Funding for Yale Cancer Answers is provided by Smilow Cancer Hospital. Welcome to Yale Cancer answers with your host, Doctor Anees Chagpar. Yale Cancer Answers features the latest information on cancer care by welcoming oncologists and specialists who are on the forefront of the battle to fight cancer. This week, it’s a conversation about radiation oncology with Dr. Vikram Jairam. Dr. Jairam is an assistant professor of clinical therapeutic radiology at the Yale School of Medicine, where Doctor Chagpar is a professor of surgical oncology. Maybe we can start it off by you telling us a little bit more about yourself and what it is you do. I have a somewhat generalist practice treating a variety of diseases, including genitourinary, CNS, gastrointestinal, skin, lymphoma, the occasional head and neck, and lung. And I do see a fair number of palliative patients as well. And research wise or academically, I do have an interest in exploring opioid use and opioid.
prescribing in cancer survivors. And just for our audience, sometimes the terminology gets kind of confusing. Is therapeutic radiology the same thing as radiation oncology?

Yeah, you know, more or less it is the same. I'd say those terms tend to be interchangeable with some departments being called radiation oncology.

And our department you know historically has been called therapeutic radiology because we do actually treat a number of benign or non cancerous conditions as well, they comprise the minority of our practice, but we do treat some non cancerous conditions.

One of the questions that I have is you mentioned that you finished your training a couple of years ago. That would have been right in the thick of the pandemic. So what was training like during the pandemic and did that affect the care of patients who were coming to see a therapeutic radiologist for care?

Yeah, that’s a great question. You know, the pandemic occurred actually during my last couple years of training.
and I'd say it changed things in many different ways. We tried to figure out ways that we could stagger our presence in the department in order to minimize exposure or contact. We would kind of limit our presence to mostly clinical days and on non clinical days we would work from home. So I guess from an interaction standpoint, the interactions with our colleagues and with other people in the department kind of decreased in frequency. From a patient care standpoint, we saw a lot of patients whose care ended up getting delayed or who may have been lost to follow up just because of the pandemic. And you know, there were some patients who did come in with perhaps more advanced cancers than we would have normally seen. Maybe because they had missed screening, imaging or other things that happened. So I would say those are the main ways that we would kind of see ways that we would kind of see differences and challenges that we had to get through during the pandemic. And did you find that you know in terms of the
0:03:42.46 –> 0:03:44.71 pandemic’s impact on your practice,
0:03:44.71 –> 0:03:47.209 did it change kind of the way
0:03:47.209 –> 0:03:49.65 in which you delivered care?
0:03:49.65 –> 0:03:52.122 So I know for example for us
0:03:52.122 –> 0:03:54.868 in breast surgical oncology,
0:03:54.87 –> 0:03:56.62 we started to think more
0:03:56.62 –> 0:03:58.37 innovatively about well can we
0:03:58.442 –> 0:04:00.61 use neoadjuvant endocrine therapy.
0:04:02.062 –> 0:04:04.966 Can we think about ways of
0:04:04.97 –> 0:04:08.435 getting people through their care
0:04:08.44 –> 0:04:11.833 but keeping them out of the hospital as
0:04:11.833 –> 0:04:14.315 much as possible. With radiation oncology,
0:04:14.315 –> 0:04:16.24 did that play a role?
0:04:16.24 –> 0:04:18.262 Did you start thinking about how
0:04:18.262 –> 0:04:20.656 you could deliver the dose that you
0:04:20.656 –> 0:04:22.931 needed to deliver perhaps in a shorter
0:04:22.997 –> 0:04:25.221 period of time or using more of
0:04:25.221 –> 0:04:28.085 those resources outside of the
0:04:28.085 –> 0:04:30.67 main hospital where people might
0:04:30.76 –> 0:04:33.388 have had less exposure to COVID?
0:04:33.88 –> 0:04:36.135 Yes. So that’s a great
0:04:36.135 –> 0:04:38.39 question and that is exactly
0:04:39.894 –> 0:04:42.04 As a correlate to
0:04:42.04 –> 0:04:44.138 some of the breast experience that
0:04:44.138 –> 0:04:46.33 you had been mentioning,
0:04:46.33 –> 0:04:48.17 just as an example,
0:04:48.17 –> 0:04:50.37 some of our prostate patients
0:04:50.37 –> 0:04:52.752 might have gotten started
0:04:52.752 –> 0:04:54.524 on hormone therapy
0:04:54.524 –> 0:04:57.204 for a period of time and then
they would come in a little bit later probably to start their radiation. And then in terms of the radiation component itself, there were many different publications and there was kind of a push to seek ways that we could deliver radiation in fewer number of fractions and perhaps more single fraction or minimal number of fractions for patients who are being palliative treated with bone metastases as an example or ways that even in the more definitive setting increasing our utilization of techniques like stereotactic body radiation or hypofractionated therapy, which are both terms to indicate a lower number of fractions and a higher dose per fraction in order to effectively treat the patient and also increase convenience and minimize the number of trips and hospital exposure that these patients have to come through. And one of the things that you mentioned is that you work at a couple of locations that are not at the main campus at Yale.
So you work more in a community kind of setting for our listeners who are listening to this, when is it OK to get your radiation therapy closer to home at a location that may not be at a large academic center. In the middle of a city, but maybe on the outskirts or in a community. Is there a difference in the radiation that you can receive in the different settings? And are there reasons why you might want to be at the main center versus at a peripheral center or vice versa? Yeah. Also a great question. I’d say the vast majority of indications for radiation therapy, can be delivered effectively in a community setting. And one of the benefits of being part of a community practice that’s also connected to the main campus is that, you know, I can determine and have a discussion with the patient as to if there are more nuanced or more complex treatments that may require treatment. In the main campus, I can have that discussion with the patient. But for the vast majority of indications,
patients can have care easily and effectively in the community. And that’s something that is truly a joy to see because for the vast majority of people, radiation ends up being weeks of their lives and the convenience and even finances of having to come down to New Haven or the main campus, it can be sometimes difficult or challenging for patients. So I’d say the vast majority of indications we can treat in the Community. There may be certain more nuanced or complex indications that we can treat in the main campus, but we have an active open line with the main campus, which is phenomenal. And so I can always get patients in there if needed. Great. So tell us a little bit more about what drew you to radiation oncology as a field. I mean why, why do people get drawn into radiation oncology? It seems like it’s quite a niche kind of area.
One thing that I really enjoyed was you really got the opportunity to treat patients in a variety of different disease sites from head to toe, which is something you can get in other fields as well, but I really liked just the variation in what you can do in radiation oncology. So you have a lot of different tools at your disposal. You can treat patients with external beam radiation. You can treat patients with brachytherapy. You can treat patients with a combination of both. And there, as we kind of alluded to earlier on, there are various different fractionation regimens. You can treat patients, you know conventionally fractionated or you can treat patients with hypofractionated. And I think the coolest thing for me is that you can carve and shape the radiation dose as best as you can. And in order to avoid normal tissues and in order to avoid normal tissues you can kind of construct a really neat radiation plan that maximizes dose to the tumor and minimizes dose to the surrounding tissues. And I find the process of that treatment
planning just very fascinating.

