

Study points to 1 cause of higher rates of transplanted kidney rejection in blacks

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A Johns Hopkins research team reports it may have an explanation for at least some of the higher organ rejection rates seen among black - as compared to white - kidney transplant recipients. In a study of 50 healthy adult men, 25 black and 25 white, significantly different amounts of certain immune system cells were found between the races.

These cells, known as human leukocyte antigen-specific, or HLA-specific B cells, when "sensitized" produce antibodies linked to transplanted kidney rejection, says Andrea Zachary, professor of medicine at Johns Hopkins and lead researcher of the study.

It's been long known that HLA-reactive antibodies produced by B cells are one of the ways that transplanted organs are rejected. Zachary developed a novel method for counting HLA-specific B cells more accurately, leading to the hypothesis that B cell numbers make a difference in transplant retention and rejection.

"Now that we have an accurate way to count these cells, we are able to confirm what we long suspected, that blacks might have a bigger army of HLA-specific B cells," says Zachary who presented her findings at the Congress of the International Transplant Society in Sydney, Australia on Aug. 12.

Zachary says that patients become sensitized when exposed to HLA in blood or tissue that is not their own. Sensitized HLA-specific B cells then produce antibodies that attack transplanted organs containing

foreign HLA. Patients can become sensitized from a blood transfusion, transplantation or pregnancy.

"If the recipient is not sensitized, B cells represent only a patient's potential for making antibodies," says Zachary. "However about a third of patients in need of a kidney are sensitized since they're often on their second or third transplantation and may have undergone transfusions. In the study, Zachary and her team gathered blood samples from 25 adult black males and 25 adult white males. They were all healthy and all non-sensitized. They also gathered blood samples from 10 sensitized adult black males and 25 sensitized white males.

Results showed that the black non-sensitized males tested had an average of 17.2 percent more HLA-sensitive B cells than the white non-sensitized males tested. Among the sensitized group, black males had an average of 22.9 percent more HLA-sensitive B cells than white males.

HLA antigens are proteins that sit on the surface of blood and tissue cells. Each person has a specific set, similar to a fingerprint. Rejection of a transplant occurs when the recipient's immune system sees the donor's HLA antigens as foreign and attacks those antigens with cells or antibodies. The amount of antibody made depends on the number of B cells a recipient has.

"Knowing that blacks have an increased number of HLA-specific B cells - which increases their opportunity for antibody-mediated rejection - we may be able to customize treatments for black recipients to account for these differences and lessen the likelihood that the organ will be rejected," says Zachary.

Source: Johns Hopkins Medical Institutions

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