Clinical and Experimental Hypertension ›

Volume 39, 2017 - Issue 2

Original Articles

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

Fade Zhong, Li Zhuang, Ying Wang & Youli Ma

Pages 160-167 | Received 12 Apr 2016, Accepted 29 Jul 2016, Published online: 01 Mar 2017

Cite this article https://doi.org/10.1080/10641963.2016.1226888 Check for updates

Full Article Figures & data References Citations Metrics

Reprints & Permissions Read this article Share

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.

Funding

The research was supported by the Natural Science Foundation of Ningbo City (2013A610231).

Additional information

Funding

The research was supported by the Natural Science Foundation of Ningbo City (2013A610231).

Elevated homocysteine level and prognosis in patients with acute coronary syndrome: a meta-analysis >

Mingjin Zhu et al.
Biomarkers
Published online: 6 May 2019