As an aside, from a patient care standpoint, you develop really solid connections with your patients. We tend to book hour long consults in order to discuss the nuances and different aspects of radiation treatment planning. And you know, a lot of patients really enjoy the amount of time they get to spend with their radiation oncologist and vice versa as well. And you get to follow them for long periods of time and establish really, really great relationships.

So from a technical standpoint, I think it’s fascinating. And then from a patient care standpoint, it’s really rewarding.

You know, one of the things that you mentioned in terms of the technical aspect is this idea of targeting the dose to the tumor and minimizing exposure to normal tissues. And so that brings up the idea of it sounds like that’s really how you try to minimize the side effects of radiation. So can you talk a little bit more about what side effects of radiation therapy people might expect and how
prevail those side effects are?

Yeah. So you know the side effects from radiation therapy are varied because it’s a local treatment,

the side effects are very dependent on where the patient is getting radiation.

I'd say the most common thing that we see across all disease sites is probably fatigue. And you know, these side effects tend to be cumulative during the course of their radiation.

So patients during the first couple of weeks may not notice much, but you know, towards the end of their radiation course, that’s when some of these peak side effects may occur. And you know, I’d say for some patients they may peak one to two weeks after radiation is done.

And that’s something that I do like to counsel patients about, to expect that sometimes these side effects may be kind of delayed once their radiation is finished.

