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## **PHARMACOECONOMICS OF PROPHYLAXIS OF FUNGAL INFECTIONS IN PATIENTS UNDERGOING A HEMATOPOIETIC STEM CELL TRANSPLANT**

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**Background.** A recent multi-center, blinded, randomized head-to-head comparative study evaluated the safety and efficacy of prophylaxis in 882 hematopoietic stem cell transplant (HSCT) patients using either micafungin or fluconazole. The primary efficacy endpoint was treatment success, defined as the absence of a proven, probable, or suspected systemic fungal infection through the end of therapy, AND the absence of a proven or probable systemic fungal infection through the end of the 4-week post-treatment period. The overall success rate for micafungin was significantly higher than the rate for fluconazole patients (80.0% versus 73.5%). The treatment difference was +6.5% (95% CI: 0.9%, 12.0%). The overall incidence of proven or probable systemic fungal infections was 1.6% in the micafungin treatment arm and 2.4% in the fluconazole treatment arm. The objective of this economic evaluation is to determine outcomes and costs associated with micafungin prophylaxis in HSCT compared to a no prophylaxis protocol. **Methods.** A cost minimization study was performed to compare the cost of two alternative treatment strategies: (1) no prophylaxis versus (2) prophylaxis with micafungin. The analysis was conducted from the hospital perspective and focused on hospital costs incurred from hospital admission through hospital discharge. A decision analysis model was developed to incorporate costs and outcomes associated with prophylaxis treatment success or failure, which resulted in the need for empirical therapy and developing fungal infection. Clinical outcomes for no prophylaxis were derived from a review of published literature. Clinical outcomes for prophylaxis with micafungin were based on the results of the clinical study. Published literature was used to assess hospital costs associated with HSCT patients treated with prophylaxis treatment, treated with empirical anti-fungal treatment, and with a probable or proven infection. The cost per course of micafungin was varied as part of a sensitivity analysis. In addition, sensitivity analyses were performed to evaluate the impact of all assumptions on hospital results. **Results.** Hospital costs were highest for HSCT patients who developed a fungal infection and were \$136,000 per episode. Hospital costs for patients who required empirical therapy were \$91,000 per episode. Hospital costs for patients who did not require empirical therapy were \$64,000 per episode. At baseline, the model indicated that mean total hospital costs were \$79,000 for patients with no prophylaxis compared to \$69,000 for patients treated with micafungin prophylaxis without including the cost of micafungin. The results of the model were sensitive to assumptions about the need for empirical therapy and likelihood of developing a fungal infection. **Conclusions.** Micafungin prophylaxis in HSCT reduces hospital costs compared to no prophylaxis. Micafungin treatment reduces hospital costs due to: (1) decreased use of empirical anti-fungal therapy and (2) lower rates of probable and proven fungal infection.