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00:00:00.076 --> 00:00:21.730 Announcer Funding for Yale Cancer Answers is provided by Smilow Cancer Hospital. Welcome to Yale Cancer Answers with the director of the Yale Cancer Center, Doctor Eric Winer. Yale Cancer Answers features conversations with oncologists and specialists who are on the forefront of the battle to fight cancer. Here's Doctor Winer.

00:00:21.807 --> 00:00:47.230 Eric Winer Tonight, we're talking to Doctor Asher Marks. Asher is an associate professor of pediatrics in the Division of Hematology and Oncology, and director of the pediatric neuro oncology program for the Yale Cancer Center. Asher, welcome. I think as our audience could guess, we're going to be talking about pediatric brain tumors, mostly. All right.

00:00:47.269 --> 00:00:51.192 Asher Marks Sounds great. Thanks, Eric. It's a pleasure to be here. Look forward to talking.

00:00:51.269 --> 00:01:16.500 Eric Winer Yeah. This is this is, of course, a subject that is a hard one to talk about in many ways. And a hard, hard one for people to listen to. But I think that people will be encouraged by what you have to say and and also quite moved by it. So maybe I can just start with a, you know, a very general question.

00:01:16.538 --> 00:01:32.576 Eric Winer What drew you to pediatric oncology and more specifically to pediatric oncology? I mean, why does a medical student or a resident in pediatrics decide that he's going to become a children's brain tumor doctor?

00:01:32.615 --> 00:01:56.038 Asher Marks Yeah, I love that question. There's there's a lot to it. I like to refer to myself oftentimes as a reluctant oncologist. I went to residency, and I was intentionally in the primary care track, where I spent my last two years in a primary care clinic. I always saw myself as hanging a shingle and opening up a primary care practice.

00:01:56.230 --> 00:02:21.846 Asher Marks I'd say probably somewhere in my my last year, end of my second year of residency, it became very clear to me. I had a great mentor, Doctor Hamburger, who kind of called me out in my my passion for primary care starting to dwindle, and she asked me what it was about. And I think what I was finding is that I wasn't forming the relationships I'd hoped to form.

00:02:22.000 --> 00:02:45.769 Asher Marks My vision was, you know, having lots of time with my patients in a clinic and learning about them and being with them through, you know, from, from childhood to adulthood and, and learn about their families and getting close. And it just wasn't happening. I think part of it had to do with the change in the medical system, how much time primary care pediatricians were able to give their patients.

00:02:45.846 --> 00:03:13.653 Asher Marks And at the same time I started, I was doing my pediatric oncology rotations at Children's National Medical

Center in D.C., and they were some of the most challenging but rewarding patient experiences I had. I was able to walk with families from diagnosis to either or their cure or, you know, unfortunately, passing. And it was just a very meaningful experience.

00:03:13.730 --> 00:03:36.115 Asher Marks What I think also drew me to oncology, and especially the brain tumor site, is where research was. Brain tumors are notoriously difficult to cure. A lot of that being because they are not as easily respectable as other tumors, because not all chemotherapies penetrate the blood brain barrier. And so it was an opportunity to be a little creative in treatment plans.

00:03:36.192 --> 00:03:46.153 Asher Marks It was an opportunity to really dig into the latest data and research, and really try to do something special and be with families along the way.

00:03:46.230 --> 00:04:20.730 Eric Winer You know, it does not surprise me that in spite of what you might have thought, that primary care could could not give you that sense of closeness with patients, I think it's I think it's increasingly hard for primary care doctors. I think some some are able to do it. And and God knows we desperately need primary care. Pediatricians and and adult clinicians, internists, typically occasionally family practitioners.

00:04:20.730 --> 00:04:48.423 Eric Winer But but I think it is hard and I think they have tremendous pressures on them. And yet at the same time, the closeness that you feel when you're taking care of somebody with a very difficult illness. Either that somebody who's an adult or that somebody who's a child with parents, it's it's hard to reproduce in other settings when people hear about childhood cancer in general.

00:04:48.423 --> 00:04:51.884 Eric Winer What do you think the biggest misunderstanding is? Oh, I think.

