MedicalXpress

Drug could cut transplant rejection

November 21 2017

A diabetes drug currently undergoing development could be repurposed to help end transplant rejection, without the side-effects of current immunosuppressive drugs, according to new research by Queen Mary University of London (QMUL).

In the study, funded by the British Heart Foundation (BHF) and published in *Immunity*, researchers found that the enzyme glucokinase increases the movement of a type of T cell, called a regulatory T cell, into human organs. Once inside the organ tissue these regulatory T cells act as guardians of the immune system, preventing it from rejecting a transplanted organ.

The researchers found that when regulatory T cells were treated with a drug known to increase the activity of the glucokinase enzyme they moved into the organ tissue of mice in much greater numbers.

The team then studied blood samples from a group of people who have a genetic mutation making their version of the glucokinase enzyme more active. They found that in these people, the regulatory T cells move into the organs more readily.

These results suggest that a drug currently being developed to treat people with type 2 diabetes which increases the activity of the glucokinase enzyme could now also be used to prevent organ rejection after a transplant.

Currently, drugs used to prevent organ rejection have a number of side

effects, including leaving patients at greater risk of infections and also cancer, because they are unable to specifically target the area of the immune system responsible for organ rejection.

BHF Professor Federica Marelli-Berg, Professor of Cardiovascular Immunology at QMUL, who led the research, said: "With this research we've hit upon a completely different way to stop organ rejection.

"Our next step is to take the drug into clinical trials. If the trials are successful, these findings could prove to be life-changing for patients who have had a transplant."

Professor Jeremy Pearson, Associate Medical Director at the British Heart Foundation, which funded the research, said: "Heart transplantation has come a long way since the first heart transplant nearly fifty years ago. However, when our immune system rejects the donated heart this can have devastating consequences.

"With this research we are one step closer to reducing the number of people suffering from organ rejection, and to prevent people from re-joining a growing transplant waiting list.

"Ultimately, allowing people who have undergone this procedure to live longer, healthier lives with a healthy donor heart."

Provided by Queen Mary, University of London