So you know, just to give an example, I treat a lot of prostate cancer and so you know the hallmark of side effects from prostate tend to be, you know genitourinary,
bowl side effects or rectal side effects and sexual function as well. I’d say it’s it’s one of those things where a lot of it depends on the surrounding organs at risk. Or the tissues that are around the area that you’re treating. So we’re going to pick up the conversation, talking about how we manage those side effects, maybe prevent them and certainly treat them in terms of improving people’s quality of life as they go through survivorship after radiation therapy, right after we take a short break for a medical minute. Please stay tuned to learn more with my guest, Doctor Vikram Jairam. Funding for Yale Cancer Answers comes from Smilow Cancer Hospital, where the gynecologic oncology program brings together a team of clinicians whose focus is to care for women with gynecologic cancers. Learn more at yalecancercenter.org. It’s estimated that over 240,000 men in the US will be diagnosed with prostate cancer this year, with over 3000 new cases being identified here in Connecticut.
one in eight American men will develop prostate cancer in the course of his lifetime. Major advances in the detection and treatment of prostate cancer have dramatically decreased the number of men who die from the disease. Screening can be performed quickly and easily in a physician’s office using two simple tests, a physical exam, and a blood test. Clinical trials are currently underway at federally designated Comprehensive cancer centers, such as Yale Cancer Center and Smilow Cancer Hospital, where doctors are also using the Artemis machine, which enables targeted biopsies to be performed. More information is available at yalecancercenter.org. You’re listening to Connecticut public radio. Welcome back to Yale Cancer Answers. This is doctor Anees Chagpar, and I’m joined tonight by my guest, Doctor Vikram Jairam. We’re talking about radiation therapy for patients. And right before the break, Vikram, you were telling us about some of the
side effects of radiation therapy.

And one of the things that really drew

you to the field was the fact that you
can minimize those side effects by,

you know, the technical aspects

of planning the radiation.

You mentioned that a lot of the side effects
tend to be local,

so in terms of prostate cancer

that there might be side effects for

bowel function, sexual function, genitourinary

function, simply because of

the structures that are in that area,

regardless of how much you really

try to target the tumor itself.

So can you talk a little bit

more about that and

when people should expect those side effects,

what side effects they should expect,

and what do you do about that?

It seems to me that if the side effects

were really ubiquitous and really terrible,

the risk might

outweigh the benefit,

but it sounds to me that you have

ways of dealing with all of that.

Is that right?

One of the most important aspects of

managing side effects actually starts,
undergoes treatment and it’s in the treatment planning phase. Much of that is in designing of the radiation plan. When we design a radiation plan, we’re looking at ways that we can maximize dose to the prescription or target volume that is designated by the radiation oncologist and we’re trying to minimize ways or minimize radiation dose to the surrounding tissues. And we work with dosimetrists and physicists in our department who are trained and really expert at making these radiation plans in order to achieve the goals that we set forth. You know some of the radiation dose that goes to normal tissues, that’s been studied and validated in multiple clinical studies as to what dose correlates with what side effects. And you know based on these studies we have certain thresholds that we try not to exceed during our radiation planning. And so with the help of our dosimetrist and physicists, we can usually achieve a radiation plan that’s acceptable and that really achieves the overall goal of what
we’re trying to do.
And so despite your best efforts,
my presumption is that some people
still get side effects. Is that right?
Absolutely. And you know side effects
are to be expected and you know this
is part of the conversation that we
have during our patients or during
our consults with patients that you
know side effects are to be expected.
And you know we try and manage that
depending on the severity
of side effects and much of that
is very patient dependent.
So let’s take prostate for example.
Much of a patient’s baseline
urinary function or bowel function
or sexual function may determine the
severity of side effects that they
received during radiation therapy.
And so being able to manage expectations
as well as manage the side effects
is really important in order to
get patients through their course of radiation.
What kinds of things would you
suggest for patients who have
either local side effects,
like you mentioned, or fatigue,
which was another side
effect that you mentioned,
was nearly ubiquitous among patients who have radiation therapy during treatment. Patients meet with their radiation oncologist once a week just as a check in. We call them on treatment visits. And you know, I definitely encourage patients to discuss any side effects that they experience with their physician during these on treatment visits. So as an example, you know one of the most common side effects that I tend to hear is, you know urinary frequency or irritable urination symptoms. That’s important for me to hear because that is something that is manageable with medication, a variety of different medications. From a more systemic standpoint. I know you also mentioned fatigue. Fatigue can be challenging. I’m not going to lie. And, you know, during radiation, what I say is to try and not overexert oneself to listen to your body as much as possible because fatigue is cumulative. And I don’t like having people kind of overexert
themselves during treatment.

Once radiation is completed, I think there is good data that shows that exercise can help overcome fatigue and especially in prostate patients who may be getting hormone therapy as well, which may also add to the fatigue, exercise is something that has been shown to actually increase the metabolic rate and improve overall general function for a lot of patients. So it is something that I discuss with them, but you know we kind of save that till after they’re finished with their radiation.

