Correspondence

Vitamin B6 status, MTHFR and hyperhomocysteinaemia

Sir,

Mild hyperhomocysteinaemia is accepted as a major risk factor for vascular disease, conferring an approximately three-fold relative risk. ¹ We have shown previously that homoyzogosity for the thermolabile methylene tetrahydrofolate reductase (MTHFR) genotype was associated with higher concentrations of total plasma homocysteine (tHcy) in a working male population aged 30–49 years (n=625). We also showed that serum folate concentrations were related to the expression of the genotype; in men with folate below the median value, a difference in tHcy between genotypes existed. This did not persist in men with folate levels above the median value.² We would now like to report the results for vitamin B₆. Homocysteine is either remethylated to S-adenosylmethionine, in which case it is initially remethylated to methionine by the vitamin-B₁₂-dependent enzyme methionine synthase, using 5-methyl tetrahydrofolate as the methyl donor, or disposed of by the transsulphuration pathway in which the initial step is its condensation with serine to form the thioether cystathionine through the action of the vitamin-B₆-dependent enzyme cystathionine-β-synthase. It is therefore conceivable that if the transmethylation pathway is impaired by the possession of a thermolabile MTHFR allele, that the transsulphuration pathway will take over. It might therefore be expected that serum vitamin B₆ concentrations would be lower in those possessing the thermolabile allele. Vitamin B₆ was measured in serum by HPLC according to Brain and Reynolds (1992).³ The results are shown by genotype in the table below.

The trend in vitamin B₆ values by genotype is apparent, yet does not reach statistical significance (p=0.24) due to the wide spread of data. It must be noted, however, that the magnitude of increase in mean concentration of vitamin B₆ between homozgyrous thermolables (+/+ ) and homoyzogous normals (−/−)—a value of 21%—is comparable to that shown by folate and vitamin B₁₂ (32% and 20%, respectively). Vitamin B₆ was not correlated with homocysteine, folate or vitamin B₁₂.

Using a value of 30 pmol/l as an optimal/sub-optimal cut-off point,⁴ we found that 47% of the subjects in our population were sub-optimal for vitamin B₆.

We can conclude that, in this study, vitamin B₆ did not play a major role in determining the levels

Table 1  Plasma homocysteine, serum folate, vitamin B12 and vitamin B6 levels by MTHFR genotype

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Geometric mean values of homocysteine, folate, vitamin B12 and vitamin B6 are shown with 95% CIs (in brackets) for thermolabile homozygotes (+/+, heterozygotes (+/−), and non-thermolabile homozygotes (−/−). Mean homocysteine levels for men whose serum folate concentrations were related to the expression of the genotype; in men with folate below the median value, a difference in tHcy between genotypes existed. This did not persist in men with folate levels above the median value. We would now like to report the results for vitamin B₆. Homocysteine is either remethylated to S-adenosylmethionine, in which case it is initially remethylated to methionine by the vitamin-B₁₂-dependent enzyme methionine synthase, using 5-methyl tetrahydrofolate as the methyl donor, or disposed of by the transsulphuration pathway in which the initial step is its condensation with serine to form the thioether cystathionine through the action of the vitamin-B₆-dependent enzyme cystathionine-β-synthase. It is therefore conceivable that if the transmethylation pathway is impaired by the possession of a thermolabile MTHFR allele, that the transsulphuration pathway will take over. It might therefore be expected that serum vitamin B₆ concentrations would be lower in those possessing the thermolabile allele. Vitamin B₆ was measured in serum by HPLC according to Brain and Reynolds (1992). The results are shown by genotype in the table below.

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We can conclude that, in this study, vitamin B₆ did not play a major role in determining the levels
of tHcy in individuals who are thermolabile homozy-
gous or heterozygous for MTHFR.

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References

The course of alcohol withdrawal in a general hospital

Sir,
We read the article by Foy and colleagues with interest1 and can relate to the magnitude of the problem created by acute alcohol withdrawal from our own clinical practice.

The prescription of benzodiazepines helps to reduce the complications and anxiety associated with alcohol withdrawal during hospital admission. No similar practice exists for patients who smoke cigarettes, a habit which is prevalent in approximately a quarter of all adults in Western populations.2 Sudden unaided smoking cessation is associated with anxiety.3

Nicotine replacement therapies, in the form of gum or patches, are effective in aiding smoking cessation and also reduce anxiety.4 There may be some fears about using nicotine however it is non-carcinogenic and is less prothrombotic than continued smoking; it also avoids the adverse effects of carbon monoxide. Recent work also suggests that transdermal nicotine can be used safely in patients with heart disease.4

We feel that a randomized controlled trial of nicotine patches and smoking cessation counselling for in-patients would be of interest, this could be continued for a planned period after discharge. The anxiety associated with sudden withdrawal may be avoided and support offered to aid long-term smoking cessation.

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References