00:04:51.884 --> 00:05:26.230 Asher Marks The biggest misunderstanding is how our patients do. You know, whenever I, you know, it tends to be a nonstarter when someone asks you what you do. And the response is pediatric oncology, it's usually just, oh, I'm so sorry. And it's, you know, for me, it's an absolute privilege to to practice this type of medicine. You know, I think that the the kind of Cinderella story in oncology really often goes back to pediatric leukemia, where in the in the 50s and 60s, we were at, you know, survival maybe 20% often much lower.

00:05:26.307 --> 00:05:42.884 Asher Marks And now in pediatric, we're at 90, 95%. And so, you know, with leukemia being our most common and kids doing really well, we have far more successes than failures now. So I think that's probably the biggest misconception.

00:05:43.038 --> 00:06:06.230 Eric Winer Yeah. No it has it has it has changed a great deal. And although people fear pediatric cancer, it's actually not terribly

common. How how many cases do we see in the in Connecticut in the US. You know, take any any population you want. But like how common is this.

00:06:06.269 --> 00:06:33.846 Asher Marks Yeah, it's about 200 to 250 new diagnoses in Connecticut every year. You know, putting that in perspective, it's about .3. 3.35% of the overall population. So you're looking at about one in every 285, one in every 300 children in the US who will be diagnosed with cancer before their 20. So, you know, looked at that way, it's relatively rare.

00:06:33.846 --> 00:06:55.307 Asher Marks And with a large number of those falling in these very treatable groups. You know, fortunately we we we tend to do well. We seem to be able to treat the children that do have it. And, you know, no doubt we need more research and we need to work in our outcomes. But it's relatively rare.

00:06:55.384 --> 00:07:21.730 Eric Winer Well, I want to talk a little bit later on about outcomes and some of the complications that kids with cancer develop over time, but maybe we can focus now on on the brain tumors. And my sense is that and you can tell me if I'm right or wrong, that of the pediatric cancers. Brain tumors are among the most difficult to treat.

00:07:21.807 --> 00:07:49.730 Asher Marks You're not wrong. And and I think it depends on which tumors we're looking at and how we define success. Right. So overall, about 75 to 80% of every brain tumor in the pediatric population has survival at five years, which is which is a wonderful number. There are certain brain tumors that are truly inoperable and truly have survival levels closer to 0%.

00:07:49.769 --> 00:08:13.384 Asher Marks And unfortunately, they're not the most common, but they're out there. I think where we are, where we need to be putting our efforts and where we do put our efforts is in ensuring not only that we're not dealing with mortality, but we're also diminishing morbidity. And what I mean by that is our patients are not only surviving, but thriving.

00:08:13.461 --> 00:08:29.230 Asher Marks You know, when you have a tumor, you know, in somewhere else in the body, it can often involve a surgical intervention, and the surrounding anatomy might be important and can be moved out of the way. But when you're operating on the brain, it's a whole other story.

00:08:29.307 --> 00:08:30.576 Eric Winer Not very forgiving.

00:08:30.653 --> 00:08:33.307 Asher Marks Not at all. Not at all.

00:08:33.384 --> 00:08:45.730 Eric Winer So you have to be really careful when you operate on the brain to take the part of the brain that is abnormal, and leave everything else as close to intact as possible.

00:08:45.769 --> 00:09:12.730 Asher Marks Exactly, exactly. And when we talk to our neurosurgeons, they they talk about, you know, these surgeries are extremely long, you know, six hours, 12 hours, 18 hours. They're moving very slowly. They're working at the vascular level, you know, working on these small

vessels around the tumor. And then they got to make the decision, you know, while operating, how much you take, how much is safe, how much is going to give us our best chance of survival.

00:09:12.807 --> 00:09:18.307 Asher Marks So it's a it's a very close relationship between the treated oncologists and the surgeon.

00:09:18.384 --> 00:09:43.384 Eric Winer Yeah. No. Very difficult. And with adults I know that increasingly they have people awake while they're doing surgery so that they can actually communicate with people and find out, you know, to some degree, what they can take and what they can take. Do you do that with with children as well? And I realize you're not a surgeon, right?

00:09:43.423 --> 00:09:48.500 Speaker 4 Right. I could not be a surgeon. Terrible with my hands.

