

PREVALENCE OF ACUTE NSTEMI IN DIABETIC PATIENTS AT REHMAN MEDICAL INSTITUTE PESHAWAR, PAKISTAN

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Abstract

Diabetes mellitus (DM) is a significant risk factor for cardiovascular diseases, including acute myocardial infarction (AMI). Non-ST-elevation myocardial infarction (NSTEMI) poses diagnostic challenges due to its atypical presentation, particularly in diabetic patients. This study aims to investigate the prevalence of acute NSTEMI among diabetic patients at Rehman Medical Institute (RMI) in Peshawar, Pakistan. A retrospective analysis was conducted on medical records of diabetic patients admitted to RMI between January 1, 2023 to December 31, 2023. Patients diagnosed with NSTEMI were identified based on clinical criteria, electrocardiogram findings, and cardiac enzyme levels. Data on demographics, comorbidities, risk factors, and clinical outcomes were collected and analyzed. Among the diabetic patients, 105 (27.3%) did not have hypertension, whereas 280 (72.7%) had hypertension, with an odds ratio of 2.45 (95% CI: 1.61 - 3.73) for hypertension leading to NSTEMI. Smoking was present in 140 (36.4%) patients, showing an odds ratio of 1.92 (95% CI: 1.22 - 3.01) for smoking and NSTEMI. Additionally, 150 (39.0%) patients had a family history of heart disease, with an odds ratio of 1.78 (95% CI: 1.09 - 2.91) for family history and NSTEMI. The prevalence of NSTEMI increased with age: 33.3% in <40 years, 55.6% in 40 - 59 years, 83.7% in 60 - 79 years, and 69.2% in patients aged 80 or above. BMI showed a positive correlation with NSTEMI, with 40.3% of obese patients, 36.4% of overweight patients, and 20.8% of normal BMI patients experiencing NSTEMI. This study highlights the significant impact of hypertension, smoking, family history of heart disease, and advancing age on the prevalence of acute NSTEMI among diabetic patients. Strategies focusing on managing these risk factors are crucial in reducing the burden of NSTEMI in this high-risk population

INTRODUCTION

Acute Non-ST Segment Elevation Myocardial Infarction (NSTEMI) poses a significant challenge in the management of cardiovascular diseases, particularly in patients with diabetes mellitus (Prevalence and In-Hospital Outcomes of

Diabetes among Patients with Acute Coronary Syndrome in China: Findings from the Improving Care for Cardiovascular Disease in China-Acute Coronary Syndrome Project - PubMed, n.d.). Diabetes, characterized by impaired glucose

metabolism, is a major risk factor for the development and progression of coronary artery disease (CAD), the underlying pathology of NSTEMI. The prevalence of NSTEMI in diabetic patients is a topic of growing concern due to its substantial impact on morbidity, mortality, and healthcare resources (Roffi et al., 2016).

Diabetes mellitus, both type 1 and type 2, affects millions worldwide and is associated with a two- to four-fold increased risk of CAD compared to non-diabetic individuals. CAD is the leading cause of mortality in diabetic patients, and acute coronary syndromes (ACS), including NSTEMI, are common presentations. NSTEMI occurs due to partial or intermittent occlusion of a coronary artery, leading to ischemia and myocardial damage, but without complete occlusion seen in ST-segment elevation myocardial infarction (STEMI). Understanding the prevalence of NSTEMI in diabetic patients is crucial for several reasons. Firstly, diabetic patients are often underdiagnosed and undertreated for CAD, leading to delayed recognition and intervention during acute coronary events (Ibanez et al., 2018). Secondly, diabetic individuals with NSTEMI tend to have more extensive coronary artery disease, higher rates of multivessel involvement, and a greater burden of comorbidities, resulting in poorer outcomes compared to non-diabetic counterparts. Lastly, the management of NSTEMI in diabetic patients presents unique challenges, including the selection of appropriate pharmacotherapy, invasive versus conservative strategies, and the role of revascularization procedures.

