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**Paper Poster Session**
**Antifungal drug treatment**

# Cost-effectiveness analysis of prophylaxis therapies for invasive fungal infections following allogeneic haematopoietic stem cell transplantation in Mexico

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**Background:** Patients receiving allogeneic haematopoietic stem cell transplantation (alloHSCT) are at high risk of developing invasive fungal infections (IFIs), which are associated with high morbidity, mortality and economic burden. Early prophylaxis reduces IFI-related morbidity and mortality in this population; however, data reporting the cost-effectiveness of prophylactic voriconazole in Mexico are lacking. This study used a cost-effectiveness model to estimate clinical and economic outcomes of antifungal prophylaxis for patients undergoing alloHSCT in Mexico.

**Materials/methods:** A decision analytic model was used to estimate costs and outcomes for patients receiving prophylaxis for IFIs following alloHSCT. The relevant local prophylaxis agents in Mexico (based on expert opinion) were considered to be voriconazole, fluconazole and amphotericin B (AmB). The model accounted for probabilities of invasive aspergillosis, invasive candidiasis and other IFIs, for each treatment. For the base-case analysis, probabilities of IFIs and use of other licensed therapies were obtained from a mixed treatment comparison and published literature. Cost-effectiveness was assessed using incremental cost-effectiveness ratios (ICERs). Costs were reported in 2015 Mexican Pesos (MXN). Univariate and probabilistic sensitivity analysis were performed assessing the impact on results by varying each model parameter.

**Results:** Across all comparators, voriconazole was associated with the lowest number of breakthrough IFIs, IFI-related deaths, and number of patients needed to treat to avoid an IFI (Table). Total costs were lowest for fluconazole (MXN 72,944); however, costs for voriconazole (MXN 101,413) were lower than for AmB (MXN 110,529). Voriconazole 'dominated' AmB (i.e. had better clinical outcomes with lower costs) and was marginally cost-effective compared with fluconazole. Drug costs, probability of IFI and monitoring costs were the parameters most sensitive to variation from univariate

sensitivity analysis. Findings from probabilistic sensitivity analysis were consistent with the base-case results.

**Conclusion:** Results of the model suggested voriconazole had the most favourable clinical outcomes. Overall prophylaxis costs with voriconazole were lower than with AmB but higher than with fluconazole; these were partially offset by reduced IFI treatment costs. Overall, based on local ICER thresholds (MXN 150,000), voriconazole was considered a cost-effective option for prophylaxis of IFI in Mexico.

**Table. Model outcomes for prophylactic treatments in Mexico.**

| | Voriconazole | Fluconazole | AmB |
|---|---|---|---|
| **Total number of IFIs (per 1000 patients)** | 36 | 84 | 92 |
| **Number of IFI-related deaths (per 1000 patients)** | 25 | 58 | 56 |
| **Number of patients needed to treat to avoid IFI (relative to AmB)** | 18 | 120 | N/A |
| **Total costs (MXN)** | 101,413 | 72,944 | 110,529 |
| **QALYs per patient** | 5.79 | 5.59 | 5.60 |
| **ICER per QALY gained with voriconazole** | N/A | 144,057 | Dominated* |

AmB, amphotericin B; ICER, incremental cost-effectiveness ratio; IFI, invasive fungal infection; N/A, not applicable; QALY, quality adjusted life-year.

*Prophylaxis treatment with voriconazole is less costly and has better outcomes than with AmB.