

Poster presentation

## The role of vitamin B12 at chronic antiepileptic drug treatment

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### Background

A more systematic study of correlation of vitamin B12 levels and mental health. During the patient's stay in our clinic ward she mentioned hemodia, unstable walking, and a not elucidatory determinative weakness at both hands. After full neurological examination, we moved to the examination of B12 levels. As these levels were 150 pg/mL we started substitute treatment, provided that the patient had been taking antiepileptic medicine for years and had low toxicity of B12. At following neurological examinations the clinical icon of the patient had obviously improved. Carbamazepine and sodium valproate are widely used as maintenance treatment of bipolar disorder. Although the alteration of accumulation of B12 in serum is not totally acceptable by scientists [1], [2], [3], there are indications for the relation between antiepileptic medicine and reduced levels of B12 at least at cerebrospinal fluid folate [4]. Additionally, the combination of any inefficiency with the chronic alcoholism that is often present in this category of mental patients and the rise of life expectancy creates the need of a bigger demanded quantity of B12 in their diet.

### Materials and methods

A female patient, with bipolar disorder II. Psychiatric and physical examination, laboratory tests, scientific review.

### Results

It has been over 20 years when an incident of a maniac patient without megaloblast anemia has been reported for the first time [5]. The role of B12 at nervous system function is widely known, either it concerns the spinal marrow

disorders (dorsal and side phacyilus) or the ania as pathogenic factor. It is obvious that the B12 can improve the neurologic symptoms of patients who receive chronic antiepileptic drug treatment, even though they do not have anemia [6].

### Conclusions

It is worth taking into account if the test of B12 levels can or must be introduced in routine laboratory tests.

### References

1. Verrotti A, Pascerella R, Trotta D, Giuva T, Morgese G, Chiarelli F: **Hyperhomocysteinemia in children treated with sodium valproate and carbamazepine.** *Epilepsy Res* 2000, **41**:253-7.
2. Karabiber H, Sonmezgoz E, Ozerol E, Yakinci C, Otlu B, Yologlu S: **Effects of valproate and carbamazepine on serum levels of homocysteine, Vitamin B12, and folic acid.** *Brain Dev* 2003, **25**:113-5.
3. Vilaseca MA, Monros E, Arthuch R, et al.: **Antiepileptic drug treatment in children: hyperhomocysteinemia B-vitamins and the 677C T mutation of the methylenetetrahydrofolate reductase gene.** *Eur J Paediatr Neurol* 2000, **4**:269-77.
4. Frenkel EP, McCall MS, Sheehan RG: **Cerebrospinal fluid folate and vitamin B12 in anticonvulsant-induced megaloblastosis.** *J Lab Clin Med* 1973, **81**:105-15.
5. Goggans FC: **A case of mania secondary to vitamin B12 deficiency.** *Am J Psychiatry* 1984, **141**(2):300-1.
6. Schwaninger M, Ringleb P, Winter R, et al.: **Elevated plasma concentrations of homocysteine in antiepileptic drug treatment.** *Epilepsia* 1999, **40**:345-50.