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Association between triglyceride glucose index and peripehral artery disease

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Data extraction.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202470067

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 July 2024 and was last updated on 17 July 2024.

INTRODUCTION

Review question / Objective What is the association between the triglyceride glucose index (TyG index) and the prevalence or incidence of peripheral artery disease (PAD) in adults, considering potential variations by demographic factors and comparison with other traditional risk factors?

Condition being studied Peripheral artery disease (PAD) is a common circulatory condition characterized by narrowed arteries, which reduce blood flow to the limbs, typically the legs. This condition can lead to symptoms such as leg pain while walking (claudication), and in severe cases, it can cause critical limb ischemia, which may result in ulcers, gangrene, and the need for limb amputation. PAD is associated with an increased risk of cardiovascular events and mortality, and it is often underdiagnosed and undertreated. Understanding the role of the triglyceride glucose index (TyG index) in PAD could help in early identification and management of individuals at risk.

METHODS

Search strategy The sources that will be searched include PubMed, Embase, and Web of Science. The search will cover publications from database inception to June 01, 2024, with restrictions to studies published in English. The search terms include "triglyceride-glucose index" AND "peripheral artery disease".

Participant or population General adult population, including patients with type 2 diabetes.

Intervention TyG index was evaluated, and participants with a high TyG index were considered as exposure.

Comparator Participants with a low TyG index.

Study designs to be included Observational studies, such as cohort studies, case-control studies, and cross-sectional studies.

Eligibility criteria Studies will be selected for inclusion based on predefined criteria: they must

investigate the association between the triglyceride glucose index (TyG index) and peripheral artery disease (PAD) in adults, report quantitative outcomes, and be published in English within the specified date range.

Information sources PubMed, Embase, and Web of Science.

Main outcome(s) Incidence or prevalence of lower-extremity PAD, compared between participants with a higher versus a lower TyG index.

Quality assessment / Risk of bias analysis Newcastle-Ottawa Scale.

Strategy of data synthesis Effect sizes, such as risk ratio, will be pooled using a random-effects model to account for potential heterogeneity among studies. Statistical heterogeneity will be evaluated using the I^2 statistic and Cochran's Q test, with substantial heterogeneity indicated by an I^2 value greater than 50%.

Subgroup analysis Subgroup analyses and meta-regressions will be conducted to explore sources of heterogeneity, such as variations in study design, population demographics, and adjustment for confounders.

Sensitivity analysis Sensitivity analyses will assess the robustness of the results. The meta-analysis will be performed using the software package Review Manager (RevMan) and Stata, ensuring rigorous and transparent data synthesis.

Language restriction English.

Country(ies) involved China.

Keywords Triglyceride glucose index; peripheral artery disease; meta-analysis.

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