

**Conclusions.** Based on the obtained results it can be concluded that the vascular process is universal and additional negative factor inducing different clinical forms of dementia. Cognitive decline in patients with cerebrovascular disease and cerebral amyloid angiopathy associated with numerous CMB with 1,5 Tesla MRI, but the multiple CMB is an independent predictor of cognitive decline.

#### References

1. Gregoire S.M., Smith K., Jäger H.R. Cerebral Microbleeds and Long-Term Cognitive Outcome: Longitudinal Cohort Study of Stroke Clinic Patients // *Cerebrovasc. Dis.* – 2012. – № 33. – P. 430–435.
2. Auriel E., Greenberg S.M. The Pathophysiology and Clinical Presentation of Cerebral Amyloid Angiopathy // *Curr. Atheroscler. Rep.* – 2012.
3. Jacques De Reuck, Vincent Deramecourt, Charlotte Cordonnier. Prevalence of small cerebral bleeds in patients with a neurodegenerative dementia: A neuropathological study // *Journal of the Neurological Sciences.* – 2011. – № 300. – P. 63–66.
4. Werring D.J., Gregoire S.M., Cipolotti L. Cerebral microbleeds and vascular cognitive impairment // *J. Neurol. Sci.* – 2010. – № 299. – P. 131–5.

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#### ESTIMATION OF NORMAL NITROTYROSINE LEVEL IN HUMAN BLOOD PLASMA

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Now a day many papers are dedicated to investigation of oxidative stress as a main pathogenesis component of different human diseases [1]. This pathological state is associated with misbalance between lypoperoxidation intensity and antioxidant reserves. On the other hand oxidative stress mechanisms include some additional substances, such as nitrosative stress products, lipids and chlorine-contained bioradicals, but pathological and physiological role of these components are not studied fully [2, 3]. In addition, there on many informative methods and parameters, estimating level of oxidative and nitrosative stress.

Nitrotyrosine, forming as result of nitroxilation of blood proteins and oligopeptides, is the one of stable end products of nitrosative stress [3]. That is why this parameter can be its informative laboratory marker, but real physiological level of investigated substance is discussed [1-3].

The aim of this paper is estimation of nitrotyrosine concentration in blood plasma of healthy people.

**Material and methods.** We studied samples of conserved blood serum of 15 healthy people (blood donors). Estimation of nitrotyrosine level was ex-

ecuted with special ELISA kit (Hycult Biotech) [2]. Spectrophotometric investigations were carried out with «PowerWave XS» apparatus (USA). From the experiment moment donors' blood plasma was stored at standard refrigerator temperature (0-4°C). Refreezing of blood samples was accomplished with typical protocol during 2,5-3 hours. Calibration curve was founded by use of standard calibration procedure with diluted testing solution for rated formula getting. Final level of blood serum nitrotyrosine was calculated with last one.

Statistic processing of the data was accomplished by the programs Microsoft Excel 2003 and Primer of Biostatistics 4.03. The descriptive statistics data is shown in the article.

**Results.** It was stated, that physiological plasma concentration of nitrotyrosine in blood serum of healthy people is  $9,38 \pm 2,69$  nM. This parameter reference interval in from 5,13 to 14,5 nM. These data from our experiments can refine published information about physiological interval, including 3-40 nM plasma nitrotyrosine as normal level [2]. Indicated specialties of substance level may be caused by used preservative.

It is interesting, that there are two groups of patients with low (over 5 nM) and high (over 13,5 nM) level of blood serum nitrotyrosine. We supposed there are different nitroxilation level of tyrosine and tyrosine-contained proteins in blood plasma of healthy people. It can be associated with various concentrations substrates for nitrogen reactive species effect.

**Conclusion.** So, nitrotyrosine level in blood plasma of healthy human is very low, but it illustrates presence of nitroxilation processes in investigated biological substrate under physiological conditions. On our opinion, registration of plasma nitrotyrosine level can be a marker of nitrosative stress in vitro and in vivo. Different agents (exogenic nitric oxide, some prooxidants etc.) or pathological conditions (intoxication, metabolic disorders, traumas and others) may caused stimulation of nitroxilation processes in vivo, leading to NO-dependent molecular and cellular damage without compensation mechanisms.

#### References

1. Sajdel-Sulkowska E. et al. Potential role of oxidative stress in mediating of the effect of altered gravity on the developing rat cerebellum // *Adv. Space Res.* – 2007. – Vol. 40. – P. 1414-1420.
2. ter Steege J. et al. Nitrotyrosine in plasma of celiac disease patients as detected by a new sandwich ELISA // *Free Rad. Biol. Med.* – 1998. – Vol. 25. – P. 953.
3. Whiteman M. et al. Lack of tyrosine nitration by hypochlorous acid in the presence of physiological concentrations of nitrite. Implication for the role of nitryl chloride in tyrosine nitration in vivo // *J. Biol. Chem.* – 2003. – Vol. 278. – P. 8380.

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