

## Impaired oxidative balance in MIGRAINE: the evidence from d-ROMs test and BAP test

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Migraine is the most common neurological disorder, but the molecular basis is still not completely understood. An impairment of mitochondrial oxidative metabolism might play a role in the pathophysiology. Moreover there is strong evidence associating migraine with a variety of comorbid disorders, including cardiovascular disease and stroke, in which oxidative stress seems to be an important underlying mechanism. However, data are in part controversial and the possible underlying mechanism remain elusive to date and the data regarding the interictal state in migraineurs is limited.

To evaluate the oxidative balance in a sample of patients with migraine by means of routine specific serum tests, such as d-ROMs test and BAP test.

30 outpatients, (20 F, 10 M) mean age 35.1 years (SD 11.4), range 18-56 years, suffering from migraine without aura (ICDH-II 2004 criteria) were enrolled. The mean duration of disease was 1.1 (SD 0.3) years, range 1-2 years. Serum total oxidant capacity was determined by performing the d-ROMs test (2), which chemical principle is based on the ability of a biological sample to oxidize N,N-diethylparaphenylenediamine (normal range 250-300 CARR U, where 1 CARR U is equivalent to 0.8 mg/L H<sub>2</sub>O<sub>2</sub>), while serum total antioxidant capacity was assessed by means of BAP test, which measures the ability of a serum sample to reduce iron from the ferric to the ferrous ionic form (optimal value >2200 micromol/L reduced iron).

Mean values of d-ROMs tests were 387.3 CARR U (SD 134.7) while mean values of BAP test were 1703.5 micromol/L reduced iron (SD 471.4).

According to herein reported data, enrolled patients were found to be in a classical condition of oxidative stress. In fact compared to the normal range, oxidant capacity, as measured by means of d-ROMs test, was increased (>300 CARR U) and biological antioxidant potential (as measured by means of BAP test) was decreased (<2200 micromol/L reduced iron). Although preliminary our study confirm that migraine without aura is associated to oxidative stress and suggests that d-ROMs test and BAP test can be useful to identify an oxidative unbalance in clinical routine of patients suffering from this frequent disease. Our data suggest that oxidative stress may represent a key event in the pathophysiology of migraine and a suitable therapeutic target. Further knowledge about this issue may contribute the cause and complications of migraine and may be essential for development of treatment approaches.