BroadcastMed | Mayo Clinic Transplant Center Regenerative Medicine Consult Service

TIM NELSON: Hello, I'm Tim Nelson. I'm the director of the Regenerative Medicine Consult Service here at Mayo Clinic in the transplant center. Regenerative medicine is a strategic priority at Mayo Clinic. And we have started a regenerative medicine counseling service housed in the transplant center as the transplant center has renamed itself the Transplant Center and Center for Clinical Regeneration.

One question we commonly get from patients and providers is what is regenerative medicine and stem cells? The easiest way to understand regenerative medicine is it's the opposite of degenerative disease. As we age and our bodies get older, tissues break down and we lose function in our cells. Regenerative medicine is the idea of how to rebuild those tissues, and the science is teaching us today that virtually every tissue in our body is able to regenerate at some low level. And the better we can understand that and the more we can apply that to allow the body to heal from within, the more useful regenerative medicine will become to our patients.

The other concept is stem cells. What are stem cells? There's many different types of stem cells and all types of stem cells have different definitions and different functions. But the easiest way to understand what they do is sort of like gardening or planting seeds. If you plant a seed, you can grow a flower, a tree, a cornfield and planting the different type of seeds grows different tissues.

And the idea of regenerative medicine and stem cell biology is understanding which seeds we can plant into which part of the body to help regenerate and heal the body from within by growing new tissues. Regenerative medicine has been going on for a long time at Mayo Clinic in many places with hematopoietic stem cells or blood cancers. If needed, we use bone marrow transplantation to reconstitute and regenerate the red and white blood cells of the body after cancer treatment. But going beyond that, the science now allows us to look at tissues like the heart, liver, kidney, other solid organs, even the brain to allow us to regenerate them.

Understanding the science and understanding what's currently available and what may be in research settings is the purpose of the consult service. We try to connect and educate patients and providers so they can understand what the hope and what the hype is of stem cells and regenerative medicine today. And many patients that have questions about transplantation wonder, what about stem cells, and would this be applicable to my condition?

And our physicians and nurses that work in the consult service are here to help educate and train providers across the country of what is available today in the clinic and what may be available on research settings to engage patients as we try to do new research and invent new therapies of tomorrow. One example of a patient that has seen us in the consult service call us because they had a congenital heart disease that their heart wasn't functioning properly. Even though we are working on protocols in the research setting to make this technology available to our patients, it currently was not available to this patient, but because they contacted us and connected with us we were able to educate and provide that information. But more importantly, we were able to connect them to the clinicians and surgeons that did have therapies that could be offered for her condition today, and she was able to come and have these therapies here at Mayo Clinic.

And this is an example of how the ideas of regenerative medicine may not be real today for everybody but may allow us to connect with other providers that have real options today. And the hope is that tomorrow we'll continue to have new therapies with stem cells that we can add to our repertoire of therapeutic options.