Acute coronary syndrome (ACS) represents a spectrum of cardiovascular emergencies characterized by the sudden reduction or interruption of blood flow to the heart muscle. Within ACS, non-ST-segment elevation myocardial infarction (NSTEMI) is a common and serious manifestation. NSTEMI occurs when there is a partial occlusion or a complete blockage of a coronary artery, leading to myocardial ischemia and subsequent myocardial cell damage. NSTEMI is a critical condition with distinct clinical features and implications. Unlike ST-segment elevation myocardial infarction (STEMI), where there is a complete blockage of a coronary artery, NSTEMI presents with less severe but still significant ischemia. This results in characteristic symptoms

such as chest pain or discomfort, dyspnea, diaphoresis, and fatigue. However, the absence of ST-segment elevation on electrocardiogram (ECG) distinguishes NSTEMI from STEMI (Amsterdam et al., 2014).

The pathophysiology of NSTEMI involves the rupture or erosion of an atherosclerotic plaque in a coronary artery, triggering the formation of a thrombus that partially occludes the vessel. This process leads to the release of cardiac biomarkers such as troponin, indicating myocardial injury or necrosis. Management of NSTEMI involves a multifaceted approach aimed at reducing myocardial ischemia, preventing further complications, and improving outcomes. This typically includes antiplatelet therapy, anticoagulation, beta-blockers, statins, and invasive procedures like coronary angiography and percutaneous coronary intervention (PCI) as warranted.

NSTEMI carries significant morbidity and mortality, underscoring the importance of prompt diagnosis and effective management. Patients with NSTEMI are at increased risk of adverse cardiovascular events, including recurrent myocardial infarction, heart failure, and death. Therefore, understanding the clinical features, pathophysiology, and management strategies of NSTEMI is crucial for healthcare providers to optimize patient care and outcomes.

Acute non-ST-segment elevation myocardial infarction (NSTEMI) represents a critical subset of acute coronary syndrome (ACS) with significant clinical implications. Unlike ST-segment elevation myocardial infarction (STEMI), where there is complete coronary artery occlusion, NSTEMI arises from partial occlusion or severe narrowing of a coronary artery, leading to myocardial ischemia and subsequent myocardial injury. The clinical significance of NSTEMI lies in its association with adverse cardiovascular outcomes and increased mortality rates. Patients presenting with NSTEMI often experience symptoms such as chest pain, dyspnea, diaphoresis, and fatigue, although these may vary in severity and presentation. Despite the absence of ST-segment elevation on electrocardiogram (ECG), NSTEMI patients face a substantial risk of complications, including recurrent myocardial infarction, heart failure, arrhythmias, and death (Jellinger et al., 2017; Shaltout et al., 2023).

The pathophysiology of NSTEMI involves the rupture or erosion of an atherosclerotic plaque in a coronary artery, triggering the formation of a thrombus that partially occludes the vessel. This process results in myocardial ischemia and necrosis, leading to the release of cardiac biomarkers such as troponin, which serves as a diagnostic hallmark of NSTEMI. Given its clinical significance, the management of NSTEMI requires a comprehensive approach aimed at reducing ischemia, preventing complications, and improving outcomes. This often involves a combination of pharmacological therapies and invasive procedures, including antiplatelet agents, anticoagulants, beta-blockers, statins, and coronary angiography with potential percutaneous coronary intervention (PCI) or coronary artery bypass grafting (CABG). Understanding the clinical significance of NSTEMI is paramount for healthcare providers to recognize, diagnose, and manage this condition effectively (G. Zhao et al., 2024). Early identification and aggressive treatment strategies can mitigate the risk of adverse outcomes and improve patient prognosis. Therefore, this paper aims to explore the clinical significance of acute NSTEMI, emphasizing its impact on patient outcomes and the importance of timely intervention.

Objective

The objective of this study is to investigate the prevalence of acute Non-ST Segment Elevation Myocardial Infarction (NSTEMI) in diabetic patients.

METHODOLOGY

Study Design:

This cross-sectional study aimed to determine the prevalence of acute Non-ST Segment Elevation Myocardial Infarction (NSTEMI) in diabetic patients at Rehman Medical Institute, Peshawar.

Study Setting:

The study was conducted at Rehman Medical Institute, a tertiary care hospital located in Peshawar, Pakistan.

Study Duration:

Data collection took place over a period of one year, from January 1, 2023, to December 31, 2023.

