PROTON PUMP INHIBITORS AND HOMOCYSTEINE LEVELS IN ISCHEMIC STROKE

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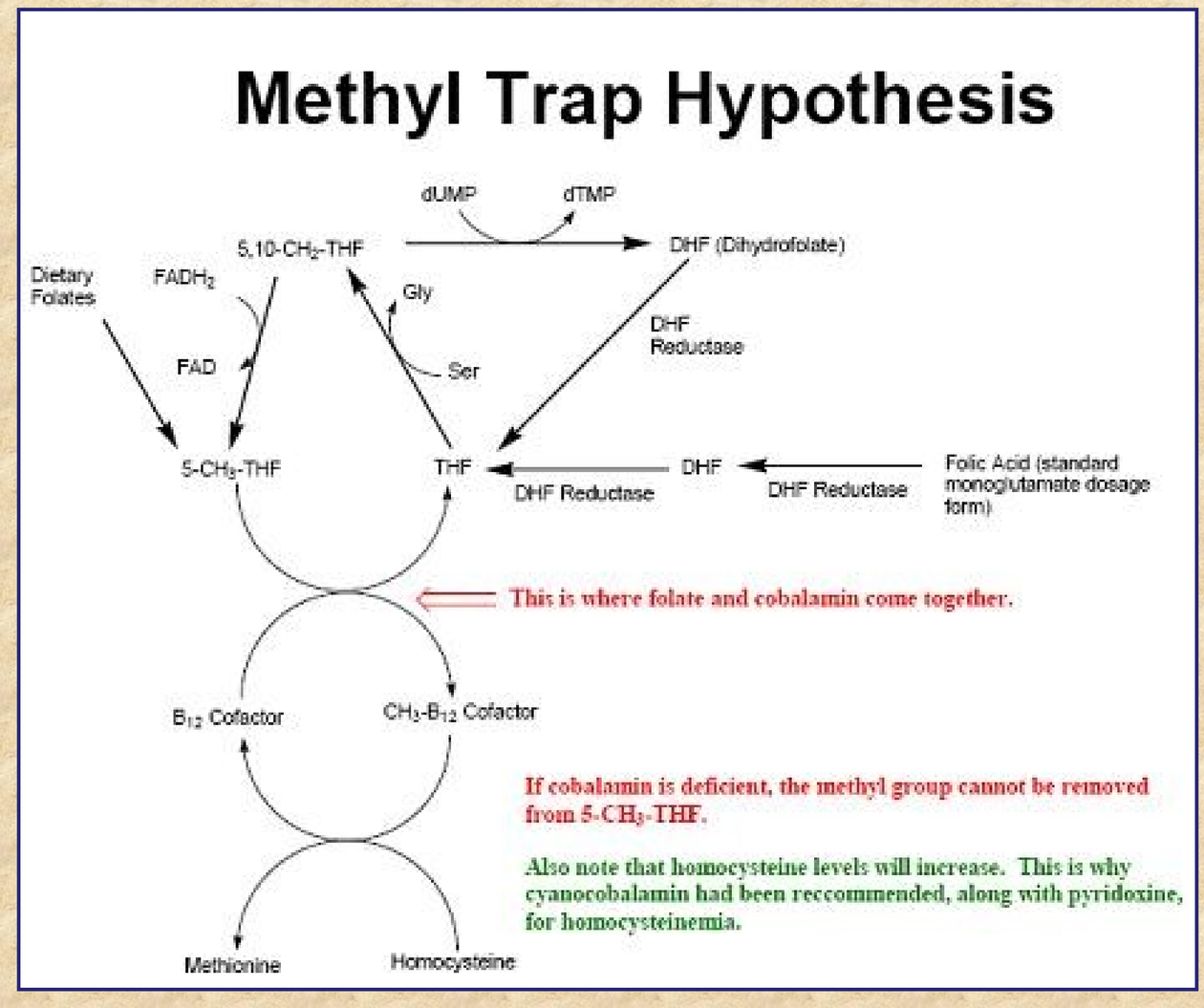
***Background**:* Proton pump inhibitors (PPIs) are considered safe drugs. However there are conflicting evidences that long term use of **PPIs might lead to vitamin B12 deficiency**, due to the increase in gastric pH. Vitamin B12 deficiency produces the "methyl-folate trap" which prevents the dietary folate from activating. **This can cause an increase of homocysteine plasmatic levels**. Homocysteine is considered an independent risk factor for cerebrovascular disease.

The aim of this study was to compare homocysteine, vitamin B12 and folic acid levels in stroke patients with and without previous PPIs therapy.



***Methods**:* We analyzed vitamin B12, folic acid and homocysteine plasma levels in 100 patients (66 male; mean age 71,8; SD: 14,52; range 45-90) who came to our attention for ischemic stroke (72) or TIA (28) from January to December 2014.
41 patients were taking PPIs. 40 patients were taking antiplatelet therapy (among them 30 patients were taking both PPI and antiplatelet therapy).

Results:

- In TIA/stroke patients homocysteine levels were higher than in the general population
- **Patient who were taking PPIs had**
  - ✓ **higher levels of homocysteine** (p=0.024)
  - ✓ equal levels of vitamin B12 and folic acid compared to patients without PPIs therapy.
- There was a negative correlation between homocysteine and folic acid levels (r=-0.32, p=0.008).

Conclusions: We confirmed that homocysteine levels are inversely proportional to those of folic acid and we found higher levels of homocysteine in the group of patients taking PPIs despite the absence of differences in vitamin B12 and folic acid levels.

Even if PPIs are considered secure drugs, their use should be restricted to patients at high risk of gastrointestinal bleeding because of their capability to increase cerebrovascular risk.

In these patients could be useful a vitamin B12 and folic acid supplementation.

We suggest that PPIs may increase homocysteine levels by unknown mechanisms without causing a simultaneous deficit in vitamin B12 and folic acid.

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