



Decoding Monoclonal Antibodies

Stephen A. Spurgeon, MD

Associate Professor of Medicine
Section Head, Hematologic Malignancies
OHSU Knight Cancer Institute

Jeff Sharman, MD

Medical Oncologist, Willamette Valley Cancer Institute and Research Center
Medical Director, The US Oncology Network

Please remember the opinions expressed on Patient Power are not necessarily the views of our sponsors, contributors, partners or Patient Power. Our discussions are not a substitute for seeking medical advice or care from your own doctor. That's how you'll get care that's most appropriate for you.

Andrew Schorr:

We have all these other drugs now. So, what does this mean? And maybe you can see on the slides there, it says, “anti-CD20,” “anti-CD52.” So first of all, what do these numbers mean? 52, 20? What are they anti- about?

Dr. Spurgeon:

So, when we talk about antibodies and we—we have to find a target first. So, we always have an antigen. Our immune system responds to antigens, whether it be from viruses or bacterias, and it triggers the immune system. Well we've had ability now to target those antigens that are normal-appearing proteins on cell surfaces.

So for instance, CD20, CD52, these are proteins on the cell surface of many cells. In particular, most germane to this discussion in CLL, is obviously on the surface of B cells, including CLL. So, these are drugs that actually bind to the CD20 molecule, and essentially cause an immune-based response, or direct cell killing, depending on the antibody. And that leads to improved outcomes when we combine with chemotherapy—and then some of the newer agents that we'll talk about, I'm sure, more – especially a drug called obinutuzumab (Gazyva), have shown increased cell killing, and so there's a question of how do we now incorporate some of these drugs.

Just to comment, alemtuzumab (Campath) is a drug that has, for many years, was used as sort of a last-ditch effort in CLL in patients that couldn't respond to chemo-immunotherapy.

Luckily with the advent of our new agents, we don't use this anymore, and it's actually not even marketed or licensed for CLL anymore. So, I can think of a handful of times I've used this drug, and the reason—why should we be thankful we don't have to use this drug as much anymore is it's profoundly immunosuppressive, so it basically wipes out the whole immune system. So, we'd have to deal with the complications that go with that. So, I don't know if others—when the last time they used Campath was, but it's...

Andrew Schorr:

...changed, sure. So, okay, so we have the—I always describe it as sort of a cruise missile going for a protein on the cell surface, right? But Jeff, let me ask you this: so, it goes after B cells. Now, we have sick B cells, but we have healthy B cells too, right?

Dr. Sharman:

Yeah.

Andrew Schorr:

So is that an issue when somebody is getting one of these monoclonal antibodies that it doesn't go too far, if you will, and you need other support.

Dr. Sharman:

Right, so rituximab (Rituxan) was the original CD20 antibody. And that agent was, sort of brought forward for routine clinical use around the year 2000. And it similarly gets rid of all B cells, and so we have about 17 years of experience with utilizing agents that deplete B cells. CLL is a cancer of B cells; lymphoma is cancer of B cells; myeloma is cancer of B cells that have gone on to be professional antibody makers, Waldenstrom's. There's a diversity of stages of development for B cells, and by targeting CD20, we eliminate one segment of those B cells. But you are still able to make antibodies through your plasma cells and so forth.

So I don't want to say it's without side effects: we do see an increased incidence of sinonasal infections, upper respiratory infections, and so forth. But the body actually does reasonably well without an abundance of normal B cells as well.

Please remember the opinions expressed on Patient Power are not necessarily the views of our sponsors, contributors, partners or Patient Power. Our discussions are not a substitute for seeking medical advice or care from your own doctor. That's how you'll get care that's most appropriate for you.