Researchers Think They?ve Found the Cause of Organ Rejection

Receiving a kidney transplant is the preferred treatment for end-stage renal disease (ESRD). However, wait times to receive a transplant can be long and the cost of medication to maintain the transplant is very high. Transplanted organs typically last around 10 years, if taken care of well. However, researchers at the Thomas E. Starzl Transplantation Institute at the University of Pittsburgh may have found the answer to prevent organ rejection.

Fadi Lakkis, the scientific director at the transplantation institute, believed ideally, an organ transplant would last the rest of the patient?s life. Not only this, but the drugs that suppress the immune system, which are necessary to keep the transplant healthy, increase the risk of infection and can increase the risk of cancer. In order to reduce the reliance on immunosuppressive drugs and extend the life of these organs, researchers began exploring the cause of organ rejection.

The immune system is made up of two parts: the innate immune system and the adaptive immune system. The innate immune system is the immunity we are born with and is a ?first line of defense.? Think of skin and some of your white blood cells as the first barriers and defenders to unknown pathogens. The adaptive immune system, however, does the ?heavy lifting? by deploying defenses specific to the foreign pathogen. These two immune systems are closely related, and while the adaptive system is what research has focused on for organ rejection, the Pitt research team explored the relationship between both systems and how it affected organ rejection.

The innate immune system is what activates the adaptive system to tell it to reject a transplanted organ. Researchers took mice who received heart, kidney and bone-marrow transplants and identified the protein, called SIRP-alpha, which sets off the chain reaction leading to organ rejection. Lakkis hypothesized that the binding of SIRP-alpha to white blood cells occurs when the protein present in the recipient?s body is different than that in the transplanted organ. He believes the next step would involve determining how many different variations of the SIRP-alpha protein exist in humans.

Lakkis believes that through this sequencing and research, matching SIRP-alpha proteins could reduce the chance of organ rejection and lead to lower doses of immunosuppressive medications.

Read More here.

Read the full study here.

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