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EFFECTS OF NICOTINOIL L-PROLINE ON CEREBROCORTICAL MICROCIRCULATION NETWORK IN ACUTE CEREBRAL ISCHEMIA

AGHAMALYAN I.H.¹, TOPCHYAN H.V.², KHACHATRYAN P.S.³, KARAMYAN S.T.¹,
CHOPIKYAN A. S.⁴, CHITCHIYAN A.A.^{1*}, VERDYAN M.K.¹, BALASANYAN M.G.¹

¹Department of Pharmacology, Yerevan State Medical University after M.Heratsi, Yerevan, Armenia

²Department of Drug technology, Yerevan State Medical University after M.Heratsi, Yerevan, Armenia

³Department of Pathology, Yerevan State Medical University after M.Heratsi, Yerevan, Armenia

⁴Department of Public Health, Yerevan State Medical University after M.Heratsi, Yerevan, Armenia

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ABSTRACT

Based on participation of neurochemical compounds of brain, including neuroactive amine acids in regulation of cerebral circulation, in our previous study it was discovered the stimulating effects of new synthesized dipeptide - nicotinoyl prolin on impaired after ischemia brain blood flow. It was demonstrated, that nicotinoyl prolin increases local cerebral circulation in brain cortex without any changes from systemic blood pressure.

The aim of presented study was to investigate the details of cerebrovascular activity of nicotinoyl prolin by evaluation of its effects on cerebrocortical microcirculation. In this purpose it was evaluated morphology changes on capillary network of brain cortex after acute ischemia, caused by left common carotid artery occlusion. Obtain results by non-injectional calcium adenosinetryphosphate method for evaluation of cerebrocortical capillary network density evident, that left common carotid artery occlusion is accompanied by noticeable decrease in mean diameter of all types of capillaries and the ratio of cortical network capillaries number with various diameter, which was prevented by intraperitoneal injection of nicotinoyl prolin in dose 10 mg/kg. Under the condition of acute disorder of cerebral blood circulation, caused by left common carotid artery occlusion, in animals treated by nicotinoyl prolin it was registered the increasing of mean diameter of all capillaries and number of functioning capillaries with simultaneous decreasing number of compressed and permeable only for plasma capillaries compare with ischemia.

Thus, obtained data indicated, that one of the possible ways of brain blood flow stimulation by nicotinoyl prolin could be its ability to improve the disturbed during acute ischemia cerebral microcirculation.

KEYWORDS: nicotinoyl L-proline, cerebral microcirculation, left carotid artery occlusion, acute cerebral ischemia

INTRODUCTION

Despite the wide range of drugs for the correction of cerebral blood circulation, cerebrovascular disorders remain a leading cause of long-term disability, and the second leading cause of death worldwide [Benjamin E et al., 2017; Feigin V et

al., 2019]. That's why the search for effective and safe drugs which are using for the treatment of cerebrovascular disorders, continues to be the one of main task of modern medicine.

Taking into account that among the activated

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ADDRESS FOR CORRESPONDENCE:

Alisa A. Chitchyan, PhD, Senior Lecturer
Department of Pharmacology, Yerevan State Medical University after M.Heratsi, 2 Koryun street, Yerevan 0025, Armenia
Tel.: (+374 95) 288-299, (+374 96) 288-289
Tel.: (+37495) 288 299 (+37496) 288 289
E-mail: alisaruda@mail.ru