INPLASY PROTOCOL

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None declared.

The obesity paradox in patients with ST-segment elevation myocardial infarction

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Review question / Objective: **Nowadays, it remains controversial that whether the obesity paradox exists in patients with ST-segment elevation myocardial infarction (STEMI) after primary percutaneous coronary intervention (PCI).**
Condition being studied: **More and more studies show that patients with high BMI in CHD treated with PCI have better prognosis. They called this phenomenon the "obesity paradox". However, there are studies that don't support this paradox. Therefore, we want to know whether the "obesity paradox" exists in the population of STEMI patients treated with PCI. Also, whether the result is time-dependent needs to be confirmed by further research. This study analyzed the correlation between BMI and mortality in STEMI patients treated with PCI and explored whether there is difference between long-term and short-term outcomes.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 June 2021 and was last updated on 06 June 2021 (registration number INPLASY202160015).

INTRODUCTION

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METHODS

Participant or population: A total of 29013 patients were included in this meta-analysis.

Intervention: BMI at 18.5 to 24.9kg/m2, 25.0-29.9kg/m2 and > 30kg/m2 as normal, overweight and obese respectively.

Comparator: All-cause mortality

Study designs to be included: All the Randomized Controlled Trials(RCTs) and observational studies were identified.

Eligibility criteria: The criteria include: (1) patients with STEMI undergoing PCI; (2) studies which report associations between BMI(immediately after STEMI) and all-cause acute outcomes.

Information sources: PubMed, Embase, Web of science and Coherence library.

Main outcome(s): The main finding of this meta-analysis illustrates that the in-hospital and long-term mortality rates of overweight and obese patients were lower than those of normal weight patients. This finding supports the existence of the "obesity paradox". Another important finding in this meta-analysis should not be overlooked: obesity does not predict an increasing or decreasing risk of death in a population of patients undergoing PCI for STEMI, compared to overweight.

Additional outcome(s): The Funnel plots indicates a symmetric distribution of the included studies. The Harbord and the Peters tests shows that there was no potential publication bias in these studies. Sensitivity analysis confirms that these results are stable. Moreover, the results of this paper did not have high heterogeneity on most outcomes.

Strategy of data synthesis: All statistical analyses were performed by STATA(version12.0, STATA Corporation, College Station, TX). A cumulative analysis was used to evaluate the stability of the results over time. The heterogeneities between studies were tested by Cochran chi-square test and I^2 test(among which I^2 > 50% had obvious heterogeneity). When I^2 >50%, the random effect model was selected for results pooling, and when I^2 < 50%, the fixed effect model was is adopted. Also, Harbord test and Peters test were involved to detect publication bias.

Subgroup analysis: The criteria include: (1) patients with STEMI undergoing PCI; (2) studies which report associations between BMI(immediately after STEMI) and all-cause acute outcomes.

Sensitivity analysis: Sensitivity analysis confirms that these results are stable.

Country(ies) involved: China.

Keywords: BMI; PCI; All-cause mortality.

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