Sample Size: The sample size of 385 comprised diabetic patients aged 18 years and above who were admitted to the hospital with acute NSTEMI during the study period.

Sampling Technique:

Consecutive sampling was employed to select patients meeting the inclusion criteria from electronic medical records.

Inclusion Criteria:

Patients included in the study were aged 18 years and above, diagnosed with diabetes mellitus, and admitted with acute NSTEMI during the study period.

Exclusion Criteria:

Patients with a history of previous myocardial infarction, incomplete medical records, or significant comorbidities other than diabetes were excluded from the study.

Data Collection:

Demographic and clinical data were collected from electronic medical records. This included age, gender, duration of diabetes, glycemic control (measured by HbA1c levels), presence of comorbidities (hypertension, dyslipidemia, obesity), and use of medications (antiplatelet agents, statins, antidiabetic drugs).

Data collection involved accessing the electronic medical records of Rehman Medical Institute to identify all patients admitted between January 1, 2023, and December 31, 2023, with acute Non-ST Segment Elevation Myocardial Infarction (NSTEMI). From this cohort, diabetic patients were selected based on documented history or medication use, while those with previous myocardial infarction, incomplete records, or significant comorbidities were excluded. Relevant data including demographic details, diabetes-related information, clinical parameters, management strategies, and clinical outcomes were extracted. This encompassed age, gender, duration of diabetes, glycemic control (HbA1c levels), comorbidities (hypertension, dyslipidemia, obesity), medications (antiplatelet agents, statins, antidiabetic drugs), clinical presentation, treatments administered, and clinical

outcomes. Trained personnel ensured data accuracy and completeness, resolving discrepancies by referring back to records. Ethical approval was obtained, and patient identifiers were removed for confidentiality.

Data Analysis Plan:

Descriptive statistics such as frequencies and percentages were used to describe the characteristics of the study population. The prevalence of NSTEMI among diabetic patients was calculated by dividing the number of NSTEMI cases by the total number of diabetic patients during the study period. Chi-square tests were performed to examine associations between variables. Statistical analysis was conducted using SPSS software version 26. Ethical approval was obtained from the institutional review board of Rehman Medical Institute.

Results

Demographic data of 385 patients included in this study revealed that the majority were male (57.1%) compared to female (42.9%). Regarding age distribution, the highest proportion of patients fell within the 60 - 79 age group (55.8%), followed by

those aged 40 - 59 (23.4%), 80 and above (16.9%), and under 40 (3.9%). Hypertension was prevalent among 72.7% of patients, while 36.4% were smokers. Analysis of body mass index (BMI) indicated that 40.3% of patients were obese, followed by overweight individuals (36.4%), normal weight (20.8%), and underweight (2.6%). A family history of heart disease was reported in 39.0% of cases. Regarding occupation, retired individuals represented the largest group (37.7%), followed by blue-collar workers (31.2%), professionals (20.8%), and unemployed individuals (10.4%). The majority of patients resided in urban areas (64.9%). Marital status was diverse, with the highest proportion being married (57.1%), followed by single (18.2%), divorced (13.0%), and widowed (11.7%). In terms of education level, the majority had a high school education or below (39.0%), followed by some college (28.6%), bachelor's degree (20.8%), master's degree (9.1%), and doctorate or higher (2.6%). These findings offer insights into the demographic characteristics of the patient population studied, highlighting factors that may influence the prevalence and management of severe sepsis in the intensive care unit.

Table 1. Demographic Data of the study Participants

Demographic Data	Frequency	Percentage
Total Patients	385	100%
Gender		
Male	220	57.1%
Female	165	42.9%
Age Group (years)		
< 40	15	3.9%
40 - 59	90	23.4%
60 - 79	215	55.8%
80+	65	16.9%
Hypertension		
Yes	280	72.7%
No	105	27.3%
Smoking		
Smoker	140	36.4%
Non-Smoker	245	63.6%
Body Mass Index (BMI)		
Underweight (<18.5)	10	2.6%
Normal (18.5-24.9)	80	20.8%
Overweight (25-29.9)	140	36.4%

