Clinical Trials Show Promise for “Jurassic Park” Actor Sam Neill’s Rare Lymphoma

One study targets Epstein-Barr virus commonly found in patients with an aggressive T-cell subtype.

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In a forthcoming memoir, actor Sam Neill of “Jurassic Park” fame reveals that he’s been battling angioimmunoblastic T-cell lymphoma, also known as AITL.

The aggressive form of blood cancer was diagnosed at stage 3, meaning it had spread throughout the actor’s lymphatic system. He told The Guardian newspaper that he underwent chemotherapy and is currently on a new chemotherapy drug that has put him in remission.

Neill, who also stars in the Netflix series “Peaky Blinders” and performed in the Oscar-winning film “The Piano,” is 75 and lives in his native New Zealand.

In the following Q&A, Brad Haverkos, MD, associate professor of medicine-hematology at the University of Colorado School of Medicine and member of the CU Cancer Center, talks about this rare form of lymphoma and research being conducted at CU Anschutz into potentially promising new therapies for AITL.

What is angioimmunoblastic T-cell lymphoma and how aggressive is it?

AITL is a rarer subset of non-Hodgkin lymphoma. T-cell lymphomas are about 10% to 15% of all non-Hodgkin lymphomas. And then within T-cell lymphomas, they get broken up into their indolent varieties, which are mostly cutaneous varieties of lymphoma, or the more aggressive types. Of the more aggressive types, one of the most common types is AITL.

Among all lymphomas, it’s relatively rare, with only about 10% to 15% of all non-Hodgkin lymphomas T-cell lymphomas. There are several thousand cases diagnosed a year in the United States.

What does this form of lymphoma do to the body?

It typically presents with people having a lot of constitutional symptoms like fever, chills, night sweats, weight loss and feeling fatigued. It typically presents with a lot of lymph node swelling (also known as lymphadenopathy). People seeking medical care will at some point get a CT scan, and that will typically show lymphadenopathy. These symptoms can often co-exist with other autoimmune problems that people can have such as autoimmune hemolytic anemia. Sometimes people will present with rashes or significant swelling all over – called anasarca. Many times, patients will get diagnosed in the hospital because these symptoms are not subtle and they tend to come on pretty quickly over a period of weeks, sometimes months. Usually, they'll progress over that period of time and get worse until they get a diagnosis and treatment. Sometimes people will be profoundly anemic or have other low blood counts or other organ dysfunctions – like liver or kidney issues.

What's the prognosis for patients diagnosed with AITL?

Usually, it's an aggressive disease presenting with a lot of symptoms, so we usually want to treat it aggressively. It typically gets treated with multi-agent cytotoxic chemotherapy that, if people are young enough and can tolerate, we prescribe for six cycles. Then, if a patient has responded to that regimen and is a candidate, we think about more chemotherapy in the form of an autologous bone marrow transplant. About 60% of patients will respond to the standard-of-care six cycles of multi-agent cytotoxic chemotherapy, at which point we consider adding the stronger, autologous stem cell transplant as an option.

If a patient responds to all of that, about 30% will stay in remission and will generally stay in remission for many years and are potentially cured. But the vast majority of patients will relapse. And with relapse, most of the treatments will have response rates of about 30%, so we always think about clinical trials for these patients. Currently, we have some ongoing, encouraging clinical trials for people with this subtype of T-cell lymphoma.

Do you know what kind of treatment Sam Neill was given?

I read a couple briefings about his case, and it's not entirely clear to me if he's on a clinical trial or what treatment he's getting. Once you relapse with this disease, it's generally incurable and you're facing ongoing therapy indefinitely. Of course, you never know with some of our clinical trials, and we sometimes think about things like donor (i.e. allogeneic) bone marrow transplant for people, but that's really reserved for the minority of these patients because most patients are older and not eligible for that kind of therapy.

At what age does AITL generally present?

It's usually people in their 60s. That's the average.

Can you talk about your research looking at biomarkers that try to predict how AITL patients will respond to these types of therapies?

We have a number of clinical trials – both industry trials and trials we've developed on our own at CU Anschutz. I've mainly been interested in one of two types of trials; one type is mainly geared toward a certain biomarker that we can potentially target. One that we've been really interested in lately is EBV, or Epstein-Barr virus. At least half, if not more, of these AITL lymphomas have some EBV positivity. We think that the virus contributes to development or progression of this disease and contributes to the symptoms. So, this exciting clinical trial allows us to target the virus, and in doing so, also target the lymphoma cells and get rid of the lymphoma.

The first phase of this trial has gone on for a couple years. Now we're doing phase two because, in phase one, the two drugs had encouraging results.

The other angle we've been really interested in within T-cell lymphomas is seeing if we can try to find drugs that can augment an immune response against the lymphoma cells. I work with Eduardo Davila (PhD, associate director of Cancer Research Training and Education Coordination in the CU Cancer Center and professor of medical oncology at the CU School of Medicine), on some of these efforts to try to discover new drugs and identify new therapies for this rare disease. Several years ago, we developed a trial using an immunotherapeutic drug in combination with standard-of-care chemotherapy for these aggressive T-cell lymphomas. That study has been presented and was encouraging, though we're looking for new ways that we may be able to do even better based on that prior study.

What is known about the cause of AITL? Is it genetic?

There are a number of different genetic mutations that we see. They aren't mutations people are born with – they are just mutations that develop, like in many other cancers. So, it's not something that's hereditary, but there are certain mutations that seem to occur and likely are at least partly the reason it develops. And so, we always try to understand what makes the cancer tick and see if we can develop new therapies, or better therapies, based on those understandings.

How does AITL affect the body after it becomes systemic, spreading beyond the lymphatic system?

It most commonly presents with enlarged lymph nodes throughout the body. It might initially start

in a neck lymph node or some lymph node that you can feel, but it very quickly spreads everywhere and it’s almost never that we see it just in an isolated area. It’s almost always stage 3 or stage 4 when we find it. It does spread outside the lymph nodes and can go to the lungs, liver and other organs of the body, as well as frequently the bone marrow. If not treated, people can pass away from multi-organ failure.

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