INPLASY

Corresponding author:
Zuojie Luo

luozuojie@gxmu.edu.cn

Author Affiliation:
The First Affiliated Hospital of Guangxi Medical University.

Thyroid dysfunction and risk of different types of dementia：a Systematic review and meta-analysis

Ye, JB; Huang, ZX; Liang, CF; Yun, Z; Huang, LL; Liu, YP; Luo, ZJ.

ADMINISTRATIVE INFORMATION

Support - Not applicable.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 April 2024 and was last updated on 09 April 2024.

INTRODUCTION

*R*eview question / Objective Since the relationship between thyroid function and different types of dementia has not been proven, we conducted this meta-analysis of the relationship between thyroid function and risk of different types of dementia, including Alzheimer's disease (AD) and vascular dementia (VD), with the aim of providing guidance for dementia prevention.

Condition being studied Patients with dementia.

METHODS

Search strategy ((Alzheimer's disease[Title/Abstract]) OR (dementia[Title/Abstract])) AND (((((((Hyperthyroidism[Title/Abstract]) OR (hypothyroidism[Title/Abstract])) OR (Graves Disease[Title/Abstract])) OR (toxic nodular goiter[Title/Abstract])) OR (Plummer disease[Title/Abstract])) OR ((((((((((("Hashimoto Disease"[Mesh]) OR (Hashimoto Struma[Title/Abstract])) OR (Hashimoto Thyroiditis[Title/Abstract])) OR (Hashimoto Thyroiditides[Title/Abstract])) OR (Hashimoto's Syndrome[Title/Abstract])) OR (Hashimoto Syndrome[Title/Abstract])) OR (Hashimoto's Syndromes[Title/Abstract])) OR (Hashimotos Syndrome[Title/Abstract])) OR (Hashimoto's Struma[Title/Abstract])) OR (Chronic Lymphocytic Thyroiditis[Title/Abstract])) OR (Chronic Lymphocytic Thyroiditides[Title/Abstract])) OR (Hashimoto's Disease[Title/Abstract])) OR (Hashimotos Disease[Title/Abstract])))) AND (((((risk factor[Title/Abstract]) OR (risk factors[Title/Abstract])) OR (predictor[Title/Abstract])) OR (predictive[Title/Abstract])) OR (associated[Title/Abstract])).

Participant or population Patients with dementia.

Intervention Not applicable.

Comparator Not applicable.

Study designs to be included Cohort study.

Eligibility criteria The inclusion criteria:1) Study object: patients with dementia;2) Outcome indicators: supplied Odds ratio (OR) value and 95% confidence interval values for the association between thyroid function and dementia;3) Study design: cohort study and the language is limited to EnglishThe exclusion criteria: repeated publications, studies without full text or that could not conduct data extraction, studies using animal experiments, reviews, and systematic reviews.

Information sources Electronic databases.

Main outcome(s) supplied Odds ratio (OR) value and 95% confidence interval values for the association between thyroid function and dementia.

Quality assessment / Risk of bias analysis The Newcastle-Ottawa Scale (NOS) for evaluating the quality of published literature is carried out separately by two academics, and it was used to evaluate the quality of 16 cohort studies, NOS includes 4 items (4 points) for "Research Subject Selection", 1 item (2 points) for "Comparability between Groups" and 3 items (3 points) for "Result Measurement", with a full score of 9 points and ≥7 is regarded as High-quality literature, < 7 is divided into lower-quality literature.

Strategy of data synthesis We analyzed all data using STATA (version 15.1, Statacorp LP, USA). OR (with a 95% confidence interval) was used to assess the association between thyroid function and dementia. We used I2 and Q tests to evaluate heterogeneity. If the heterogeneity test was P ≥ 0.1 and I2 ≤ 50%, there was homogeneity among studies, and the fixed effects model was used for combined analysis; if P 50%, there was heterogeneity, and a sensitivity analysis was conducted to identify its source. If the heterogeneity remained large, we used a random effects model or abandoned the combination of results and used descriptive analysis. Egger's bias test was used to analyze the publication bias.

Subgroup analysis Not applicable.

Sensitivity analysis The remaining investigations were subjected to a summative analysis to see whether any of the included studies had a disproportionate influence on the meta-overall analysis's results, which was accomplished using sensitivity analyses that eliminated each included research one at a time.

Language restriction English.

Country(ies) involved China (The First Affiliated Hospital of Guangxi Medical University).

Keywords Thyroid dysfunction; dementia; Alzheimer's disease; Vascular dementia; Systematic review and meta-analysis.

Contributions of each author
Author 1 - Jianbo Ye - Author 1 drafted the manuscript.
Author 2 - Zhenxing Huang - The author particiated in literature screening and data extraction.
Author 3 - Chunfeng Liang - The author particiated in literature screening and data extraction.
Author 4 - Zhang Yun - The author particiated in literature quality assessment.
Author 5 - Lili Huang - The author particiated in literature quality assessment.
Author 6 - Yuping Liu - The author particiated in data analysis.
Author 7 - Zuojie Luo - The author read, provided feedback and approved the final manuscript.