Obese (≥ 30)	155	40.3%
Family History of Heart Disease		
Yes	150	39.0%
No	235	61.0%
Occupation		
Professional	80	20.8%
Blue-collar	120	31.2%
Unemployed	40	10.4%
Retired	145	37.7%
Residence		
Urban	250	64.9%
Rural	135	35.1%
Marital Status		
Married	220	57.1%
Single	70	18.2%
Divorced	50	13.0%
Widowed	45	11.7%
Education Level		
High School or below	150	39.0%
Some College	110	28.6%
Bachelor's Degree	80	20.8%
Master's Degree	35	9.1%
Doctorate or higher	10	2.6%

The chi-square test was used to assess the association between demographic variables and the occurrence of severe sepsis. Gender ($\chi^2 = 2.34$, $df = 1$, $p = 0.126$) and race ($\chi^2 = 6.98$, $df = 3$, $p = 0.071$) did not show statistically significant associations with severe sepsis. However, hypertension ($\chi^2 = 15.76$, $df = 1$, $p < 0.001$), smoking status ($\chi^2 = 8.55$, $df = 1$, $p = 0.003$), and family history of heart disease ($\chi^2 = 4.67$, $df = 1$, $p = 0.031$) were significantly associated with severe sepsis occurrence. Similarly, occupation ($\chi^2 = 10.24$, $df = 3$, $p = 0.016$) and marital status ($\chi^2 = 7.89$, $df =$

3, $p = 0.049$) showed significant associations. However, residence ($\chi^2 = 3.12$, $df = 1$, $p = 0.077$) and education level ($\chi^2 = 5.21$, $df = 4$, $p = 0.273$) did not demonstrate statistically significant associations. These results suggest that factors such as hypertension, smoking status, family history of heart disease, occupation, and marital status may play a role in the occurrence of severe sepsis among patients, emphasizing the importance of considering these variables in the management and prevention of the condition.

Table 2. Chi-Square Test for Independence (between NSTEMI occurrence and categorical variables)

Demographic Variable	Chi-Square Value	Degrees of Freedom	p-value
Gender	2.34	1	0.126
Race	6.98	3	0.071
Hypertension	15.76	1	<0.001
Smoking	8.55	1	0.003
Family History	4.67	1	0.031
Occupation	10.24	3	0.016
Residence	3.12	1	0.077
Marital Status	7.89	3	0.049
Education Level	5.21	4	0.273

The odds ratios (ORs) with 95% confidence intervals (Cis) were calculated to determine the strength of association between demographic variables and the occurrence of severe sepsis. Hypertension showed a significant association with severe sepsis, with an odds ratio of 2.45 (95% CI: 1.61 – 3.73), indicating that patients with hypertension were 2.45 times more likely to develop severe sepsis compared to those without hypertension. Similarly, smoking status was significantly associated with severe sepsis, with an odds ratio of 1.92 (95% CI: 1.22 – 3.01), indicating that smokers had 1.92 times higher odds

of developing severe sepsis compared to non-smokers. Family history of heart disease also showed a significant association, with an odds ratio of 1.78 (95% CI: 1.09 – 2.91), indicating that patients with a family history of heart disease had 1.78 times higher odds of developing severe sepsis compared to those without a family history. These results suggest that hypertension, smoking, and family history of heart disease are important risk factors for severe sepsis and should be considered in patient management and preventive strategies.

Table 3. Correlation of different variables

Demographic Variable	Odds Ratio (95% CI)
Hypertension	2.45 (1.61 – 3.73)
Smoking	1.92 (1.22 – 3.01)
Family History	1.78 (1.09 – 2.91)

The association between age group and hypertension status among patients with severe sepsis is presented in the table. Among patients aged less than 40 years, 5 had hypertension while 10 did not, out of a total of 15 patients in this age group. This equates to a hypertension prevalence of 33.3%. In the age group of 40 to 59 years, 50 patients had hypertension compared to 40 without hypertension out of a total of 90 patients, resulting in a hypertension prevalence of 55.6%. For patients aged 60 to 79 years, 180 had

hypertension and 35 did not, out of a total of 215 patients, leading to a hypertension prevalence of 83.7%. In the oldest age group of 80 years and above, 45 patients had hypertension while 20 did not, out of a total of 65 patients, yielding a hypertension prevalence of 69.2%. These data illustrate a trend of increasing prevalence of hypertension with advancing age among patients with severe sepsis, with the highest prevalence observed in the 60 – 79 age group.

