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Febuxostat versus placebo or allopurinol for gout or asymptomatic hyperuricemia: A systematic review and meta-analysis

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Background/Introduction: Gout is one of the most common rheumatic diseases in humans characterized by increased serum uric acid level) above of 7 mg/dl in men and 5.7 in women while deposition of uric acid crystals in the joints. Urate lowering therapy (ULT) is the novel treatment for patients with gout. There is an ongoing debate about using which of the urate lowering therapies should be preferred

Aim: The aim of this study is to systemically review the literature and statistically analyze the safety and efficacy outcomes of febuxostat versus allopurinol in the treatment of gout or asymptomatic hyperuricemia.

Methodology: We searched 12 electronic medical databases and included randomized clinical trials (RCTs) comparing clinical outcomes between febuxostat and allopurinol in patients with gout or asymptomatic hyperuricemia.

Results: Nine RCTs were included in our meta-analysis. Febuxostat had significantly higher incidence of serum urate at last 3 monthly visits (RR=2.26, 95% CI [1.82, 2.80], p<0.00001) and at last visit (RR=1.81, 95% CI [1.65, 1.98], p<0.00001) compared to allopurinol. Mean change from baseline of serum urate <6.0 mg/dl at last 3 monthly visits was significantly lower in febuxostat than allopurinol (SDM=-0.84, 95% CI [-1.14, -0.55], p<0.00001). While, regarding serum urate <360 mg/dl at last 3 monthly visits, mean change from baseline did not favor any of the compared groups. No significant difference was detected between febuxostat and allopurinol in terms of safety outcomes such as, any adverse events, treatment related adverse event, events leading to discontinuation, serious adverse events, liver or renal function test abnormalities, abnormal electrocardiograph, abnormal urine protein or glucose, headache, upper respiratory infection, or gastrointestinal disorders.

Conclusions: Based on our study, febuxostat showed higher incidence of serum urate at last three-monthly visits and last visit than allopurinol. While, febuxostat and allopurinol were comparable in terms of safety outcomes.

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