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Homocysteine levels and risk of essential hypertension: A meta-analysis of published epidemiological studies

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ABSTRACT

Background: Plasma homocysteine (Hcy) levels may be associated with essential hypertension (EH). However, the results of previous studies on this association are inconsistent. **Methods:** In this meta-analysis, we performed a systematic literature search of the Embase, PubMed, Cochrane Library, and Web of Science for the relevant articles dated up to March 2016. Pooled odds ratios (ORs) and corresponding 95% confidence intervals (CIs) were used to evaluate the estimates. **Results:** We included 11 studies with a total of 16,571 participants (4,830 EH cases). We found that elevated Hcy levels were associated with the risk of EH (pooled OR: 1.36, 95% CI: 1.02–1.80 in the random-effects model). However, subsequent subgroup analyses showed that elevated Hcy levels increased the EH risk in retrospective studies (OR: 1.82, 95% CI:

1.53–2.16; $p < 0.001$) and unadjusted studies (OR: 1.72, 95% CI: 1.43–2.07; $p < 0.001$), but not in perspective studies (OR: 0.99, 95% CI: 0.73–1.28; $p = 0.939$) and adjusted studies (OR: 1.21, 95% CI: 0.85–1.72; $p = 0.297$). No significant publication bias was found ($p = 0.876$ for Begg’s test, $p = 0.144$ for Egger’s test). Conclusion: Plasma Hcy levels are associated with EH risk. However, our findings do not support a causal association between Hcy levels and EH.

KEYWORDS:

Epidemiological study essential hypertension homocysteine odds ratio meta-analysis

Declaration of interest

The authors have declared that no competing interests exist.

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