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Homocysteine and folate levels as risk factors for recurrent early pregnancy loss.

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Abstract

Objective

To estimate the relative risk of recurrent early pregnancy loss for different total plasma homocysteine and serum folate concentrations.

Method

In a case-control study, we measured homocysteine (fasting and afterload), folate (serum and red cells), pyridoxal 5'-phosphate, and cobalamin concentrations in 123 women who had at least two consecutive spontaneous early pregnancy losses each and compared concentrations with those of 104 healthy controls.

Results

Women with recurrent early pregnancy losses had significantly lower serum folate concentrations than controls, whereas the other measurements were similar to those of controls. Elevated homocysteine, fasting greater than 18.3 micromol/L and afterload greater than 61.5 micromol/L, was a risk factor for recurrent early pregnancy loss, with odds ratios (ORs) and 95% confidence intervals (95% CIs) of 3.6 (1.2, 12.7) and 2.7 (0.9, 8.8) in the group with recurrent miscarriages: 6.4 (1.9, 24.3) and 4.3 (1.2, 17.3) in primary aborters, and 4.2 (1.3, 15.4) and 3.4 (1.0, 12.8) in those with three or more miscarriages. The ORs (95% CIs) in the same study populations for serum folate concentrations less than 8.4 nmol/L were 2.1 (0.9, 4.8), 2.7 (1.0, 7.8), and 3.2 (1.3, 8.1), respectively. A significant dose-response relationship between serum folate concentrations and risk of recurrent early pregnancy loss suggested a protective effect by high serum folate concentrations.

Conclusion

Elevated homocysteine and reduced serum folate concentrations were risk factors for recurrent spontaneous early pregnancy losses. Folic acid supplementation might be beneficial in women with histories of early pregnancy loss.

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