INPLASY PROTOCOL

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Review Stage at time of this submission: **Preliminary searches.**

Conflicts of interest:
None declared.

Platelet count, mean platelet volume and platelet distribution width in NAFLD patients: A PRISMA-compliant systematic review and meta-analysis

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Review question / Objective: **Platelet activation can be simply characterized by changes in common platelet indices such as platelet count (PC), mean platelet volume (MPV), and platelet distribution width (PDW). In the recent decade, a large body of studies assessed the association between platelet indices and NAFLD, but these studies have yielded inconsistent and even contradictory results. Therefore, this meta-analysis is to overview the existing literature on the association between PC, MPV, PDW and NAFLD. Meanwhile, we updated the prior meta-analysis which assessed the association between MPV and NAFLD.**
Information sources: **The electronic databases including Pubmed, EMBASE, Web of Science and China National Knowledge Internet will be searched for the information sources.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 February 2022 and was last updated on 19 February 2022 (registration number INPLASY202220069).

INTRODUCTION

Review question / Objective: **Platelet activation can be simply characterized by changes in common platelet indices such as platelet count (PC), mean platelet volume (MPV), and platelet distribution width (PDW). In the recent decade, a large body of studies assessed the association between platelet indices and NAFLD, but these studies have yielded inconsistent and even contradictory results. Therefore, this meta-analysis is to overview the existing literature on the association between PC, MPV, PDW and NAFLD. Meanwhile, we updated the prior meta-analysis which**

assessed the association between MPV and NAFLD.

Condition being studied: Non-alcoholic fatty liver disease (NAFLD) is the common chronic liver disease (CLD) globally, associated with the growing obesity epidemic today. The clinicopathological spectrum of NAFLD covers a mild-to-severe range from simple steatosis (SS) to non-alcoholic steatohepatitis (NASH) and to NASH-related fibrosis or cirrhosis. Although the exact mechanisms of NAFLD have not been fully elucidated, it is generally believed that inflammation and fibrosis play significant roles both in the development of NASH and in subsequent development of liver cirrhosis and hepatocellular carcinoma. Up to now, the "gold standard" liver biopsy is still the most widely accepted as an effective method for inflammation and fibrosis diagnosis to assess NAFLD activity. However, liver biopsy is an invasive technique, with pain and many potentially serious complications. Therefore, more simple and effective measurements for the disease activity are expected. Recent evidence suggested that platelet activation is one of the central processes tightly associated with exacerbation of liver inflammation and the severity of fibrosis in patients with CLD such as hepatitis B. This progression, in turn, can be thwarted by the inhibition of platelet activation.

METHODS

Participant or population: We will include NAFLD patients and healthy individuals used as controls; or NASH patients and non-NASH patients served as controls.

Intervention: PC, MPV, and PDW were main Exposure/Interventions.

Comparator: PC, MPV, and PDW were compared between NAFLD patients and healthy individuals; or between NASH versus non-NASH.

Study designs to be included: Observational studies that compared PC, MPV, and PDW between NAFLD patients and healthy individuals; or between NASH versus non-NASH.

Eligibility criteria: The eligibility criteria areas follows: (1) participants aged ≥ 18 years; (2) studies comparing PC, MPV, or PDW between NAFLD patients and healthy individuals; or between NASH versus non-NASH; (3) full text articles available in English or Chinese languages.

Information sources: The electronic databases including Pubmed, EMBASE, Web of Science and China National Knowledge Internet will be searched for the information sources.

Main outcome(s): Standardized mean differences (SMD) and 95% confidence interval (CI) of platelet indices between the pairwise comparisons were calculated for each study.

Quality assessment / Risk of bias analysis: The methodological quality of studies included was assessed using a modified criterion based on the Newcastle-Ottawa Quality Assessment Scale (NOS).

Strategy of data synthesis: A random-effects model was used in data synthesis process.

Subgroup analysis: Subgroup analysis was performed based on location, study design and diagnostics of NAFLD.

Sensitivity analysis: Sensitivity analysis was performed by omitting one study and pooling the SMD for the others in each turn.

Country(ies) involved: China.

Keywords: Platelet count, mean platelet volume, platelet distribution width, NAFLD, meta-analysis.

Contributions of each author:
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Author 3 - Zhongwei Zhou.