

| PublisherInfo | | |
|----------------------|---|----------------|
| PublisherName | : | BioMed Central |
| PublisherLocation | : | London |
| PublisherImprintName | : | BioMed Central |

Caerphilly study finds no link between homocysteine and CHD

| ArticleInfo | | |
|-----------------------|---|--|
| ArticleID | : | 29 |
| ArticleDOI | : | 10.1186/cvm-2001-72106 |
| ArticleCitationID | : | 72106 |
| ArticleSequenceNumber | : | 8 |
| ArticleCategory | : | Paper Report |
| ArticleFirstPage | : | 1 |
| ArticleLastPage | : | 3 |
| ArticleHistory | : | RegistrationDate : 2001-2-15 Received : 2001-10-18 OnlineDate : 2001-10-18 |
| ArticleCopyright | : | Biomed Central Ltd2001 |
| ArticleGrants | : | |

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Keywords

Coronary disease, homocysteine, risk factors

Context

This study investigates the hypothesis that a raised homocysteine concentration is an independent risk factor for coronary heart disease (CHD).

Significant findings

The mean follow up period was 10 years, 312 CHD events occurred during follow-up, of which 172 were fatal. The geometric mean serum homocysteine concentration was higher in cases (12.2 $\mu\text{mol/l}$, 95% CI 11.8-12.6 $\mu\text{mol/l}$) than in controls (11.8 $\mu\text{mol/l}$, 95% CI 11.3-12.5 $\mu\text{mol/l}$) ($P < 0.09$). There was a graded increase in the odds ratio of CHD across quintiles of the homocysteine concentration distribution compared with the first ($P = 0.04$), which was attenuated when adjusted for confounding variables ($P = 0.4$). Comparing the top quintile of the homocysteine concentration with the remaining 80%, the adjusted odds ratio of coronary heart disease was 1.03 (95% CI 0.73-1.45) ($P = 0.8$) and comparing the top 5% with the remaining 95% it was 1.05 (95% CI 0.56 -1.95) ($P = 0.9$).

Comments

These results are consistent with some prospective cohort studies that have failed to show an increased risk with increasing homocysteine levels, but are clearly different from others that have shown a positive association. There are various explanations for the inconsistencies: underpowering of null studies; misclassification; confounding; reverse causality; and population/study heterogeneity. The

authors conclude that meta-analyses of all available data (not just published data) and randomized controlled trials of folic acid supplementation should provide evidence as to whether interventions that lower homocysteine concentration will prevent CHD.

Methods

Between 1979 and 1983, the researchers recruited male residents of Caerphilly, South Wales, who were aged 45-59 years at baseline. In the present study, 2290 men who had homocysteine levels measured in 1994 were included in the analysis.

Additional information

References

1. Fallon UB, Ben-Shlomo Y, Elwood P, Ubbink JB, Davey Smith G: Homocysteine and coronary heart disease in the Caerphilly cohort: a 10 year follow up. *Heart*. 2001, 85: 153-158.