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AMYLOIDOSIS IN AORTA WALL AND HEART VALVES AFFECTED BY ATHEROSCLEROSIS

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Cardiovascular system diseases (CVS) cause about 66% of deaths among population in our country. They also are one of the major death causes among people of working age (30%) [Report on health in Europe, WHO Regional Office for Europe, 2006]. Amyloid deposits in heart tissues leads to variety of structural and functional disorders making it an important factor in cardiovascular diseases [Rybakova M.N, 2013]. Thus, the discovery and discrimination of amyloid deposits in heart tissues is the first and very important step in diagnosing severity of the heart diseases. One of the advanced techniques for amyloid discovery is the fluorescent microscopy using fluorescent dyes as Thioflavin and Congo red.

The goal of the present work is the discovery of amyloid deposits in different heart tissues suffered atherosclerotic transformations.

Materials and methods. The study was conducted on 68 cardiovascular tissue samples with signs of atherosclerosis. Tissues share by type is as follows: 24 samples of aortic wall, 22 samples of mitral valve, 17 samples of aortic valve and 5 samples of tricuspid valves. Paraffin blocks were made using to traditional techniques. Histological sections of 3-4 μm thicknesses were deparaffined then incubated in 1% aqueous solution of Thioflavin S (Thio-S) for 8 minutes at room temperature. Then glasses with slices were washed 3 times in 80% ethanol for 1 minute and 1 time in 95% ethanol for 1 minute. Under ultraviolet excitation Thio-S gives yellow-green luminescence in the range $\lambda = 360\text{-}380$ nm. After washing 3 times with distilled water, slices were coverslip in aqueous mounting media. Fluorescent microscopy was performed on Carl Zeiss Axio Imager Z1 ApoTome.

Results. The study of tissue samples shows that cardiovascular amyloid deposits are present in 83.3% of aorta walls, 72.7% of mitral valves and only in 20.0% of tricuspid valves. As a rule amyloid deposits were accompanied with long going atherosclerotic process and mineralization. The connection between amyloid deposits and atherosclerosis requires further detailed investigations.