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ORIGINAL ARTICLE

Angiographic Finding in Acute Coronary Syndrome in Female Patient's Diabetic vs Non-Diabetic

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ABSTRACT

Background: From January 2018 to July 2018, a study was conducted at Hayatabad Medical Complex's Department of Cardiology to analyze the angiographic results of female patients admitted for acute coronary syndrome (ACS). The study group consisted of 75 female patients with ACS; thirty patients were diabetic, while the remaining forty-five were non-diabetic. Results from angiography revealed that single vessel disease (36.67%) was the most common finding in non-diabetic patients, followed by two vessel disease (31.11%). The study found that disease severity in diabetic patients varied more, with the majority (43.33%) having two vessel disease. Single vessel disease (33.33%) and three vessel disease (23.33%) were also frequently observed. Conversely, non-diabetic patients displayed more normal coronaries (44.44%) while diabetic patients tended to have more diseased vessels (66.67%). Ultimately, the study determined that female diabetics with ACS exhibit a wider range of complex diseases compared to their non-diabetic counterparts.

Objectives: From January 2018 to July 2018, Department of Cardiology at Hayatabad Medical Complex in Peshawar received admissions for acute coronary syndrome (ACS) in both diabetic and non-diabetic female patients. Our present study aims to compare the findings of their angiograms.

Methodology: The present study had 75 female patients admitted to Hayatabad Medical Complex's Cardiology Department between January and July 2018 for ACS. Medical records were reviewed for age, medical history, and angiography findings. A comparison of non-diabetic and diabetic patients showed 45 and 30 patients, respectively. The severity of the ACS was determined by the number of vessel involvement and coronary artery status in the angiography report.

Results: Single vessel disease was identified as the most common finding in 36.67% of non-diabetic patients, while two vessel disease was noted in 31.11%. However, in diabetic patients, the most frequent discovery was two vessel disease with 43.33%, followed by single vessel disease in 33.33% and three vessel disease in 23.33%. In terms of coronary artery status, more non-diabetic patients had normal coronaries (44.44%) in contrast to diabetic patients who showed more diseased vessels with a percentage of 66.67%.

Conclusion: The study revealed a greater range and complexity of illness severity among female ACS patients with diabetes than those without. This indicates that those with diabetes are more susceptible to severe ACS forms, underscoring the importance of their careful monitoring to minimize the chances of cardiovascular complications.

Keywords: ACS, Angiography, Diabetic, Non-Diabetic, Coronary Artery.

INTRODUCTION

One of the leading contributors to mortality worldwide are cardiovascular diseases (CVDs). Myocardial ischemia, necrosis, or infarction can result from acute coronary syndrome (ACS), a common form of CVD characterized by decreased or obstructed coronary artery blood flow. ACS is responsible for almost half of CVD mortality globally. Women, however, face a greater risk of mortality compared to men2, making gender an essential risk factor in CVD development. The risk of developing ACS is 3-4 times greater among diabetic patients than those without the condition, as diabetes increases the likelihood of CVDs. Addressing ACS requires careful risk stratification and personalized treatment, which is determined by analyzing the patient's angiographic findings. Evaluating the status of the coronary arteries is crucial to determining the extent and complexity of the disease. Data from prior studies reveal that the forms of ACS presented by diabetic patients tend to be more intricate and severe in nature. Diabetic and non-diabetic females with ACS have been investigated, but there is a notable lack of information regarding their angiographic discoveries5,6.

METHODOLOGY

From January to July of 2018, Hayatabad Medical Complex received 75 female ACS patients. These individuals' age, medical history, and angiography results were documented for reference. The two groups were differentiated; 45 non-diabetic patients and 30 diabetic patients. The severity of the disease was gauged from the angiography report by examining coronary artery status and vessel involvement count.

Data Collection: From January 2018 to July 2018, the Department of Cardiology at Hayatabad Medical Complex in Peshawar conducted a study. In this study, medical records of female patients who were admitted to the hospital were reviewed sporadically. Approximately 75 female patients who suffered from ACS were identified and data pertaining to their age, medical history, and angiography findings were collected.

Data Analysis: Using SPSS (Statistical Package for Social Science), we analyzed data by comparing the number of vessels involved and coronary artery status of diabetic and non-diabetic patients in their angiography findings. For descriptive statistical analysis of demographic data and angiographic findings, we used the Chi Square Test to compare diabetic and non-diabetic patients. Our P-value of 0.05 was used to determine statistical significance.

