Evaluation of MATCH: An Electronic Individual Patient-Focused Management System Aimed at Preventing Cytomegalovirus Disease Following Solid Organ Transplantation

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In MATCH, SOT recipients follow a personalized, yet standardized, plan for monitoring, prophylaxis and preemptive therapy depending on underlying risk for CMV infection (Figure 1).

METHODS

In MATCH, CMV infection is common among solid organ transplant (SOT) recipients and may cause CMV disease, if not promptly treated.17 Increasing viral load at the time of diagnosis of CMV DNAemia is a risk factor for CMV disease, however CMV disease may occur even at very low viral load, particularly in lung transplant recipients.5 Strategies to prevent CMV disease include chemoprophylaxis and preemptive monitoring and treatment of emerging subclinical infection. To optimize the implementation of these strategies as part of routine care, we developed and implemented a proactive and patient-tailored CMV management system for SOT patients (the MATCH program) in our center. Two key performance characteristics of success of MATCH are diagnosing CMV at low viral load and avoiding CMV disease at diagnosis; these characteristics are assessed here before (2007-2010) and after (2011-2012) and after (2011-2012) the implementation of the MATCH program.

RESULTS

A total of 603, 357, and 531 patients received a SOT before, during and after implementation of MATCH, respectively, of whom 86 (14.6%), 56 (15.7%) and 119 (22.4%) developed CMV infection within the first year of transplantation before, during and after implementation of the MATCH program.

CONCLUSIONS

The implementation of a rule-based AI platform guiding routine prevention of CMV disease among SOT recipients was associated with improved CMV-specific outcome, including its ability to identify the CMV infection sooner after onset and before causing disease. Continued focus on optimizing compliance with the MATCH program is expected to cause further reduction in risk of CMV disease.

REFERENCE: