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Abstract (poster session)

Economic comparison of empirical versus diagnostic-driven strategies for immunocompromised patients with suspected fungal infection

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Objective: Neutropenic patients with persistent fever are commonly treated "empirically" with a systemic antifungal agent for a suspected invasive fungal infection (IFI). However, the recently proposed "diagnostic-driven" (DD) strategy, which incorporates serum galactomannan (GM) or Aspergillus PCR testing to allow for earlier identification and targeted treatment of invasive aspergillosis (IA), has the potential to be a more cost-effective approach. Methods: A decision-analytic model was developed to compare total cost and predicted survival of empirical therapy (with amphotericin B, liposomal amphotericin B or caspofungin) with a DD strategy of identifying IA via GM antigen testing or Aspergillus PCR testing with early initiation of more targeted treatment (with amphotericin B, voriconazole or liposomal amphotericin B) in neutropenic patients with persistent fever. The population included patients aged >= 18 years with haematological malignancies or autologous/allogeneic stem cell transplantation expected to be neutropenic for >=10 days. Patients were assumed to receive antifungal prophylaxis with a non-mould active agent. IFI incidence, overall mortality and IFI-related mortality (10.9%, 10.7% and 28.6%, respectively) in this population were obtained from the literature. Survival rates for each strategy were generated based on the proportion of patients with identified and appropriately treated IFI. It was assumed that the DD strategy would allow for early identification of all cases of IFIs and the empirical strategy would identify only ~30% of IFIs. Appropriate antifungal treatment for identified IFIs was expected to improve overall survival by a hazard ratio of 0.589 as obtained from the literature. Costs of antifungal agents, antifungal agent-specific adverse events (AEs) and resource use for managing potential IFIs (e.g., neutrophil count, blood cultures, serological tests, bronchoscopy, etc.) were used to generate total costs. Standard UK costing sources were used. Results: Although there were increased costs due to GM antigen or Aspergillus PCR testing, the total cost of the DD strategy was lower (£1,785) than with empirical therapy (£2,095). Despite the 3-fold increase in IFIs diagnosed with the DD strategy, both approaches had similar mortality rates. Conclusion: This study suggests that the DD approach may be a cost saving management strategy for immunocompromised patients with persistent fever.