00:09:48.576 --> 00:10:09.846 Asher Marks But there have been scenarios where we've done that. It's much harder on the younger kiddos, you know, to to do that. But the surgeons do use interrupt techniques to ensure that they're getting good synaptic function in the areas of the brain that they're going. I'll also say that in pediatrics, most of these tumors are more towards what we call the posterior fossa.

00:10:09.846 --> 00:10:25.807 Asher Marks So the back part of the brain, where, you know, you're really dealing with things such as balanced, where the cranial nerves and certain things like that. So things that are a little bit more difficult to test when they're away, things like language in other ways of communication.

00:10:25.884 --> 00:10:50.076 Eric Winer Yeah. Now you specifically use the five year survival mark as, as, as a outcome measure for kids with brain tumors. But of course, when many people want to know is, you know, what proportion of children are able to go on and have long and healthy lives.

00:10:50.153 --> 00:10:51.307 Asher Marks Yeah, that's.

00:10:51.384 --> 00:10:55.576 Eric Winer And where do we stand with that? And is it getting better?

00:10:55.807 --> 00:11:06.538 Asher Marks Yeah, it's always getting better. I'll tell you it's always it's always getting better. So, you know, we use that five year mark because it's pretty unusual for tumors to recur after that point. So those numbers.

00:11:06.615 --> 00:11:07.846 Eric Winer Well that's encouraging.

00:11:07.884 --> 00:11:25.769 Asher Marks That's very encouraging. You know I always disruptive families that we've kind of got three, you know, 3 or 4 big big lights at the end of the tunnel we're looking for. We want to see that the tumor doesn't come back. You know, right after we stop therapy, we want to see that one year mark, that two year mark in that five year mark.

00:11:25.807 --> 00:11:49.230 Asher Marks So so once I hit five years, I feel pretty good. We start monitoring less. That being said, when you're treating things with chemotherapy or radiation, we've got to think about late effects, which is a term we hear quite a bit. So even beyond those five years, we continue to see our patients in our survival clinics, and we continue to think about things like secondary cancers that we can see after radiation and chemotherapy.

00:11:49.230 --> 00:11:56.076 Asher Marks But the percent of recurrences drop way down into the single digits once we're beyond that five year mark.

00:11:56.115 --> 00:12:05.884 Eric Winer And how has our understanding of the biology of children's brain tumors changed in recent years? And how does that helped us?

00:12:06.000 --> 00:12:32.576 Asher Marks Yeah, that's a wonderful question. It's been really exciting, worth the past ten years. So when I came out of fellowship 13, 14 years ago, almost every patient was treated with IV chemotherapy. And now when we look at certain tumors, particularly what we call low grade gliomas, some high grade gliomas, we look for specific mutations, often along the pathway.

00:12:32.653 --> 00:12:54.576 Asher Marks We look at Braf mutations, MEK mutations, and we actually have some oral chemotherapies that we use to target these specific mutations, which means that we can now leave the healthy cells alone. And only the cells that carry these mutations, only the cells that are resulting in growth of the tumor are being affected. So it's become a game changer.

00:12:54.576 --> 00:13:10.384 Asher Marks You know, we had a clinic I remember about six months ago where me and my fellow college, I started with Emperor. We were looking at our schedule and we said, we've got no patients getting IV chemotherapy today. They are all on oral chemotherapy and all doing great. And that was an amazing feeling.

00:13:10.423 --> 00:13:37.038 Eric Winer And, you know, a couple of years ago, I guess three years ago, there was a big presentation at Asco, our big annual cancer meeting of a new brain brain tumor drug that was oral. That was for people who had specific mutations. I remember they were either mutations. And is that something that has helped children as well, or is that mostly confined to adults?

00:13:37.076 --> 00:14:06.346 Asher Marks Yeah, it's a great question. So the idea mutations most frequently occur in kind of younger adults and older adults. That being said, we actually did some work at Yale on ideas, mutations, myself and Doctor Ranji Bindra, who is who runs a lab looking at these specific mutations, mutations like it. And once we started breaking down the data, we found that about a third of older adolescents actually had these mutations as well.

00:14:06.423 --> 00:14:28.807 Asher Marks And they weren't being included in these studies. So we took that as a sign that we needed to kind of move this

forward, bring it to a younger population. And so that's what we did through through a trial in collaboration with the Pacific Pediatric Oncology Consortium. So yeah, so these mutations tend to occur more in adults. But as you get to older children, adolescents, they're there as well.

00:14:28.884 --> 00:14:30.615 Asher Marks Usual. But they are there.

00:14:30.692 --> 00:14:52.615 Eric Winer Well that's good news. Well listen we're going to take a very brief break. We'll be back in a minute. I will be speaking once again with our guest, Doctor Asher Marks, who directs the neuro program within pediatric oncology at the Yale Cancer Center. We'll be right back.

00:14:52.653 --> 00:15:12.615 Announcer Funding for Yale Cancer Answers comes from Smilow Cancer Hospital, where the tobacco treatment program offers evidence based support to help patients being treated for lung cancer and other cancers to improve their treatment outcomes by quitting smoking for good. Learn more at SmilowCancerHospital.org.

00:15:12.692 --> 00:15:40.423 Announcer The American Cancer Society estimates that nearly 150,000 people in the US will be diagnosed with colorectal cancer this year alone. When detected early, colorectal cancer is easily treated and highly curable, and men and women over the age of 45 should have regular colonoscopies to screen for the disease. Patients with colorectal cancer have more hope than ever before. Thanks to increased access to advanced therapies and specialized care.

00:15:40.653 --> 00:16:10.538 Announcer Clinical trials are currently underway at federally designated comprehensive cancer center, such as Yale Cancer Center and Smilow Cancer Hospital, to test innovative new treatments for colorectal cancer. Tumor gene analysis has helped improve management of colorectal cancer by identifying the patients most likely to benefit from chemotherapy and newer targeted agents, resulting in more patient specific treatment. More information is available at YaleCancerCenter.org.

00:16:10.615 --> 00:16:13.576 Announcer You're listening to Connecticut Public Radio.

00:16:13.615 --> 00:16:39.500 Eric Winer Welcome back to Yale Cancer Answers again. I'm Eric Winer, I'm your host, and I'm speaking with Asher Marx, associate professor of pediatrics at the Yale School of Medicine. So we've been talking about brain tumors, and we've been talking about different types of treatment for brain tumors, chemotherapy and oral therapy. I'm going to ask you about one more type of therapy.

00:16:39.500 --> 00:17:08.538 Eric Winer And then I want to turn and talk about about the late effects of cancer. And I also want to talk a little bit about the impact of these cancers on families. So the one treatment we didn't talk about was radiation. Radiation for adults with brain tumors has become more

and more targeted. That's certainly true when various kinds of other cancers spread to the brain.

00:17:08.538 --> 00:17:18.038 Eric Winer And we used to irradiate the whole brain. And now we we are very selective. How selective are you in terms of radiation with with kids?

00:17:18.230 --> 00:17:38.307 Asher Marks It's a great question. I'd say that we are even more selective than, than with adults. And the reason why is that the younger the brain is, the more long term effects radiation can have on it. So I'd be more willing to give radiation. As someone who's 12 years old versus six years old and 18 year olds would be even better.

00:17:38.384 --> 00:18:03.576 Asher Marks And so when I describe the way that we have treated cancer over the years to, to families and, and and to peers, I always explain that treatments are designed to give the maximum tolerated dose, not the lowest effective dose. Right. So when we're looking when we're starting to get better outcomes, the next step is to then start decreasing doses and volumes of radiation.

00:18:03.653 --> 00:18:29.653 Asher Marks And so in the pediatric population of brain tumors, that's certainly something that we've begun doing. We now have some close collaborations that allow us to use what's called proton beam therapy. That lets us really get our borders tighter, meaning that we're sparing more healthy brain. And some great news over the years is we are actually going to be opening Proton Center here in Connecticut in the coming years, rather year.

00:18:29.653 --> 00:18:34.807 Asher Marks It's coming up very quickly and we'll be able to treat our own patients here again. So that'll be very exciting.

00:18:34.846 --> 00:19:08.000 Eric Winer It's going to be really important for both kids with brain tumors and children with a variety of different cancers, and then some adults, but particularly in pediatric oncology, it's it's really critical. So let's let's talk about so-called late effects or the consequences of cancer therapy. My understanding is that with the exception of acute leukemia, later facts tend to be almost part and parcel of of treatment of children with cancer.

