INCIDENCE AND SEVERITY OF ATHEROSCLEROSIS OF THE CORONARY ARTERIAL BRANCHES

Mihail TAŞNIC1, Ilia CATERENIUC2, Daniela CATERENIUC3, Elena COSTRU-TAŞNIC4

1Cardiologist, Medpark International Hospital, Chisinău, Republic of Moldova
2Prof. PhD „Nicolae Testemiţanu” State University of Medicine and Pharmacy, Chisinău, Republic of Moldova
3Resident Physician, Urgent Medicine Institute, Chisinău, Republic of Moldova
4Resident Physician, Neurology and Neurosurgery Institute, Chisinău, Republic of Moldova
Corresponding author: mihaitasnic@yahoo.co.uk

Abstract

Cardiac pathology registers the highest mortality rate among all the other diseases. The aim of the present study is to establish coronary artery segments with the most frequent localization of atherosclerotic lesions. The investigation showed that, most frequently, atherosclerotic lesions are localized at the level of the big coronary arteries, such as the anterior interventricular branch, right coronary artery and left circumflex artery. Similar values of vascular atherosclerotic lesions were found at the level of the Ist diagonal branch, possibly due to its hemodynamic features, similar to those of the anterior descendent branch.

Keywords: coronary vessels, atherosclerosis, severe narrowing.

1. INTRODUCTION

Cardiac pathology registers the highest mortality rate among all the other diseases. The issues related to the prophylaxy and treatment of cardiac diseases is extremely actual, requiring special attention for the elucidation of their etiology and pathogeneicity [1,4].

The progress recorded in cardiology calls for complex and detailed investigations on the structure, vascularization, inervation, features of the heart related to age and gender, at macro-, macromicro- and microscopic levels, all such information being of special importance for cardiology and cardiosurgery, and microsurgery, transplantology, thoracic surgery and other clinical and fundamental disciplines [2-5].

Scope of the study. To establish the coronary artery segments with the most frequent localization of atherosclerotic lesions.

2. MATERIALS AND METHOD

The degree of affection and the most frequent localization of the atherosclerotic plaques of the subepicardial arteries were evidenced by analyzing 400 coronarographic reports of patients having indications for coronarography.

3. RESULTS AND DISCUSSION

The left coronary artery. In 67 of the analyzed cases, the left coronary artery evidences narrowings of different types. An expressed degree of narrowing more than 50% appeared in 24.3% of the cases, which represents 4.25% of the total number of persons taken into study, the rest of the patients having narrowings not exceeding 50%.

The anterior interventriculary branch (LAD) was affected by atherosclerotic plaques in 41.5% of the analyzed cases, segment LAD II – 42.5 % and LAD III – 17% of the investigated patients. Out of the total number of narrowings, 27% were localized on LAD I direction. Advanced narrowings (more than 75%) were recorded in about 12% cases of the total group. In 7.2% of the cases, LAD I – was blocked – 3.25% of the total number of cases in the group. Severe narrowings along the LAD direction in its median segment were traced in 24.49 % of the cases of atherosclerotic disease of this vessel.

Diagonal branches. As to the diagonal arteries I – they evidence a narrowing which reduces the
INCIDENCE AND SEVERITY OF ATHEROSCLEROSIS OF THE CORONARY ARTERIAL BRANCHES

diameter of the vessel with more than 75%, i.e. 8.25% of the total protocols under analysis.

For the diagonal branch II, a substantial reduction of the vascular lumen represented 8%, namely 2.75% of the investigated group.

The right coronary artery evidences, in 86% of cases, a medium diameter and in 6% of cases, a small and large diameter.

The atherosclerotic affection of the segments of the right coronary artery (RCA) was discovered in 27% of cases for RCA I, 46% for RCA II and 20.5% for RCA III.

Severe lesions on the trajectory of the proximal segment of the right coronary artery have been found in about 13% of cases, which represents 3.5% of the general group analyzed. In 10% of cases, respectively 2.75% of all investigated protocols, the right coronary artery was blocked in its proximal segment.

The intermediary branch. In 16% of cases, the intermediary branch is affected by atherosclerotic lesions, of which 27% of the cases of atherosclerosis reduce the lumen of the vessel with more than 75%, which constitutes 4.5% of the total group under study. In 1% of all protocols analyzed, the intermediary branch was blocked.

The circumflex branch. In 36% of cases, coronary atherosclerosis is localized in the proximal segment of the circumflex artery, while in 23% of cases – in the distal segment. In 18% of the cases, the atherosclerotic lesions reduced with 75% the diameter of the vessel. The distal segment shows major narrowings in 23% of cases or in 5.5% of the general group (table 25).

The cases of occlusion of the proximal or distal segment represented 3.4% and, respectively, 17.8%, namely 1.25% and 4.25% of the number of patients under study.

The marginal branches. The incidence of significant lesions for the marginal branch I represented 27%, namely 6.75% of the total number of examined patients. In the case of marginal branch II, the narrowings which exceeded 75% represented 37%, or 6.7 % of the general group of study. The marginal branch III evidenced major narrowings in 31% of cases - 1.5% of all studied cases.

The incidence of occlusions in the marginal branch I represented 5%, 16% in the second marginal branch and 6% in the case of MIII.

The posterior descending branch presents atherosclerotic lesions in 5.25% of cases, of which 14.3% were the lesions of 75-90%, i.e. 0.75% of the total number of studied cases. The occlusions of this branch were evidenced in 0.5% of all cases under analysis.

4. CONCLUSIONS

The investigation showed that, most frequently, atherosclerotic lesions are localized at the level of the big coronary arteries, such as the anterior interventricular branch, right coronary artery and left circumflex artery. Similar values of vascular atherosclerotic lesions were found at the level of the 1st diagonal branch, possibly due to similar hemodynamic features with the anterior descendent branch.

References
4. De Winter RJ, Kok We, Piek JJ. Coronary atherosclerosis within a myocardial bridge, not a benign condition. Heart. 1998;80(1):91-3.