

Efficacy and safety of posaconazole for the prevention of invasive fungal infections in immunocompromised patients: a systematic review with meta-analysis and trial sequential analysis

ABSTRACT

Invasive fungal infections are a potentially life-threatening complication in immunocompromised patients. The aim of this study was to assess the efficacy and safety of posaconazole as compared with other antifungal agents for preventing invasive fungal infections in immunocompromised patients. Embase, CENTRAL, and MEDLINE were searched for randomized controlled trials (RCTs) up to June 2020. A systematic review with meta-analysis of RCTs was performed using random-effects model. Trial sequential analysis (TSA) was conducted for the primary outcome to assess random errors. A total of five RCTs with 1,617 participants were included. Posaconazole prophylaxis was associated with a significantly lower risk of IFIs (RR, 0.43 [95% CI 0.28 to 0.66, $p = 0.0001$]) as compared to other antifungal agents. No heterogeneity was identified between studies ($I^2 = 0\%$). No significant associations were observed for the secondary outcomes measured, including risk reduction of invasive aspergillosis and candidiasis, clinical failure, all-cause mortality, and treatment-related adverse events, except for infection-related mortality (RR, 0.31 [95% CI 0.15 to 0.64, $p = 0.0001$]). Subgroup analysis favoured posaconazole over fluconazole for the prevention of IFIs (RR, 0.44 [95% CI 0.28 to 0.70, $p = 0.0004$]). TSA confirmed the prophylactic benefit of posaconazole against IFIs. Posaconazole is effective in preventing IFIs among immunocompromised patients, particularly those with hematologic malignancies and recipients of allogeneic hematopoietic stem cell transplantation.