00:19:08.115 --> 00:19:15.730 Eric Winer Sometimes they're mild, sometimes they're more serious. But what are the type of late effects that you're worried about.

00:19:15.769 --> 00:19:39.692 Asher Marks Yeah. So to speak towards sort of brain tumor specifically. You know, we're obviously always worried about potential neurological on term effects, whether these are from areas of the brain that the tumor has impacted, areas of the brain, that surgery has impacted areas of the brain that radiation has impacted, or even, you know, long term effects on the brain from chemotherapy.

00:19:39.769 --> 00:20:03.884 Asher Marks When the brain is affected, the rest of the body is affected. So we can see weakness. We can see none miss, we can see tingling. We can see full, you know, areas of paralysis. Beyond that, the chemotherapies that we've given in the past have their own effects. They can affect the kidneys, the hearing. Some of the new ones can affect vision, cardiac output output, the lungs.

00:20:03.884 --> 00:20:31.461 Asher Marks So so it's really you know depends on the treatment. But there are a few systems that aren't affected. And that's why we have our survivorship program called the Cures Clinic, where we've got experts there who review all of our treatment plans and give our patients and their primary care doctors screening recommendations moving forward, ways to stay ahead of these late effects and try to reduce the effects of the cancers and the treatments that our patients receive.

00:20:31.500 --> 00:20:39.153 Eric Winer And are there treatments you can institute when people are developing symptoms of these late effects that that really make a difference?

00:20:39.192 --> 00:20:57.153 Asher Marks Yeah, absolutely. So I'm a big advocate of physical therapy. I think a lot of times when when we recommend that parents may kind of roll their eyes like, oh, you know, I got this problem, you're just going to tell me to go to a physical therapist? It works, especially in kids with neuroplasticity, where you can change the way that those neurons function.

00:20:57.192 --> 00:21:07.807 Asher Marks PT and OT occupational therapy are imperative. So it's not sexy. It's not quote unquote cutting edge. But it plays an absolutely very important role.

00:21:07.846 --> 00:21:27.653 Eric Winer Just staying active is probably a big part of it. You know, you want the patients you take care of to be up and around and running around and doing everything they can possibly be be doing. What about cognitive effects and how how frequently do those come up with brain tumors?

00:21:27.769 --> 00:21:58.076 Asher Marks Yeah, they they come up quite a bit. Unfortunately. And the biggest culprit here is with irradiation radiation has especially in the younger population, has real effects on executive function, short term memory. And so for that we have a neuropsychologist on the team. So we do do neuropsychological testing on our patients after treatment sometimes even before treatment. And we ensure that the receiving services in school to make sure that they can keep up and reach their full potential.

00:21:58.076 --> 00:22:03.807 Asher Marks So it's a very real concern. And the younger the kiddos that we're treating, the bigger concern that is.

00:22:03.807 --> 00:22:21.115 Eric Winer And related to that, what about personality issues and personality changes? Yeah. You know, even maybe even

more than challenges with cognition, personality changes can be really difficult for families, friends, what have you.

00:22:21.153 --> 00:22:46.346 Asher Marks Yeah, I love this question. I think that a lot of times, you know, parents will see these personality changes and assume that it's some kind of direct effect of the tumor. The truth is personality, personality changes. We see, you know, the classic story from med school is Phineas Gage, the railroad worker who had a frontal lobe injury. It's actually unusual for pediatric tumors to be in the frontal lobe.

00:22:46.423 --> 00:23:10.538 Asher Marks And so a lot of the personality changes we see are more from kind of developmental arrest and some of the medications that we give, you know, these are kids that are, you know, not going to school. They are home. They are, you know, showing their contempt for the situation in their own ways. They're oftentimes on steroids, which can cause some very abrupt and startling personality changes.

00:23:10.538 --> 00:23:41.423 Asher Marks So, you know, I see personality changes as present but transient and and one of the reasons I say that I love working with kids and I love working in oncology, is these kids come out the other end as some of the most insightful, resilient human beings I've ever met. And so, you know, long term, I think the personality changes we see are about, you know, a child going through a remarkable experience and coming out well and well adjusted on the other side.

