a high level of that PDL1

0:27:33.62 –> 0:27:35.252 marker we think we might be able

0:27:35.252 –> 0:27:37.019 to get away with just giving immune

0:27:37.019 –> 0:27:38.704 therapy just like we were

0:27:38.704 –> 0:27:40.329 talking about with targeted therapy,

0:27:40.33 –> 0:27:41.878 how it's nice to avoid the

0:27:41.878 –> 0:27:42.91 chemotherapy if you can.

0:27:42.91 –> 0:27:44.482 It's the same thing with immune

0:27:44.482 –> 0:27:46.259 therapy with a high level of PDL1

0:27:46.534 –> 0:27:48.452 there's a high chance of the immune

0:27:48.452 –> 0:27:49.64 therapy working even on its

0:27:49.64 –> 0:27:51.98 own, so we will try that

0:27:52.447 –> 0:27:54.315 instead of giving chemotherapy

0:27:54.315 –> 0:27:55.716 or other medicines.

0:27:56.72 –> 0:28:00.432 And so if you are PDL1 low and

0:28:00.432 –> 0:28:02.412 you don't have another targeted

0:28:02.412 –> 0:28:04.23 over another targetable mutation,

0:28:04.23 –> 0:28:06.726 those patients are more likely to

0:28:06.726 –> 0:28:08.811 get chemotherapy, but they'll still

0:28:08.811 –> 0:28:10.896 get the immunotherapy as well.

0:28:15.024 –> 0:28:17.99 Therapy can work so well we will

0:28:17.99 –> 0:28:21.318 typically give it no matter what,

0:28:21.32 –> 0:28:23.064 unless there's a contraindication.

0:28:23.064 –> 0:28:25.244 If someone has an underlying

0:28:25.244 –> 0:28:26.749 autoimmune disorder

0:28:26.75 –> 0:28:28.886 but yes, if someone has that low PDL1

0:28:28.89 –> 0:28:30.826 status or we don't know PDL1 status

0:28:30.826 –> 0:28:33.224 then we don't think and this is based

0:28:33.224 –> 0:28:35.059 on several different clinical trials.

0:28:35.06 –> 0:28:37.212 We don't think we can get away with

0:28:37.212 –> 0:28:39.021 just immune therapy on its own and

0:28:39.021 –> 0:28:40.886 it seems to be much more effective

0:28:40.886 –> 0:28:42.817 if you combine it with something else

0:28:42.817 –> 0:28:44.616 and that something else is a

0:28:44.616 –> 0:28:46.85 bit of a question mark in lung cancer.

0:28:46.85 –> 0:28:48.453 Until recently it used to be we

0:28:48.453 –> 0:28:49.762 would combine it with chemotherapy

0:28:49.762 –> 0:28:51.478 so people would get a combination

0:28:51.478 –> 0:28:53.009 of chemo and immune therapy.

0:28:53.01 –> 0:28:54.618 But more recently now based on

0:28:54.618 –> 0:28:55.69 several recent clinical trials,

0:28:55.69 –> 0:28:57.06 we're actually combining two

0:28:57.06 –> 0:28:58.156 different immune therapies together.

0:28:58.16 –> 0:28:59.186 So avoiding chemotherapy,

0:28:59.186 –> 0:29:00.896 but combining the immune therapies.

0:29:00.9 –> 0:29:03.434 And that's an area of future research

0:29:03.434 –> 0:29:05.71 that is currently ongoing.

0:29:05.71 –> 0:29:07.425 We have several different

0:29:07.425 –> 0:29:09.14 clinical trials at Yale

0:29:09.14 –> 0:29:10.508 looking at these different

0:29:10.508 –> 0:29:11.876 combinations of immune therapy.

0:29:11.88 –> 0:29:14.351 Really trying to get away from the

0:29:14.351 –> 0:29:16.553 chemotherapy if we can and using

0:29:16.553 –> 0:29:18.236 combinations of immune therapy to

0:29:18.236 –> 0:29:20.508 really try to beat the cancer and

0:29:20.508 –> 0:29:22.188 really try to improve patients

0:29:22.188 –> 0:29:24.566 quality of life and how long they

0:29:24.566 –> 0:29:25.934 are able to live.

0:29:27.926 –> 0:29:29.638 Doctor Sarah Goldberg is an associate professor of internal

0:29:29.638 –> 0:29:31.293 medicine in medical oncology at

0:29:31.293 –> 0:29:33.18 the Yale School of Medicine.

0:29:33.18 –> 0:29:34.676 If you have questions,

0:29:34.676 –> 0:29:36.172 the address is canceranswers@yale.edu

0:29:36.172 –> 0:29:38.241 and past editions of the program

0:29:38.241 –> 0:29:40.131 are available in audio and written

0:29:40.185 –> 0:29:41.76 form at yalecancercenter.org.

0:29:41.76 –> 0:29:44.488 We hope you'll join us next week to

0:29:44.488 –> 0:29:47.142 learn more about the fight against

0:29:47.142 –> 0:29:49.986 cancer here on Connecticut Public Radio.