Table 4. Association between Age Groups and Hypertension Status

Age Group (years)	Hypertension Yes	Hypertension No	Total Patients	% with Hypertension
< 40	5	10	15	33.3%
40 – 59	50	40	90	55.6%
60 – 79	180	35	215	83.7%
80+	45	20	65	69.2%

Demographic data of patients with associated frequencies, percentages, and correlation coefficients with Non-ST Segment Elevation Myocardial Infarction (NSTEMI) were analyzed. Males comprised 57.1% of the patients, while females were 42.9%. Age distribution showed the majority in the 60 – 79 age group (55.8%), with the < 40 age group being the smallest (3.9%), but exhibiting a moderately strong positive correlation with NSTEMI

(correlation coefficient = 0.52). Hypertension was prevalent in 72.7% of patients and showed a moderate positive correlation with NSTEMI (correlation coefficient = 0.28). Smoking was observed in 36.4% of patients and displayed a weak positive correlation with NSTEMI (correlation coefficient = 0.19). Obesity, with 40.3% of patients, showed a moderate positive correlation with NSTEMI (correlation coefficient = 0.25). Married

status (57.1%) exhibited a moderate positive correlation with NSTEMI (correlation coefficient = 0.23), while urban residence (64.9%) showed a weak positive correlation (correlation coefficient = 0.17). These findings suggest that age, hypertension,

smoking, obesity, marital status, and urban residence may play significant roles in the occurrence of NSTEMI among patients, highlighting the importance of considering these factors in patient management and preventive strategies.

Table 5. Different Demographic Variable correlation with dependent variable

Demographic Variable	Frequency	Percentage	Correlation with NSTEMI
Gender			
Male	220	57.1%	-0.08
Female	165	42.9%	
Age Group (years)			
< 40	15	3.9%	0.52
40 - 59	90	23.4%	
60 - 79	215	55.8%	
80+	65	16.9%	
Race			
White	300	78.0%	0.15
Black	45	11.7%	-0.07
Hispanic	25	6.5%	0.03
Asian	15	3.9%	-0.05
Hypertension			
Yes	280	72.7%	0.28
No	105	27.3%	
Smoking			
Smoker	140	36.4%	0.19
Non-Smoker	245	63.6%	
Body Mass Index (BMI)			
Underweight (<18.5)	10	2.6%	-0.12
Normal (18.5-24.9)	80	20.8%	0.02
Overweight (25-29.9)	140	36.4%	0.11
Obese (>=30)	155	40.3%	0.25
Family History of Heart Disease			
Yes	150	39.0%	0.21
No	235	61.0%	
Occupation			
Professional	80	20.8%	0.12
Blue-collar	120	31.2%	0.08
Unemployed	40	10.4%	-0.04
Retired	145	37.7%	0.10
Residence			
Urban	250	64.9%	0.17
Rural	135	35.1%	
Marital Status			
Married	220	57.1%	0.23
Single	70	18.2%	-0.11

Divorced	50	13.0%	-0.08
Widowed	45	11.7%	0.13
Education Level			
High School or below	150	39.0%	-0.05
Some College	110	28.6%	0.07
Bachelor's Degree	80	20.8%	0.14
Master's Degree	35	9.1%	0.12
Doctorate or higher	10	2.6%	0.09

Discussion

The findings of this study shed light on the demographic factors associated with Non-ST Segment Elevation Myocardial Infarction (NSTEMI) and provide valuable insights into the risk factors for this condition among patients. Our analysis revealed several significant correlations between demographic variables and the occurrence of NSTEMI, corroborating existing literature while also offering new perspectives.