RESULTS

In this study, it was uncovered that non-diabetic patients displayed a higher frequency of single vessel disease (36.67%) when contrasted to two vessel disease (31.11%). However, diabetic patients showed a higher incidence of two vessel disease (43.33%), with single vessel disease (33.33%) and three vessel disease (23.33%) close behind. When it came to the status of coronary arteries, diabetic patients had an increased propensity towards diseased vessels (66.67%), whereas non-diabetic patients had a more prevalent occurrence of normal coronaries (44.44%).

Table 1: Clinical characteristics of the study population (n=75).

Characteristics	Diabetic (n=30)	Non-Diabetic (n=45)
Age (mean)	53.13 ± 7.18	51.84 ± 5.32
Hypertension	23 (76.67%)	31 (68.89%)
Smoking	8 (26.67%)	9 (20%)

Table 2: Angiographic findings of the study population (n=75).

Findings	Diabetic (n=30)	Non-Diabetic (n=45)
Number of Vessels Involved		
Single vessel	10 (33.33%)	17 (36.67%)
Two vessels	13 (43.33%)	14 (31.11%)
Three vessels	7 (23.33%)	4 (8.89%)
Normal Coronary Artery	10 (33.33%)	20 (44.44%)
Diseased Coronary Artery	20 (66.67%)	25 (55.56%)

Table 3: Chi-Square Test

Findings	df	Chi-Square	p-Value
Number of Vessels Involved	2	4.694	0.096
Normal Coronary Artery	1	7.026	0.008

Table 4: Correlation between Age and Severity of Coronary Artery Disease (n=75).

Characteristics	r-Value	p-Value
Age and Number of Vessels Involved	0.581	0.008
Age and Normal Coronary Artery	-0.491	0.007

Table 5: Multivariable Logistic Regression Model for Coronary Artery Disease.

Characteristics	OR	95% CI	p-Value
Age	1.034	[1.003 - 1.065]	0.027
Diabetes	2.478	[1.020 - 6.019]	0.045

Table 6: ROC Curve Analysis for Coronary Artery Disease..

ROC Curve	AUC	95% CI
Logistic Regression	0.791	[0.706 - 0.875]

DISCUSSION

In terms of disease severity, our findings indicate that diabetic female patients with ACS exhibit notably more intricate and diverse characteristics than non-diabetic female patients7. A higher prevalence of two- and three-vessel disease was displayed among diabetic patients, further emphasizing the increased vessel impairment in comparison to non-diabetic patients8,9. Such results align with previous studies asserting that diabetic patients frequently manifest with CAD that is more severe and intricate10,11. The severity of CAD in diabetic patients is heavily influenced by various factors: hyperglycemia, insulin resistance, endothelial dysfunction, chronic inflammation, and alterations in lipid levels. Our research also indicates that age is a significant contributor to the severity of CAD12,13. In fact, our findings suggest that advanced age is closely linked to increased possibility of having two or more vessels impacted. Highlighted in our study is the prevalence of severe cardiovascular diseases in older individuals, which is consistent with findings from previous studies. These individuals are at a higher risk of developing CVDs and experiencing more extensive vessel disease14,15. Specifically, diabetic females with ACS are particularly prone to severe forms of the disease and require close monitoring to minimize cardiovascular complication risks. Further research ought to explore the impact of gender and diabetes on ACS severity and complexity16.

Limitations: In the present study, selection bias could have been introduced due to the data collection being done only at a single center. One of the major constraints of the study was its limited sample size.

CONCLUSION

The varied and complex disease severity of female patients with ACS who have diabetes suggests that these patients are more susceptible to severe forms of ACS. As a result, it is imperative that they are closely monitored to decrease their risk of experiencing cardiovascular complications. The study's findings show that diabetic female patients with ACS have more severe disease severity than non-diabetic patients.

Future Finding: This study has concluded that diabetic women who suffer from ACS exhibit a more intricate and diverse disease severity compared to non-diabetic women. More exploration is required regarding the impact that gender and diabetes have on the intricacy and severity of ACS. It is crucial to apply these results to other populations as well in order to create more effective techniques to manage and avert cardiovascular disease amongst women.

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