MedicalXpress

Gut bacteria affect immune recovery in HIV patients, study finds

September 6 2016

An international study coordinated by Spanish research institutes has found that gut bacteria play a role in the immune recovery of HIV patients. Researchers from the University of Valencia (UV) have taken part in a study analysing the influence of gut bacteria on immune recovery in HIV-infected patients undergoing antiretroviral treatment (ART). They have discovered a correlation between immune recovery and the behaviour of a certain subset of gut bacteria in response to treatment. Interestingly, this behaviour appears to be both a consequence and a cause of recovery.

The implications of this finding are that new complementary therapies could be developed that target these bacteria to boost the efficiency of ART and prevent the complications associated with immune deficiency and chronic inflammation.

"HIV patients suffer from persistent immune deficiencies and chronic intestinal inflammation caused, in part, by the very toxins released by the cells to fight off HIV infection. In this study we have found that, in some patients, certain gut bacteria become activated during ART and begin to amass anti-inflammatory molecules," explains CSIC researcher Manuel Ferrer of the Catalysis Institute. The immune recovery of these "ART responders" is much better than that of their peers, the make-up and behaviour of whose gut bacteria does not lead to the same anti-inflammatory effect.

In the study, the researchers analysed the gut bacteria found in the faecal

matter of healthy subjects and HIV patients undergoing different intensities of infection control and immune recovery. Specifically, they studied the activity levels of bacteria in the gastrointestinal tract (the intestinal flora).

The results suggest a correlation between bacterial activity and immune response as a consequence of HIV and antiretroviral treatment. "The make-up and behaviour of the gut bacteria of HIV patients whose body responds adequately to antiretrovirals are different to those who respond less well to treatment. It is possible that the reason why some subjects respond better to antiretrovirals is because their immune system is predisposed to these beneficial, recovery-enabling bacteria," adds researcher Sergio Serrano-Villar at Hospital Ramón y Cajal.

So gut bacteria appear to play a role in successful immune recovery in HIV-infected individuals. Antriretroviral treatments could therefore have a greater impact on HIV patients' health if combined with therapies that target this subset of bacteria. "The design of new probiotic foods could be an option, for instance," says Ferrer.

The results of the study, published in *eBioMedicine*, could lead to the design of new therapies for the prevention of complications associated with immunodepression and chronic inflammation, such as diseases associated with aging that appear earlier and more frequently in people with HIV.

More information: Sergio Serrano-Villar et al. Gut Bacteria Metabolism Impacts Immune Recovery in HIV-infected Individuals, *EBioMedicine* (2016). DOI: 10.1016/j.ebiom.2016.04.033

Provided by Asociacion RUVID