

Risk of cytomegalovirus infection following lung transplant now more measurable

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(Medical Xpress) -- Researchers in the Department of Virology and the Clinical Department of Thoracic Surgery at the MedUni Vienna have demonstrated that the risk of cytomegalovirus infection following lung transplant can now be determined more effectively by measuring the immune response. “Using a standardised blood test, we are able to classify patients who have had lung transplants into high-risk patients and a lower-risk group,” says Elisabeth Puchhammer-Stöckl from the Department of Virology.

The cytomegalovirus (CMV), which belongs to the family of herpes viruses, is widespread throughout the world. Most people are asymptomatic when they are infected. According to estimates, around 50 to 70 per cent of all people are infected with CMV. The pathogen remains in the body for life – and mostly it remains undetected, causing

no serious problems. However it is a dormant danger. When the immune system is weakened, the virus “wakes up” and can trigger serious infections.

For patients who have had a [lung transplant](#), this risk is increased: firstly, their immune defences and the immunological memory are suppressed with immunosuppressants, which are given to prevent their body rejecting the new lungs, and secondly patients can become infected with lungs from donors who already have CMV. The proliferation of the virus is inhibited immediately following the transplant with an anti-viral prophylactic treatment, however this is associated with side effects such as renal toxicity and the development of resistance to treatment.

T-cell response as a parameter

If the anti-viral prophylactic treatment is stopped, viraemia can occur. This means that the viruses are detectable in the blood and can later lead to disease. So far, however, there has been no test available that can predict the likelihood of viraemia developing. The MedUni has now successfully done this using a standardised blood test. The key to prognostic success is the measurement of the T-cell [immune response](#) just before the end of the anti-viral prophylaxis: “If a T-cell response to the virus is demonstrated at this point in time, the risk of developing a cytomegalovirus infection later on is small. If however no response is detected, the risk is higher,” explains Lukas Weseslindtner from the Department of [Virology](#).

The results of the study, which have been published in the highly respected “American Journal of Transplantation”, permit the conclusion - says Weseslindtner - that recipients of heart and kidney transplants could also benefit from this diagnostic test since it will enable the anti-viral treatment period to be tailored to the patient's needs.

More information: „Prospective Analysis of Human Cytomegalovirus DNAemia and Specific CD8+ T-Cell Responses in Lung Transplant Recipients.“ L. Weseslindtner, et al. *Am J Transplant*. 2012 Apr 30. [doi: 10.1111/j.1600-6143.2012.04076.x](https://doi.org/10.1111/j.1600-6143.2012.04076.x)

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