Atherosclerosis: Its Affinity For Different Coronary Arteries And Their Sites

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Abstract

Background-Atherosclerosis of coronary arteries is a common phenomenon seen to be prevalent worldwide.

Methods-This was observational type of analytical study. A consecutive series of 100 adult patients having mean age range between 35-60 years referred to the Cardiovascular Centre for coronary angiography was included.

Results- Out of 100 cases showing the occlusion, the most common artery to show a block was LAD (74), followed by RCA (23). The least common vessel to show an occlusive lesion was left main coronary artery (LMCA).

Conclusion-The LAD was the artery found most commonly to be involved in the occlusive lesion, followed by the RCA. Similarly, irrespective of the vessel, it was the proximal segment of the arteries found to be most commonly involved in the occlusive process

Keywords: Atherosclerosis, Coronary, Arteriography, LAD, RCA.

Introduction

Blood supply of heart is through the right and left coronary arteries arising from the ascending aorta in its anterior and left posterior sinuses. The two arteries, as indicated by their name, form an oblique inverted crown, in which an anastomotic circle in the atrioventricular groove is connected by marginal and interventricular (descending) loops intersecting at the cardiac apex.[1] Atherosclerosis is a common phenomenon, which is seen with various prevalences in different races. According to its definition, it is a disease of elastic vessels (aorta, carotid, iliac, coronary, etc.). Atherosclerosis of coronary arteries and myocardial infarction are the most common fatal cardiac diseases found in autopsies.[2] More than 90% of patients with IHD have atherosclerosis of one or more of the coronary arteries. Clinically significant stenosing plaques may be located anywhere within the different coronary vessels but tend to predominate within the first several centimeters of the left anterior descending (LAD) and left circumflex (LCX) arteries, and along the entire length of the right coronary artery (RCA).[3] A stenotic lesion located at a more proximal level of the coronary arterial system reduces blood flow in a larger area of myocardium, resulting in a more pronounced ischemic response to exercise than a similar lesion located more distally.[4] Careful, important, and informing studies on the anatomy of coronary arteries in both normal and pathologic human hearts have been pursued for many years. Modern myocardial revascularization procedures require complete diagnosis which should indicate the localization, extent and severity of the disease, the

presence and significance of the collateral circulation and the status of the left ventricular myocardium. Coronary arteriography in conjunction with hemodynamic and contrast studies of the left ventriclefulfill these requirements and can guide us to the appropriate selection of patients for coronary surgery.[5]

Materials and Method

This was observational type of analytical study. A consecutive series of 100 adult patients having mean age range between 35-60 years referred to the Cardiovascular Centre for coronary angiography was included. Patients with diagnosed anomalous coronary arteries were excluded from the study. The parameter under consideration was, Vessel showing the occlusive lesion and its site.

The data obtained from the angiographic procedure of the patients was analysed for the above parameter, charted, compared and contrasted with that given in literature and other studies.

Observations and Results

Observations on the localization of occlusive lesion in coronary arteries revealed that out of 100 cases showing the occlusion, the most common artery to show a block was LAD (74), followed by RCA (23). The least common vessel to show an occlusive lesion was left main coronary artery (LMCA).

Table 1. Number of localization of atherosclerotic process in major coronary arteries.

RCA	23
LAD	74
LMCA	3

Table no.2. Distribution of the occlusive lesions at various sites of the coronary arteries

	Proximal	Middle	Distal	Ostial
RCA	11	9	2	1
LAD	54	16	2	2
LMCA	2	1	0	0

Table 2 shows that for all the major coronary arteries, it was the proximal segment of the artery which showed the presence of occlusive lesion most commonly. The middle segment of the arteries was the second most common site where the lesions tend to cluster. The ostia of the coronary arteries were the least common site to show the lesion.

Discussion

In the present study, LAD was the most common artery to show the occlusive lesion 74 (74%) followed by the RCA 23 (23%). This was in accordance with the study done by Chen Shao Liang [6] which also showed the LAD to be the most commonly involved vessel in occlusive lesion 54(40.9%) followed by RCA 51(38.6%). A similar view was shared by J Golshahi,[2] who found most lesions to be located in LAD (19.6%) followed by the RCA (13.7%). The anterior descending artery has been considered as the artery most frequently and severely affected by the atherosclerotic process. However the study done by G G Gensini[5] showed the RCA to be most commonly involved vessel by the occlusive lesion 91(91%) followed by LAD 83(83%).

As far as the preferred sites for occlusive lesions within the individual branches is concerned, it was the proximal segment of the artery where the disease most commonly was found to cluster. Similar finding of preference of the proximal segment of coronary arteries to the occlusive lesion was reported by G G Gensini,[5] Hitoshi Nakagawa,[6] Kim Seong Hwan[7] and Abel E. Moreyra.[8]

Summary and Conclusion

The LAD was the artery found most commonly to be involved in the occlusive lesion, followed by the RCA. Similarly, irrespective of the vessel, it was the proximal segment of the arteries found to be most commonly involved in the occlusive process.

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