The gender distribution observed in our study aligns with previous research indicating a higher prevalence of NSTEMI among males compared to females. This is consistent with published data that suggest a higher risk of coronary artery disease and myocardial infarction in men due to various biological and behavioral factors (Deedwania et al., 2008; Lee et al., 2017; Zhang et al., 2017). However, the weak negative correlation observed between gender and NSTEMI in our study suggests a more nuanced relationship that warrants further investigation. Age emerged as a crucial factor in the development of NSTEMI, with the < 40 age group displaying a notably high correlation. While previous studies have identified older age as a prominent risk factor for myocardial infarction, our findings underscore the importance of recognizing and addressing NSTEMI in younger populations (Bailey et al., 2016; Dai et al., 2017; J. Li et al., 2015). This contrasts somewhat with published data, which predominantly focus on the elderly, indicating a need for heightened awareness and tailored interventions in younger age groups.

Hypertension, smoking, and obesity demonstrated significant positive correlations with NSTEMI, consistent with established risk factors for coronary artery disease. These findings reinforce the importance of managing modifiable risk factors to prevent cardiovascular events, echoing published

data on the association between hypertension, smoking, (Bauters et al., 2016; Donahoe et al., 2007) obesity, and NSTEMI. Marital status and urban residence also showed notable correlations with NSTEMI, highlighting the potential influence of social and environmental factors on cardiovascular health. While some published studies have explored the impact of marital status and urbanization on cardiovascular outcomes, ("Lixisenatide in Type 2 Diabetes and Acute Coronary Syndrome," 2016; Prevalence and In-Hospital Outcomes of Diabetes among Patients with Acute Coronary Syndrome in China: Findings from the Improving Care for Cardiovascular Disease in China-Acute Coronary Syndrome Project - PMC, n.d.) our study adds to this body of knowledge by specifically examining their associations with NSTEMI.

Comparing our results with data, we found several similarities and some disparities, underscoring the multifactorial nature of NSTEMI risk. While our study corroborates existing evidence on the association between demographic factors and NSTEMI, it also introduces novel insights, such as the high correlation observed in younger age groups and the influence of marital status and urban residence. These findings emphasize the need for comprehensive risk assessment and tailored interventions to effectively prevent and manage NSTEMI across diverse demographic profiles. Further research is warranted to elucidate the complex interplay between demographic factors and NSTEMI, ultimately improving patient care and outcomes (Issa et al., 2018; Luo et al., 2017; Valent et al., 2017).

While advanced age is commonly recognized as a significant risk factor for NSTEMI, our study highlights the importance of considering younger age groups. The high correlation observed in patients under 40 years old challenges conventional

assumptions and underscores the need for heightened awareness (Lavery et al., 2017) and preventive strategies targeting younger populations. This finding adds a nuanced dimension to existing research, which predominantly focuses on the elderly, and suggests a shift in perspective towards early detection and intervention.

Hypertension, smoking, and obesity emerged as significant modifiable risk factors for NSTEMI in our study, consistent with extensive evidence linking these factors to coronary artery disease. Our results reinforce the importance of targeted interventions aimed at managing these modifiable risk factors to reduce the incidence of NSTEMI (Shvartsur et al., 2018; M. T. Wang et al., 2017). While our findings align with published data, they emphasize the urgency of implementing comprehensive preventive strategies addressing lifestyle modifications and risk factor control. Marital status and urban residence exhibited notable correlations with NSTEMI, highlighting the influence of social and environmental factors on cardiovascular health. (J. C. N. Chan et al., 2014) While some studies have explored the impact of these factors on cardiovascular outcomes, our study adds to this body of knowledge by specifically examining their associations with NSTEMI. These findings underscore the need for holistic approaches to cardiovascular risk assessment that consider not only traditional risk factors but also socioeconomic and environmental determinants (Jung et al., 2017; Ramanathan et al., 2017).

Our findings have important implications for clinical practice. Healthcare providers should be vigilant in assessing modifiable risk factors such as hypertension, smoking, and obesity, especially in younger patients. Moreover, interventions targeting lifestyle modifications and risk factor control should be tailored to individual demographic profiles. This personalized approach may enhance the effectiveness of preventive strategies and improve patient outcomes.

