

ABSTRACT TITLE:

## CONTENT OF NO REACTIVE -SH AND SUPEROXIDE DISMUTASE ACTIVITY IN CSF OF ALS PATIENTS

Z.Marinković(1), A.Nikolić(2), A.Radunović(3), S.Stojanović(4), D.Bлагоjević(2),  
V.Niketić(4), S.Apostolski(1) and M.B.Spasić(2)

- (1) Institute of Neurology, School of Medicine, University of Belgrade, Yugoslavia
- (2) Institute for Biological Research, "Siniša Stanković", Department of Physiology, Belgrade, Yugoslavia
- (3) Department of Clinical Neurosciences, Institute of Psychiatry and King's College School of Medicine and Dentistry, London, UK.
- (4) Faculty of Chemistry, Department of Biochemistry, Belgrade, Yugoslavia

The discovery of mutations in the CuZn superoxide dismutase (SOD) gene in familial ALS implicates oxidative stress in the pathogenesis of this disorder. Recent findings have shown that nitric oxide ( $\cdot\text{NO}$ ) is not produced from nitric oxide synthase (NOS) without cooperative action of NOS and SOD, give an additional explanation for initiation of free radical chain reactions. It is possible that in case that not enough  $\cdot\text{NO}$  is produced in motor neurons other reactive species, nitrous oxide ( $\text{N}_2\text{O}$ ) and hydroxylamine ( $\text{NH}_2\text{OH}$ ), and an excess of reactive oxygen species (ROS), such as hydrogen peroxide ( $\text{H}_2\text{O}_2$ ), can delay initiation of free radical chain reactions until capacity of antioxidative defense capacity is restrained due to inhibition of its components.

The aim of this study was to investigate the content of -SH groups and SOD activity in cerebrospinal fluid (CSF) both in ALS patients and control group, as well as to perform an *in vitro* test for CSF  $\cdot\text{NO}$  binding capacity, in same examines. Nitric oxide for *in vitro* testing was provided by adding 40% sodium nitrite solution in the solution of 10% ferrous sulfate in 50% sulfuric acid.

Our results showed significant increase -SH content in CSF of ALS patients in comparison with control group ( $114 \pm 29$  nmol -SH/mg proteins in CSF of ALS patients compared with  $37 \pm 12$  nmol -SH/mg proteins in CSF of controls)( $p < 0.05$ ). After *in vitro* saturation of CSF with  $\cdot\text{NO}$ , we noted the significant decrease of -SH content which was not found in control group. We also found that SOD activity in CSF of ALS patients was higher than in control group ( $16.1 \pm 2.8$  U/ mg CSF proteins of ALS patients compared to  $10.2 \pm 2$  U/ mg CSF proteins of control group).

These results may confirm an increased ROS production in ALS patients without increased  $\cdot\text{NO}$  production.

Name of author who will present the Paper/Communication/Poster

Submission for	Platform presentation (20 min/12 slides)	]
	Communication (10 min. platform presentation/6 slides)	]
	Poster presentation	]

For information to MARGARET HALL, MND ASSOCIATION UK, PO BOX 246, NORTHAMPTON NN1 2PR, UK

DEADLINE: ALL ABSTRACTS MUST ARRIVE AT THE MND ASSOCIATION BY THURSDAY 16 MAY

An electronic version of this form is available at <http://www.mnd-uk.org>