00:23:41.500 --> 00:24:21.230 Eric Winer So I understand there's no typical and you can't generalize about all kids remotely. I mean, it's just, you know, every, every, every child is different. But when you talk about brain tumors with your patients, with children and I'm going to I'm going to leave out children under the age of four or 5 or 6. But, you know, by the time somebody is 6 or 7 there, they have a real sense of themselves and have some understanding about even what cancer is.

00:24:21.230 --> 00:24:31.461 Eric Winer And certainly that's very much true when someone's in their early teens and later teens. What kind of reaction do you get from the children?

00:24:31.538 --> 00:24:35.384 Asher Marks Yeah, it's a wonderful question.

00:24:35.461 --> 00:25:06.346 Asher Marks I always try to use the term cancer. You know, oftentimes it's a forbidden term, but it carries with it such societal implications. So I do try to use that term, but then I also try to explain what that means in a child. Right. Cancer is, is is, you know, the more we learn about cancer, the more we realize that it's an all encompassing term for a very heterogeneous, a very variable disease process.

00:25:06.423 --> 00:25:30.730 Asher Marks And so there's kind of the medical implications of the word, and there's the societal implications of the word. The younger kids, you know, they don't quite get the word most of the time. The issues where the times where it really hits hard is when they have experience

of an older family member who had cancer. And what I always try to do is explain that that experience that adult may have had with cancer is not what we expect in a child.

00:25:30.846 --> 00:25:54.846 Asher Marks Sure, we've got those situations. You know, in a child with cancer where things are harder to treat and the medications are much higher doses and than we might want to give, but we have to. But many of our cases are children. I like to say we see this as a speed bump. We're going to get them in the family through this, and we are going to, you know, support them through it.

00:25:55.000 --> 00:26:13.153 Asher Marks And I think once they understand that they've got a full team behind them and they've got our support, we you know, they get through it a bit better. So there is that initial shock. But you know we've got a very robust psychosocial presence. And we introduced that very early to get them through it.

00:26:13.192 --> 00:26:47.307 Eric Winer So I feel like I'm like turning up the the notch every time. You know I'm asking you harder and harder questions. But I'm going to ask you this one. So you're taking care of a 10 or 11 year old. And they have a cancer that a brain tumor with a pretty poor prognosis. And you think that it's pretty likely no guarantees, but pretty likely that they're not going to survive those five years.

00:26:47.384 --> 00:26:55.461 Eric Winer And they say to you, you know, Doctor Marks, you know, am I going to die from this? And what's the answer.

00:26:55.538 --> 00:27:21.038 Asher Marks At 10 or 11 years old? And they're asking that question. I am extremely honest with them. You know, I we're in a situation where these are questions that are brought up early and with their parents in the room and with the guidance of our psychologists and child life. But I've been in this situation many times where, you know, it's myself and the child and their parents in the room.

00:27:21.076 --> 00:27:48.115 Asher Marks And I have to answer that question, and I'm never going to lie to a patient who's asking that question. It's the absolute hardest part of my job, and I'm always careful with my words. You know, we talk about, you know, for, you know, the word death is hard, die is hard, pass away is hard. I tend to use terms like ultimately we do expect this is going to take your life.

00:27:48.153 --> 00:27:49.692 Asher Marks You know, we use.

00:27:49.769 --> 00:27:51.500 Eric Winer I use those same terms with the.

00:27:51.576 --> 00:28:01.615 Asher Marks Yeah. There's something about it. Right? Right. There's something about it. I don't know if it's participating or selves or protecting them, but it makes it a little bit easier.

00:28:01.692 --> 00:28:38.653 Eric Winer Yeah. You know, it's I realize it's in many ways different than many ways. It's so similar to the way we take care of

adults in these situations. Well, as you're this has been a really great half hour. I thank you for sharing some of the most difficult things you do with us, and educating us about brain tumors, and educating us about how we can be better doctors and caregivers in taking care of our patients.

00:28:38.730 --> 00:28:57.692 Announcer 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 time to learn more about the fight against cancer. Funding for Yale Cancer Answers is provided by Smillow Cancer Hospital.