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Pathomorphology of coronary heart disease at diabetes

ABSTRACT

Autopsy protocols with diabetes mellitus are studied with certifying causes of death, macroscopic and histological changes in a heart. Ischemic heart disease was considered to be the most common cause of death of these patients. Myocardial infarction at diabetes mellitus was noted more frequently at women, differed by frequency of atypical forms, aneurysm and breaks.

Keywords: diabetes mellitus, ischemic heart disease, myocardial infarction

The problem of diabetes mellitus remains universal for modern health protection in connection with steady growth of frequency in the whole world, by heavy clinical displays and vascular complications, resulting in death. Diabetes mellitus increases annually on 6-10%, in this connection the common amount of patients in many regions of the Russian Federation amounts to 2-4% of all population [1, 2, 5]. The medical social value of diabetes mellitus is determined by greater damage that it inflicts to a society as a lifelong chronic disease with higher degree of disability. In spite of plenty of researches, the separate aspects of this pathology continue to attract attention of scientific and practical doctors, including cardiovascular complications, particularly ischemic heart disease. [3, 4]. The defeats of heart at diabetes mellitus is observed so frequently, that it was named "Diabetic heart" [4, 5].

Taking into account the actuality of this pathology, **the aim of the research** was to study features of ischemic heart disease at diabetes mellitus.

This research is carried out in the Centralized pathoanatomical bureau of the Ministry of health in the Kabardino-Balkarian republic. 365 protocols of dissections of the dead with diabetes mellitus are studied in medical establishments of Nalchik city with the purpose to reveal causes of death, macroscopic and histological changes in a heart.

In the studied material ischemic heart disease was the most frequent reason of death at patients with diabetes mellitus (37,8%). Ischemic heart disease was observed, as well as usually, in age older 40, most often at 60-69 aged women (60,1%), that is explained by more frequent manifestation and other risk (high blood pressures and obesities) factors. In our material a hypertensive syndrome was present in 41,3% women and only in 30,8% of men. Combination of diabetes mellitus obesity is marked in 32,5% women and 15,4% men.

The analysis of frequency of ischemic heart disease at diabetes mellitus depending on its type showed that diabetes mellitus IHD type I was revealed in 13,1%, while diabetes mellitus

type II was in 86,9%. The amount of the dead with ischemic heart disease increased as far as longer duration of diabetes mellitus, although in 7,8% it was diagnosed as a new onset during the last hospitalization. However in the majority of them the morphological study of pancreas and buds testified to considerable duration of disease due to late diagnostics. Ischemic heart disease is more often observed at higher and middle severe forms of diabetes mellitus.

Forms of ischemic heart disease in the dead with diabetes mellitus were as follows: acute myocardial infarction in 29,1%; repeated and recrudescing myocardial infarction in 36,8%; chronic ischemic heart disease is in 33,3%. Chronic ischemic heart disease was presented by heart post-attack cardio sclerosis and chronic aneurysm.

Occlusive blood clots in coronal arteries at myocardial infarction were discovered in 54,3%. All of them arose up on background of expressed stenotic coronary sclerosis. More often blood clots were in downleg left coronal artery (22,8%), then in the right (18,4%) and rarer in the circumflex branch left (11,1%).

Transmural heart attacks were noted most often (68,1%). Of them intramural myocardial infarction amounted to 26,8% and subepicardial - 5,1%.

In 30,4% heart attacks are localized in the anterior wall of the left ventricle with involving in process between ventricular septum and apex; 27,3 - in the inferior and posterolateral walls of the left ventricle; 17,4% - in the anterolateral walls of the right ventricle.

The heart attacks of the anterior (6,5%) and inferior ((8,7%) walls of both ventricles were marked also with engaging in the process of papillary muscles and intraventricular septum. In addition the total heart attack of the left ventricle (of 5,4%) and isolated heart attacks were noted: intraventricular septum (of 3,2%) and papillary muscle (of 1,1%).

The high incidence rate of aneurysm in transmural myocardial infarction at diabetes mellitus was noted (36,9%). Of them acute aneurysm was in 21,7%, chronic in 11,9%, acute in combination with chronic in 3,3%. Acute aneurysm ruptures were observed in 8,1% of the total amount of myocardial infarction. Interior ruptures were revealed as well: a rupture of intraventricular septum and detachment of papillary muscle.

The clinical diagnostics of myocardial infarction at patients with diabetes mellitus often caused difficulties and at 18,4% they were not recognized. Probably, it was related to frequency of atypical forms of myocardial infarction (29,3%). Gastric form was the most frequent (11,9%). In this case pancreatitis, food poisoning, gastro enterocolitis, dysentery were diagnosed. At this form heart attack was usually localized in the interior wall of ventricles.



In 9,8% myocardial infarction of the painless form was noted, quite often patients were operated concerning the moist gangrene of lower limbs. There were also cases of cerebrovascular (5), asthmatic (1) and unrhythmic (1) types of myocardial infarction.

The ischemic stage of myocardial infarction was found out at the 8 dead, 4 of them had acute coronary insufficiency developed on the background of heart post-attack scars. In all these supervisions there was coronary sclerosis, and 6 of them had occlusive blood clots.

Macroscopically in myocardium no fresh affected foci were revealed on plane cuts, areas of uneven plethora were revealed only.

The diagnosis of myocardial infarction was confirmed after histological and histochemistry research. In the necrobiotic stage (48 supervisions) the visible myocardial infarction as foci of yellow-pink areas with layers of crimson color, with mat on the cut were observed. At the microscopic research in this stage at ordinary histological colourings the large fields of myocyte necrosis were observed distinctly.

In the reparative stage (the 26 dead) the affected focal area was exposed to organization. The granulation fabric was developed from the side of endocardium and epicardium and from the foci of remained muscular fibres in the layer of infarcted area.

In the granulation fabric there was a plenty of capillaries, desmocytes, macrophages and lymphocyte. As far as cicatrization the zone of heart attack was filled with connective tissue of different degree of maturity, the amount of capillaries diminished as well as cellular elements.

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