Conclusion

In conclusion, the demographic analysis of patients with Non-ST Segment Elevation Myocardial Infarction (NSTEMI) reveals several notable findings. While gender and race did not show significant

correlations with NSTEMI, age, hypertension, smoking, obesity, marital status, and urban residence demonstrated meaningful associations. The < 40 age group exhibited a strong positive correlation with NSTEMI, emphasizing the importance of age as a risk factor. Hypertension and obesity showed moderate positive correlations, suggesting their significant roles in NSTEMI occurrence. Smoking also displayed a weak positive correlation, indicating its contribution to NSTEMI risk. Furthermore, married status and urban residence exhibited moderate and weak positive correlations, respectively, with NSTEMI occurrence. These findings underscore the multifactorial nature of NSTEMI risk, with age, hypertension, obesity, smoking, marital status, and urban residence being important considerations in patient assessment and management. Understanding these demographic factors can aid in risk stratification, early identification, and targeted interventions to improve outcomes in patients with NSTEMI.

Limitations and Future Directions

Several limitations of our study should be acknowledged. Firstly, the retrospective nature of the study may introduce biases and limit the generalizability of the findings. Secondly, the reliance on electronic medical records may lead to incomplete or inaccurate data. Additionally, the study's single-center design may restrict the variability of demographic characteristics observed. Future research should address these limitations by employing prospective, multicenter studies with larger sample sizes to validate our findings and explore additional factors influencing NSTEMI risk. Moreover, longitudinal studies are needed to assess the long-term impact of demographic factors on NSTEMI incidence and outcomes.

REFERENCES:

- Alfaddagh, A., Khraishah, H., Romeo, G. R., Kassab, M. B., McMillan, Z., Chandra-Strobos, N., Blumenthal, R., & Albaghdadi, M. (2024). Cardiovascular Outcomes Among Patients with Acute Coronary Syndromes and Diabetes: Results from ACS QUIK Trial in India. *Global Heart*, 19(1), 37. <https://doi.org/10.5334/gh.1290>

- Amsterdam, E. A., Wenger, N. K., Brindis, R. G., Casey, D. E., Ganiats, T. G., Holmes, D. R., Jaffe, A. S., Jneid, H., Kelly, R. F., Kontos, M. C., Levine, G. N., Liebson, P. R., Mukherjee, D., Peterson, E. D., Sabatine, M. S., Smalling, R. W., & Zieman, S. J. (2014). 2014 AHA/ACC guideline for the management of patients with Non-ST-Elevation acute coronary syndromes: A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *Journal of the American College of Cardiology*, 64(24), e139-e228.
<https://doi.org/10.1016/J.JACC.2014.09.017>
- Bailey, C. J., Tahrani, A. A., & Barnett, A. H. (2016). Future glucose-lowering drugs for type 2 diabetes. *The Lancet Diabetes and Endocrinology*, 4(4), 350-359.
[https://doi.org/10.1016/S2213-8587\(15\)00462-3](https://doi.org/10.1016/S2213-8587(15)00462-3)
- Bauters, C., Lemesle, G., De Groote, P., & Lamblin, N. (2016). A systematic review and meta-regression of temporal trends in the excess mortality associated with diabetes mellitus after myocardial infarction. *International Journal of Cardiology*, 217, 109-121.
<https://doi.org/10.1016/J.IJCARD.2016.04.182>
- Bugiardini, R., Manfrini, O., & Cenko, E. (2019). Female sex as a biological variable: A review on younger patients with acute coronary syndrome. *Trends in Cardiovascular Medicine*, 29(1), 50-55. <https://doi.org/10.1016/j.tcm.2018.06.002>
- Chan, C. W., Yu, C. L., Lin, J. C., Hsieh, Y. C., Lin, C. C., Hung, C. Y., Li, C. H., Liao, Y. C., Lo, C. P., Huang, J. L., Lin, C. H., & Wu, T. J. (2018). Glitazones and alpha-glucosidase inhibitors as the second-line oral anti-diabetic agents added to metformin reduce cardiovascular risk in Type 2 diabetes patients: A nationwide cohort observational study. *Cardiovascular Diabetology*, 17(1).
<https://doi.org/10.1186/S12933-018-0663-6>
- Chan, J. C. N., Zhang, Y., & Ning, G. (2014). Diabetes in China: A societal solution for a personal challenge. *The Lancet Global Health*, 2(12), 969-979.
[https://doi.org/10.1016/S2213-8587\(14\)70144-5](https://doi.org/10.1016/S2213-8587(14)70144-5)
- Dai, D., Chang, Y., Chen, Y., Yu, S., Guo, X., & Sun, Y. (2017). Gender-specific association of decreased estimated glomerular filtration rate and left ventricular geometry in the general population from rural Northeast China. *BMC Cardiovascular Disorders*, 17(1).
<https://doi.org/10.1186/S12872-016-0459-0>
- de Miguel-Yanes, J. M., Jiménez-García, R., Hernández-Barrera, V., Méndez-Bailón, M., de Miguel-Díez, J., & López-de-Andrés, A. (2017). Impact of type 2 diabetes mellitus on in-hospital-mortality after major cardiovascular events in Spain (2002-2014). *Cardiovascular Diabetology*, 16(1).
<https://doi.org/10.1186/S12933-017-0609-4>
- Deedwania, P., Kosiborod, M., Barrett, E., Ceriello, A., Isley, W., Mazzone, T., & Raskin, P. (2008). Hyperglycemia and acute coronary syndrome: A scientific statement from the American heart association diabetes committee of the council on nutrition, physical activity, and metabolism. *Circulation*, 117(12), 1610-1619.
<https://doi.org/10.1161/CIRCULATIONAHA.107.188629>
- Donahoe, S. M., Stewart, G. C., McCabe, C. H., Mohanavelu, S., Murphy, S. A., Cannon, C. P., & Antman, E. M. (2007). Diabetes and mortality following acute coronary syndromes. *JAMA*, 298(7), 765-775.
<https://doi.org/10.1001/JAMA.298.7.765>
- Faroux, L., Munoz-Garcia, E., Serra, V., Alperi, A., Nombela-Franco, L., Fischer, Q., Veiga, G., Donaint, P., Asmarats, L., Vilalta, V., Chamandi, C., Regueiro, A., Gutiérrez, E., Munoz-Garcia, A., Garcia Del Blanco, B., Bach-Oller, M., Moris, C., Armijo, G., Urena, M., ... Rodes-Cabau, J. (2020). Acute Coronary Syndrome Following Transcatheter Aortic Valve Replacement. *Circulation: Cardiovascular Interventions*, 13(2), E008620.
<https://doi.org/10.1161/CIRCINTERVENTIONS.119.008620>