Now one thing that you mentioned at the top of the show was that your research interests really revolve at least in part around the use of opioids. We didn’t really mention too much about radiation induced pain. Can you talk about pain as a factor that happens after radiation therapy? How frequently that happens and how often you need to use opioids in that setting? I’d say radiation induced pain is something that can happen.
It's not a common side effect, but it really depends on what you're treating. So you know, if you're treating an area where there's bone or rib or chest wall, you know, generally with conventionally fractionated radiation, rib pain is not a common side effect, however, when you're going to higher doses or more stereotactic body radiation, rib pain is something that can happen. If there is chest wall, for example, if you're treating a lung cancer and there's chest wall around that area, or if you're treating cancer that has spread to the bone and you're actually treating that bone itself with palliative radiation. Sometimes patients can experience what we call an inflammatory reaction. And you know most of these inflammatory reactions when patients have rib pain or you know bone pain from radiation, they tend to be self limiting. And so you know because of that nature we do talk about treatment conservatively with the counter pain medications first, sometimes more topical, you know lidocaine patches or creams and if you know these pain, over a longer period of time then
you know there’s a discussion about opioids or narcotics for management. And so it sounds like opioids are really kind of the last resort is that right? So I would say if we’ve exhausted all other measures then certainly, however, if a patient is having pretty excruciating pain for whatever reason, if it’s from the cancer itself or from another cause you know the NCCN does mention that for moderate to severe pain that’s on a scale that’s a four out of 10 at least, opioids are the mainstay of treatment. So you know while I would start with conservative over the counter measures, I would have a lower threshold for starting patients on opioids if they are experiencing more moderate to severe pain. Let’s ask you about concern over getting addicted to opioids, especially given all of the hype about the opioid epidemic. So that’s one more common concern that patients bring up, either you know patients may not like the feeling of being on an opioid which is one thing and certainly very fair or just the concerns about being addicted
because you know many patients are opioid naive and have never taken pain medications that are this strong. And our group has actually published data and has looked into this and we’ve found that while most patients with cancer may actually use or be prescribed higher doses of opioids compared to non cancer patients, the rates of misuse or addiction are actually fairly low and not too dissimilar from the general population. And so I do try and reassure patients that you know if they do have pain that we do want them to be treated for that pain and to not worry both for physicians and patients about the idea of addiction, that’s not to say that we should forget about it, but more that cancer related pain is something that should be treated and we shouldn’t under treat patients due to worry of addiction as the data has not quite shown that there are higher rates compared to the normal population. Yeah. One of the other questions speaking about cancer related pain is that for some patients we actually treat cancer related pain with radiation.
And in other circumstances, we talk about radiation as we talked about just now potentially having a side effect of pain. So can you talk about that kind of dichotomy?

Yes, so you know these are two separate processes and two different indications as the radiation induced pain, you know we think of that as more of a acute inflammatory reaction that tends to be self limiting. So when we’re treating patients with you know cancer that’s spread to the bone, usually I’d say about 1/3 of patients may experience some kind of acute inflammatory reaction. And it’s what we call a pain crisis and you know generally these tend to resolve within a couple weeks now for the 2nd aspect or cancer that’s actually spread to the bone that’s causing pain, radiation can actually be used to shrink the spots or the spot that’s in the bone and reduce some of that effect on the bone that the cancer is causing and so more long term we can expect patients to be more pain free or have reduced amounts of pain.
And one of the nicest things that I love about radiation is that patients may come in who are on opioids or pain medications and we may be able to treat them with a metastatic bone lesion using radiation. And a month or two months later, they may not need opioids anymore or they may need significantly less opioids. And that's always satisfying. Certainly when we think about quality of life of patients, it sounds like radiation therapy can certainly play a role in ameliorating that. Talk a little bit more about kind of where you see radiation therapy going long term in terms of the care of patients with cancer. I think one of the more exciting aspects that we have people in our department working on is combination of radiation and other systemic therapy agents. One thing that we're trying to explore the interaction with radiation and immunotherapy to see if radiation can kind of energize the immune response to better attack cancer cells. And that's currently being explored in trials.
And, you know, other aspects like DNA damaging agents are kind of being seen whether they can work in conjunction with radiation. In a synergistic manner. I think the future really is kind of looking at radiation with some of these novel agents and seeing if we can combine them in a more synergistic way.

Doctor Vikram Jairam is an assistant professor of clinical therapeutic radiology at the Yale School of Medicine. If you have questions, the address is canceranswers@yale.edu, and past editions of the program are available in audio and written form at yalecancercenter.org.

We hope you’ll join us next week to learn more about the fight against cancer here on Connecticut Public Radio. Funding for Yale Cancer Answers is provided by Smilow Cancer Hospital.