Prevalence and Associated Factors of Poor Adherence to Levothyroxine in Patients With Hypothyroidism: Systematic Review and Meta-Analysis

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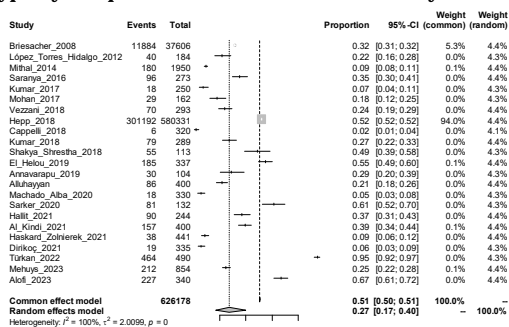
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INTRODUCTION

Hypothyroidism affects 4% to 8% of the population. Iodine deficiency is the primary cause, where nutritional iodine deficiency also leads to the development of endemic goiters. In contrast, in industrialized nations, the common causes are Hashimoto's disease and iatrogenic hypothyroidism, often resulting from thyroidectomy or therapeutic irradiation.

To address this hormonal imbalance, levothyroxine, a synthetic thyroid hormone, is widely prescribed. When taken regularly and in the correct dosage, levothyroxine effectively compensates for the hormonal deficit and restores optimal thyroid function. Medication adherence is critical for the effective management of hypothyroidism. The **aim** of this study, therefore, was to conduct a systematic review and meta-analysis on the prevalence of poor adherence to levothyroxine treatment in hypothyroid patients.

METHODS

The study was conducted and written following PRISMA guidelines.

This systematic review included observational studies focusing on the prevalence with poor adherence in hypothyroid patients. Only publications in English or French up to June 25, 2023, were considered. A systematic bibliographic search was performed on Medline via PubMed, using specific search terms, supplemented by additional searches on Scopus and Google Scholar for relevant documents.

Meta-analysis was performed using the "Metafor" function in R software. A random-effects logistic regression model was used for calculating global prevalence, and heterogeneity was assessed using the Cochrane Q test and Higgins' I^2 statistic. Sensitivity analysis was conducted to assess the robustness of the results.
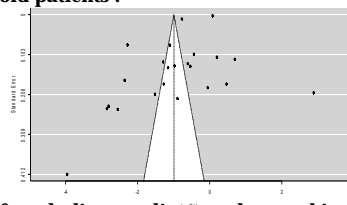
RESULTS

A total of **23 studies** aiming to assess the prevalence of poor medication adherence in hypothyroid patients treated with levothyroxine were selected.
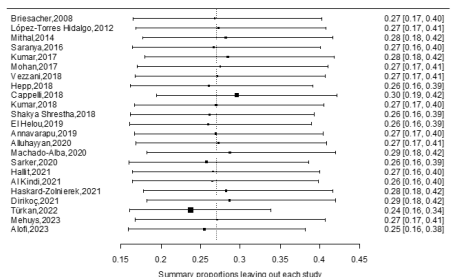
- **Forest plot of studies on the prevalence of poor medication adherence in hypothyroid patients included in the meta-analysis :**

- **Funnel plot of studies on the prevalence of poor medication adherence in hypothyroid patients :**

- **Influence of excluding studies on the combined prevalence of poor medication adherence in hypothyroid patients.**

DEY FINDINGS

This systematic review and meta-analysis highlights key findings on poor medication adherence to levothyroxine in hypothyroid patients. The study shows a variable prevalence of poor adherence ranging from 1.9% to 94.7%, with a combined prevalence of 27% (95% CI: 17-40%). Factors influencing adherence include:

1.Memory Issues & Forgetfulness: One of the primary causes of poor adherence, which can be addressed by interventions like medication reminders.

2.Access to Medications: Financial difficulties, limited availability, and logistical constraints contribute to poor adherence. Improving medication accessibility through health policies can help.

3.Adverse Effects: Concerns about side effects may discourage patients from taking their medication consistently. Clear communication between healthcare professionals and patients is vital.

4.Lack of Information: Patients need better education about their condition, the importance of regular medication, and the long-term benefits of adherence.

5.Gender, Comorbidities & Polypharmacy: Women, patients with comorbidities, and those on multiple medications tend to have lower adherence rates, highlighting the need for personalized interventions.

Additionally, the analysis showed regional differences, with Asian populations showing poorer adherence compared to American and European patients, reflecting possible cultural and systemic health differences.

Conclusion

While the study provides important insights, limitations include variations in study methodologies and potential biases from self-reported data. Nevertheless, with a sample size of 626,178 patients across diverse regions, the findings provide valuable guidance for interventions to improve adherence and ultimately patient outcomes.

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