

A new approach to stratifying cytomegalovirus CMV risk



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Despite the use of antiviral prophylaxis, CMV-related morbidity and mortality, either directly related to infection, through drug side-effects or through induction of enhanced alloreactivity, remains a significant concern for heart and lung transplant recipients. To compound this concern, viral resistance to ganciclovir is emerging as an important clinical problem.

Yet for most patients, CMV remains dormant and causes none of these problems. Why are some patients at risk of CMV disease, while in others the virus is innocuous? Heeding lessons learned about what constitutes effective cell-mediated immunity following vaccine and HIV exposure, Snyder et al postulated that the polyfunctional (i.e. secretion of multiple cytokines in response to antigen) T-cell responses critical to this immunity might also predict effective immunity to CMV [1]. In derivation and validation lung transplant cohorts, they confirmed that the robustness of this polyfunctional T cell response indeed predicted subsequent risk of CMV DNAemia [1].

While the work of Snyder et al needs to be replicated in larger, multi-centre studies, the perspective they provide opens the door to a more personalised approach to anti-CMV prophylaxis which could not only more effectively prevent disease, but also minimise unnecessary drug exposure. Avoiding this unnecessary exposure will reduce side-effects and financial costs, and should also lower the risk of emergence of drug-resistant viral strains.

1. Snyder LD, Chan C, Kwon D, Yi JS, Martissa JA, Finlen Copeland CA, Osborne RJ, Sparks SD, Palmer SM, Weinhold KJ. Polyfunctional t cell responses predict protection from cytomegalovirus after lung transplant. *American journal of respiratory and critical care medicine* 2015 Sep 15 ePub ahead of print.