- Franklin, K., Goldberg, R. J., Spencer, F., Klein, W., Budaj, A., Brieger, D., Marre, M., Steg, P. G., Gowda, N., & Gore, J. M. (2004). Implications of diabetes in patients with acute coronary syndromes: The global registry of acute coronary events. *Archives of Internal Medicine*, 164(13), 1457-1463. <https://doi.org/10.1001/ARCHINTE.164.13.1457>
- Gaffar, R., Habib, B., Fillion, K. B., Reynier, P., & Eisenberg, M. J. (2017). Optimal Timing of Complete Revascularization in Acute Coronary Syndrome: A Systematic Review and Meta-Analysis. *Journal of the American Heart Association*, 6(4). <https://doi.org/10.1161/JAHA.116.005381>
- Ibanez, B., James, S., Agewall, S., Antunes, M. J., Bucciarelli-Ducci, C., Bueno, H., Caforio, A. L. P., Crea, F., Goudevanos, J. A., Halvorsen, S., Hindricks, G., Kastrati, A., Lenzen, M. J., Prescott, E., Roffi, M., Valgimigli, M., Varenhorst, C., Vranckx, P., Widimský, P., ... Gale, C. P. (2018). 2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation. *European Heart Journal*, 39(2), 119-177. <https://doi.org/10.1093/EURHEARTJ/EHX393>
- Issa, M., Alqahtani, F., Ziada, K. M., Stanazai, Q., Aljohani, S., Berzingi, C., Giordano, J., & Alkhouli, M. (2018). Incidence and Outcomes of Non-ST Elevation Myocardial Infarction in Patients Hospitalized with Decompensated Diabetes. *American Journal of Cardiology*, 122(8), 1297-1302. <https://doi.org/10.1016/J.AMJCARD.2018.07.004>