

## Acute Myocardial Infarction in Young

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Coronary artery disease (CAD) once thought a problem of old age, now seen among young adults too. There are several examples of young celebrities and sportspersons who succumb during their live performance due to Acute Myocardial Infarction (AMI). A substantial reduction has been achieved in the burden of CAD as compared to past owing to the better understanding and management strategies. But this encouraging move has not been noticed among youngsters, more so among younger women [1,2]. Some opined that a different risk profile and associated factors may be operating among young adults in the causation of AMI among young and need a different approach to deal with [3]. Moreover, it also carries economic burden as more productive life is lost as well as an extra cost has to be bear by health care system and government to deal with. It carries adverse impact on DALYs (Disability adjusted life years). These points need further exploration and research about different aspects of acute myocardial infarction in young.

A number of adverse health behaviors have been hypothesized to contribute to these events, Smoking still be the most common risk factor among the young adults [4]. Contrary to adult counterparts, some traditional risk factors like diabetes mellitus and hypertension may not be evident [5].

The ARIC (Atherosclerosis Risk in Communities) Community Surveillance Study concluded that AMI is now a common phenomenon in younger age group. They also found classical comorbidities associated with adverse cardiac outcomes and high mortality among young patients [6]. Moreover, the available risk

stratification strategies as used in older adults may not accurately identify high risk susceptible young adults. To circumvent this issue, designing risk factor assessment tools for young individuals is needed to device appropriate guidelines and formulating appropriate preventive strategies.

COVID-19 was also found in association with cardiovascular manifestations. The postulated mechanism was thromboembolic events related with COVID-19 and even COVID-19 vaccination. Many cases of Acute Coronary syndrome (ACS) in young patients have been reported after different types of COVID-19 vaccine administration [7]. Even mild COVID-19 has been reported with STEMI in young patients in the absence of traditional cardiovascular risk factors [8]. STEMI among young patients with COVID-19 may involve multiple mechanisms. COVID-19 has been linked with a hypercoagulable state through endothelial damage and enhanced immune response through cytokine storm, which affects cardiomyocytes and triggers the coagulation cascade. Cardiac dysfunctions were also explained as a direct interaction between COVID-19 virus particle and cardiomyocyte through angiotensin-converting enzyme (ACE) receptors [9].

Only around 50% of young AMI patients were found at risk for heart disease at the times of their cardiac episode, according to the VIRGO (Variation in Recovery: Role of Gender on Outcomes) study, despite the high overall prevalence of cardiac risk factors [10]. Some cardiac risk factors are specific to women, such as early menarche/menopause, pregnancy-induced hypertension (PIH), and gestational diabetes mellitus [11,12].

Available data emphasize that there is an urgent need of formulating strategies for prevention of cardiovascular disease among younger population. Lifestyle interventions should be implemented in all individuals, including avoiding sedentary life and tobacco in all forms, practicing regular exercise, maintaining optimal BMI (body mass index), and consuming food stuff that are balanced and low in added sugar and salt [13]. Through media and other channels, initiatives like the Go Red for Women (GoRedW) campaign to raise awareness about the risk of cardiovascular disease in women should be promoted on large scale [14]. It is necessary to encourage efficient primordial, primary, and secondary preventative methods using unified intersectoral coordination across different stakeholders. In order to comprehend the peculiar cardiovascular risk factors and their successful management, large multicenter clinical trials intended for young adults, specifically for women, are needed to conduct.

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