Midostaurin in Advanced Systemic Mastocytosis: A Systematic Review and Meta-analysis

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Background: Midostaurin, an oral multikinase inhibitor, is approved for the treatment of advanced systemic mastocytosis (SM).

Methods: We systematically searched the following databases: PubMed/MEDLINE, Embase, and Cochrane through February 02, 2022, to include all studies that assessed the effect of midostaurin on clinical outcomes of patients with advanced SM. Our primary outcome was the overall response rate (ORR). All statistical analyses were performed using Open Meta Analyst (CEBM, University of Oxford). Pooled rates and corresponding 95% confidence intervals (CI) were calculated using DerSimonian-Laird/Random-effects approach.

Results: Four studies (two clinical trials and two observational studies) with a total of 156 patients with advanced SM were included in the pooled analysis. The mean age of the patients was 59.6±15.8 years, and males represented 64.7% of total patients. The most common subtype of advanced SM was SM associated with hematological neoplasm (59%) followed by aggressive SM (23.1%). Three studies reported the KIT D816V mutation status, and 85.2% of patients were positive for KIT D816V mutation. The mean duration of treatment with midostaurin was 10±15.3 months. The pooled ORR was 60% (95% CI 46.5%-73.5%) over a mean follow-up duration of 41.1±38.7 months. The PD and SD rates were 12.8% (95% CI 7.6%-18%) and 10.6% (5.3%-15.9%), respectively. Treatment discontinuation due to AEs occurred in 25.6% (95% CI 18.8%-32.4%). The most common hematological grade ≥3 treatment-related AE was anemia (29%), while fatigue (7.1%) was the most common non-hematological grade ≥3 treatment-related AE.

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Conclusion: Our study demonstrated that midostaurin could achieve a durable response in patients with advanced SM with an acceptable safety profile.

