

Abstract

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The effects of adrenocorticotrophic hormone and cortisol on homocysteine and vitamin B concentrations.

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BACKGROUND: Homocysteine metabolism is mainly governed by serum concentrations of folate and vitamin B(12), renal function and genetic factors. It is also well documented that endocrinological disturbances influence homocysteine metabolism. However, studies on the hormones of the hypothalamic-pituitary-adrenal axis have given conflicting results.

METHODS: A total of 30 healthy young males were randomised into three groups of equal size; one group received adrenocorticotrophic hormone (ACTH)(1-24) 1 mg i.m. daily for 4 days, another group was treated with cortisol 50 mg i.m. t.i.d. for 4 days, while a control group was observed for 4 days. Fasting blood samples were collected before and after treatment or observation.

RESULTS: The pattern of changes was the same for the ACTH and cortisol groups; there were significant decreases in serum concentrations of folate (23% and 24%) and cobalamines (13% and 19%) and decreases in plasma total homocysteine concentrations that did not reach significance. There were no changes in the control group.

CONCLUSIONS: The virtually identical pattern of changes in both treatment groups suggests that the effects were mediated by cortisol. The reductions in serum concentrations of folate and cobalamines call for further research.

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