OXIDATIVE STRESS IN ALZHEIMER`S DISEASE PATIENTS – STUDY USING DROMS AND BAP TEST

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[Purpose]

The oxidative stress and biological antioxidant potential of Alzheimer`s disease (AD) patients were measured using a free radical elective evaluator (FREE).

[Subjects and methods]

The subjects consisted of 48 untreated AD patients examined at the Department of Geriatric Medicine of the Hachioji Medical Center .

All subjects underwent an Alzheimer`s Disease Assessment Scale-cognitive component-Japanese version (ADAS-Jcog) , oxidative stress was assessed by measuring serum dROM levels , BAP (biological antioxidant potential) and BAP/dROM ratio using FREE, and correlations between ADAS scores and oxidative stress indicators were tested. Degree of dementia was determined by using ADAS scores to categorize the subjects into three groups consisting of a mild (ADAS score: 0-9), moderate (Score: 10-19) and advanced group (Score: 20 or higher) , and analyzing variance for dROM levels, BAP and BAP/d-ROM ratio among each group.

[Results]

The average ADAS-Jcog score was 15.1. The average values for d-ROM levels, BAP and BAP/d-ROM ratio were 441.8, 2497.1 and 6.06, and when compared with each of their reference values, d-ROM levels indicated severe oxidative stress while BAP values indicated appropriate biological antioxidant potential. There was a negative correlation between ADAS scores and BAP values ($r=0.313$, $P=0.03$). An analysis of variance among the three groups yielded a relationship such that BAP/d-ROM ratio was significantly higher in the advanced group in a comparison between the mild group and advanced group ($P=0.048$).

[Conclusion]

Elevated d-ROM levels and normal BAP values suggest an increase in oxidative stress accompanying chronic inflammation.