Contributing Factors to Abnormal Angiographic Findings in Coronary Vessels

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Abstract

Background: In this study, factors contributing to abnormal angiographic findings in coronary vessels were evaluated in a training heart center in Tehran, Iran.

Methods and Materials: In this cross-sectional study, 280 patients under angiography in a training heart center in Tehran, Iran, in 2012 were enrolled and the frequency distributions of demographic characteristics and clinical factors were evaluated and compared between patients with and without abnormal angiographic findings to determine the factors contributing to abnormal angiographic findings.

Results: The contributing factors to abnormal angiographic findings in coronary arteries were older age, higher Body Mass Index, higher systolic blood pressure and pulse rate, lower ejection fraction, history of hypertension and dyslipidemia, typical chest pain, and ST elevation in the EKG (p value < 0.05).

Conclusions: It may be concluded that coronary artery disease is a multi-factorial disease and demographic, clinical, electrocardiographic, and echocardiographic characteristics as well as previous history of some diseases are effective in its development.

Keywords: Angiography■ Coronary artery■ Contributing factors

Introduction

Myocardial infarction (MI) is the leading cause of morbidity and cardiovascular mortality.[1, 2] Sedentary lifestyle, urbanization, and unhealthy habits have led to an increasing trend of MI in most developing and developed countries. [3-5] A reduction in disease burden would require a comprehensive cooperation between the general population and health-sector managers; this objective is not feasible unless the risk factors for coronary artery disease are determined and modified and healthy habits are promoted in communities.[6-8] Determination of the risk factors for coronary artery disease would help both patients and physicians to reduce the incidence of the disease via well-defined and practical programs.[9, 10] In addition, the recognition of the prognostic factors for coronary artery disease is an important issue in secondary prevention strategies such as screening goals.[11-13]

Accordingly, the present study was performed to determine the factors to contributing abnormal angiographic findings in coronary vessels.

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In this cross-sectional study, 280 consecutive patients under angiography in a training hospital in Tehran, Iran, in 2012 were enrolled and the frequency distributions of demographic characteristics and clinical factors were evaluated and compared between patients with and without abnormal angiographic findings so as to determine the factors contributing to abnormal angiographic findings.

After data collection was completed, data analysis was performed among the 280 patients. Data analysis was performed by SPSS (version 13.0) software (Statistical Procedures for Social Sciences; Chicago, Illinois, USA). Theindependent-sample T, exact-Fisher, and chi-squared tests were used for comparison between the groups, and a p value <0.05 was considered statistically significant.

Results

Among the male patients, 68.1% and among the female subjects 75.5% had abnormal findings in angiography. Except for diastolic blood pressures, all the other variables showed a significant difference between the two groups (Table 1).

Table 1- Comparison of baseline data between the two groups

Variable	Normal Cath.	Abnormal Cath.	P value
Age	53.6	59.9	0.0001
BMI	27.8	28.9	0.022
SBP	122.1	139.1	0.0001
DBP	78.3	80.4	0.155
PR	71.6	77.2	0.0001
EF	51.1	47.5	0.001

Smoking, hypertension, and dyslipidemia were the most common risk factors associated with abnormal angiographic findings, showing a statistically significant difference (Table 2).

Table 2- Comparison of risk factors between the two groups

Risk Factor	Normal Cath.	Abnormal Cath.
Diabetes	8	10
Hypertension	21	98
Obesity	16	19
Dyslipidemia	7	28
Smoking	14	67

Atypical chest pain was the most common symptom associated with abnormal angiographic results (Table 3). The most common electrocardiographic findings correlated with abnormal angiographic results was ST depression (p value=0.0001).

Table 3- Comparison of symptoms and signs between the two groups

Symptom	Normal Cath.	Abnormal Cath.
Typical chest pain	9	144
Atypical chest pain	36	19
Dyspnea	18	28
Non-Anginal	7	10

Discussion

In this study, all variables except diastolic blood pressure and sex were associated with abnormal angiographic results. Silbiger et al.14 reported that higher age, male sex, and diabetes history were the most potent risk factors for coronary involvement. Of all these variables, only sex was not allied to abnormal angiographic findings in our study. The Aygul et al.15 study found a positive effect by smoking, which was also observed in our study. Yildirim and colleagues16 demonstrated that age, smoking, positive family history, and dyslipidemia were factors that can increase the chance of abnormal angiographic results. All these variables were among the factors contributing to abnormal angiographic findings in our study. Another study in Greece[17] reported that smoking, dyslipidemia, diabetes, family history, and hypertension had modifiable associations with angiographic findings; these findings chime in with those of our study. Koz et al.[18] compared the distribution of different factors in those with and without abnormal angiographic results and found smoking to be a prominent risk factor. According to the Lamm et al.[19] study, dyslipidemia, hypertension, obesity, and smoking were related to abnormal angiographic findings; these findings are consistent with those of the present study. Along the same line as the findings of the current study, Bertrand et al.[20] showed that smoking, hypertension, obesity, diabetes, and dyslipidemia were the most important factors associated with abnormal angiographic findings. Sclavo et al.[21] reported a higher frequency of abnormal angiographic findings in women, which contradicts our results. Ungureanu et al.[22] reported higher rates of abnormal angiographic results in the elderly. Discrepancies between the results of the aforementioned studies may be in consequence of the recruitment of dissimilar study populations.[23] With respect to age, both of the above-mentioned studies are in agreement with the current study, however.

For all the different studies conducted hitherto to recognize risk factors for abnormal angiographic findings and accordingly devise appropriate programs for risk reduction, preventive works have been performed only in one third of high-risk patients; this underscores the significance of the results of studies such as the current one.[24, 25]

Overall, in light of the results of the present study, it may be concluded that coronary artery disease is a multi-factorial disease and demographic, clinical, electrocardiographic, and echocardiographic characteristics as well as previous history of some diseases are effective in its development. Table 4 demonstrates the prognostic value of some angiographic results.

Table 4- Classification of predictive ability by angiographic results

No RF/Non-Angina/NL ET	**Always NL**
1 RF/Non-Angina/NL ET	**Probable**
1-2 RF/Atypical Chest Pain/NL or ANL ET	**Possible**
> 2 RF/Typical Chest Pain/ANL ET	**Always ANL**

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