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Efficacy and safety of Echinocandin monotherapy and combination therapy for immunocompromised patients with Systemic Candidiasis

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Abstract:

Background: Systemic candidiasis is caused by Candida invading the bloodstream. The efficacy and safety of echinocandins in monotherapy and combination therapy regimes have not been adequately compared in immunocompromised patients with Candidiasis, and thus this systematic review aims to do so.

Methods: A protocol was prepared a priori. PubMed, Embase and Cochrane Library databases were searched systematically (from inception of each database to September 2022) to identify randomized controlled trials. Two reviewers performed screening, quality assessment of trials, and extracted data independently. Pairwise meta-analysis was performed using random-effects model to compare echinocandin monotherapy versus other antifungals. The primary outcomes of interest were treatment success and treatment-related adverse events.

Results: 547 records (PubMed=310, EMBASE=210 and Cochrane Library=27) were reviewed. Following our screening criteria, six trials involving 177 patients were included. Risk of bias of four included studies had some concerns due to lack of a pre-specified analysis plan. Meta-analysis shows that echinocandin mono- therapy does not have significantly higher rates of “treatment success” compared to other classes of antifun- gals (RR 1.12, 95%CI 0.80-1.56). However, echinocandins appeared to be significantly safer than other forms of antifungal therapy (RR 0.79, 95%CI 0.73-0.86).

Conclusion: Our findings have shown that echinocandin monotherapy (micafungin, caspofungin) given intra- venously are just as effective as other antifungals (amphotericin B, itraconazole) in the treatment of systemic candidiasis in immunocompromised patients. There appears to be similar benefits when using echinocandins compared to amphotericin B which has also been used as a broad-spectrum antifungal, while avoiding the severe adverse effects that amphotericin B causes, such as nephrotoxicity.

Keywords: Immunocompromised, Neutropenia, systemic candidiasis, invasive candidiasis, echinocandins

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