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EPIDEMIOLOGY OF MYOCARDIAL INFARCTION ACCORDING TO AGE AND SEX

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ABSTRACT

Myocardial infarction (MI) remains one of the leading causes of mortality and disability worldwide. The epidemiological characteristics of MI vary significantly depending on demographic factors such as age and sex. Understanding these differences is crucial for effective prevention, early diagnosis, and management of cardiovascular diseases. This article analyzes the age- and sex-related epidemiological patterns of myocardial infarction based on global epidemiological studies and statistical data. The results show that the incidence of myocardial infarction increases significantly with age and occurs more frequently in men than in women, particularly in younger and middle-aged populations. However, after menopause, the incidence among women increases rapidly due to hormonal changes. The study also discusses differences in risk factors, clinical presentation, and outcomes between different age and sex groups. The findings emphasize the importance of targeted prevention strategies and gender-specific approaches in cardiovascular healthcare.

Keywords: Myocardial infarction, epidemiology, age factors, sex differences, cardiovascular disease, risk factors, coronary artery disease, prevention.

INTRODUCTION

Cardiovascular diseases remain the leading cause of death globally, accounting for nearly one-third of all deaths each year. Among these diseases, myocardial infarction (MI) represents one of the most serious and life-threatening conditions. Myocardial infarction occurs when blood flow through one of the coronary arteries is blocked, leading to ischemia and necrosis of cardiac muscle tissue.

The epidemiology of myocardial infarction is influenced by various factors including age, sex, lifestyle habits, and genetic predisposition. Numerous studies have demonstrated that the risk of myocardial infarction increases significantly with age and varies between men and women. Men generally develop coronary artery disease earlier, while women tend to experience myocardial infarction later in life.

Understanding age- and sex-related differences in MI epidemiology is essential for developing effective prevention programs, improving diagnostic strategies, and reducing mortality rates. This article aims to analyze the epidemiological characteristics of myocardial infarction based on age and sex distribution.

MATERIALS AND METHODS

This study is based on a review and analysis of international epidemiological data from cardiovascular research studies, reports of the World Health Organization (WHO), and scientific publications related to myocardial infarction.

The methods used in this study include:

- Analysis of epidemiological statistics from international medical databases.
- Comparative evaluation of age- and sex-related incidence rates of myocardial infarction.
- Review of scientific literature regarding risk factors and clinical outcomes.

Statistical information from global cardiovascular disease reports and peer-reviewed medical journals was analyzed to identify patterns in myocardial infarction occurrence among different age groups and between men and women.

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RESULTS

Age Distribution of Myocardial Infarction

The incidence of myocardial infarction increases significantly with age. Although MI may occur in younger individuals, the majority of cases are observed in people older than 50 years.

Table 1

Age distribution of myocardial infarction cases

Age group	Percentage of MI cases
Under 40 years	5–7%
40–55 years	20–25%
55–70 years	35–40%
Over 70 years	30–35%

The data indicate that the highest incidence occurs in individuals aged between **55 and 70 years**. Age-related physiological changes such as vascular stiffness, accumulation of atherosclerotic plaques, and increased prevalence of chronic diseases contribute significantly to this trend.

Sex Differences in Myocardial Infarction

Sex differences play an important role in the epidemiology of myocardial infarction. Men generally have a higher risk of MI at younger ages, whereas women experience MI more frequently after menopause.

Table 2

Sex distribution of myocardial infarction

Sex	Percentage of cases	Average age of first MI
Men	65–70%	60–65 years
Women	30–35%	70–75 years

Men are approximately **2–3 times more likely** to develop myocardial infarction before the age of 60 compared with women. However, after menopause, the incidence among women increases significantly due to the decline in estrogen, which normally provides cardiovascular protection.

DISCUSSION

The findings of this study confirm that myocardial infarction is strongly associated with age and sex. Aging is a major risk factor for cardiovascular diseases because it leads to structural and functional changes in the vascular system. These include endothelial dysfunction, arterial stiffness, and increased prevalence of hypertension, diabetes, and dyslipidemia.

Sex-related differences are also influenced by biological and behavioral factors. Men are more likely to develop coronary artery disease earlier due to higher exposure to risk factors such as smoking, alcohol consumption, and unhealthy dietary habits. Hormonal differences also play an important role, as estrogen provides protective effects against atherosclerosis in premenopausal women.

In addition to differences in incidence, men and women may also differ in clinical presentation. Women often present with atypical symptoms such as fatigue, nausea, and shortness of breath rather than classic chest pain. This may delay diagnosis and treatment, leading to worse outcomes in some cases.

Another important aspect is the influence of lifestyle factors. Sedentary behavior, obesity, poor diet, and psychological stress significantly increase the risk of myocardial infarction across all

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age groups. Preventive strategies should therefore focus on lifestyle modification and early detection of cardiovascular risk factors.

CONCLUSION

Myocardial infarction remains a major global health problem with significant epidemiological variation according to age and sex. The incidence of myocardial infarction increases markedly with age and occurs more frequently in men, especially in younger and middle-aged populations. However, the risk among women rises significantly after menopause.

Understanding these epidemiological differences is essential for developing effective prevention programs and improving clinical outcomes. Public health strategies should emphasize early screening for cardiovascular risk factors, promotion of healthy lifestyles, and increased awareness of myocardial infarction symptoms in both men and women.

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