



Effect of Letrozole with Methotrexate versus Methotrexate only in the Medical Management of Ectopic Pregnancy: A Meta analysis

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INTRODUCTION

Ectopic pregnancy remains a significant cause of maternal morbidity in early pregnancy, with methotrexate (MTX) being a primary medical treatment. However, some patients require additional doses or surgical intervention due to insufficient resolution of the pregnancy. Letrozole, a selective aromatase inhibitor, has been proposed to enhance the efficacy of MTX by reducing estrogen levels and inhibiting trophoblastic activity.

AIM & OBJECTIVE

The aim of this meta-analysis is to evaluate the efficacy of Letrozole combined with methotrexate compared to methotrexate alone in the medical management of ectopic pregnancy, focusing on the resolution of the pregnancy as measured by reductions in hCG levels.

Objectives :

- 1-To assess the impact of Letrozole combined with methotrexate on the rate of hCG decline on Day 7 compared to methotrexate alone.
- 2- To evaluate the differences in hCG levels at the final measurement day between the Letrozole plus methotrexate group and the methotrexate-only group.
- 3- To determine the pooled mean difference in hCG reduction between the two treatment groups.

METHODS

A comprehensive search of electronic databases was conducted, identifying randomized controlled trials (RCTs) that compared Letrozole plus MTX with MTX alone for the treatment of ectopic pregnancy.

Two eligible RCTs were included in the analysis. The primary outcome was the reduction in hCG levels measured at Day 7 and the final measurement day. Pooled mean differences (MD) were calculated with their corresponding 95% confidence intervals (CI). Heterogeneity was assessed using the I² statistic.

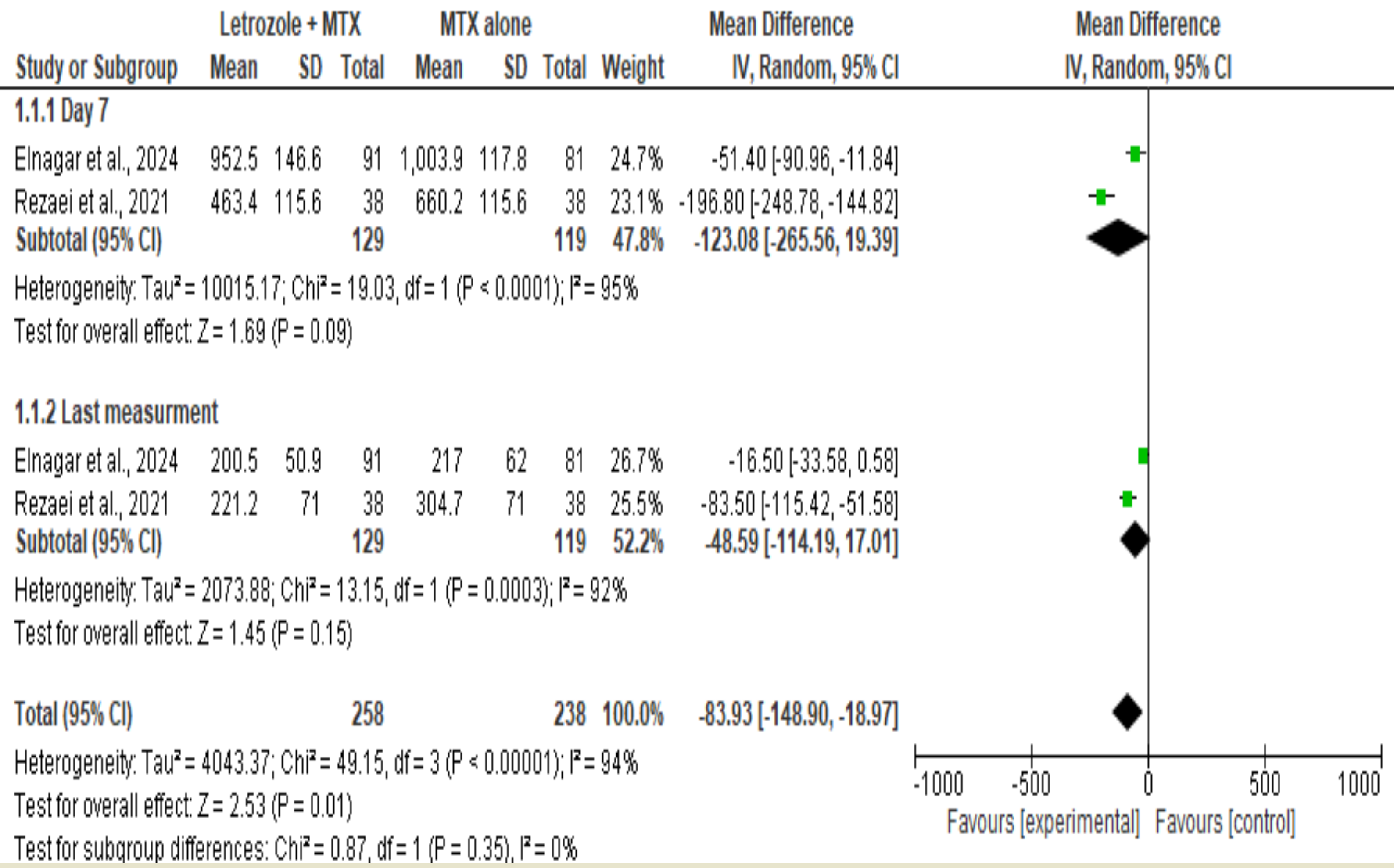
RESULTS

Two RCTs were included in the meta-analysis. At Day 7, the pooled mean difference in hCG levels between the Letrozole plus MTX group and the MTX-only group was -123.08 mIU/mL (95% CI: -265.56, 19.39), indicating a non-significant trend toward faster hCG decline in the combination group (P = 0.09).

By the final measurement day, the pooled mean difference was -48.59 mIU/mL (95% CI: -114.19, 17.01), favoring the Letrozole plus MTX group, though this was not statistically significant (P = 0.15).

The overall pooled mean difference for hCG reduction across all time points was -83.93 mIU/mL (95% CI: -148.90, -18.97), demonstrating statistical significance (P = 0.01). However, substantial heterogeneity was observed (I² > 90%).

TABLES & FIGURES



Forest plot of hCG levels on Day 7 and last measurment day among the Letrozole + MTX group versus MTX group.

CONCLUSION

The addition of Letrozole to MTX therapy may enhance the reduction in hCG levels in patients with ectopic pregnancy, potentially accelerating the resolution of the pregnancy. While the pooled estimate reached statistical significance, high heterogeneity suggests that further large-scale trials are necessary to confirm these findings.