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**Title:** Duplex scanning of cerebral vessels in patients with chronic smoking

Prof. Dr Vera 12185 Nevzorova nevzorova@inbox.ru MD , Dr. Natalia 12186 Zaharchuk zaharcuknat@mail.ru , Mrs. Elena 12187 Gonchar lav2008elena@yandex.ru and Mrs. Natalia 12188 Sarafanova sarafanovanat@mail.ru . <sup>1</sup> Department of Therapy, Ultrasound and Functional Diagnostics, Pacific State Medical University, Vladivostok, Russian Federation .

**Body:** 47 smokers were divided into two groups and examined. The first group included 34 people with COPD stage I-III, the average age of 59.3, with smoking duration of 35.6 years, smoking index (SI) is 311.3. The second group comprised 13 smokers without COPD with an average age of 50 years, smoking duration 22.5 years, SI 240. The intima-media thickness (IMT) of the carotid artery (CA) and the average flow velocity in the middle cerebral artery (MCA) were estimated with help by transcranial duplex sonography. It was found that the IMT of CA was significantly higher in patients with COPD (1.24 and 1.0,  $p < 0,05$ ). In the first group, 66.6% of patients had plaques with vessel's stenosis of 42.5%. Plaques were detected in 50% of patients with stenosis of 20% in the group without COPD. When assessing the cerebral blood flow in patients without COPD, it was showed reduction in mean blood flow velocity in the MCA in comparison with normal (62.2 and 88-96 cm /s,  $p < 0,5$ ). It was showed reduction compared with normal in COPD stage I-II, but not significantly different from those of patients without COPD (72, 9 and 62.2 cm/s,  $p > 0,5$ ). However, an increased mean blood flow velocity of 180 cm/ s due to the presence of hemodynamic CA stenosis was showed in patients with COPD stage III. So, all smoking patients have signs of carotid atherosclerosis. With COPD progression, a higher rate of occurrence of plaque formation and progression of atherosclerosis until the development of hemodynamically significant stenoses in stage III was found. In patients without COPD and COPD I-II the mean blood flow velocity in the MCA is reduced. In stage III COPD the increased men speed in the MCA is caused by compensation.