Acute myocardial infarction in young adults of Singapore: clinical characteristics, risk factors and outcomes

CP. Wong, SY. Loh, HH. Ho, KK. Loh, PL. Chia, E. Lee, QW. Yong, FH. Jafary, D. Foo, PJ. Ong
Department of Cardiology, Tan Tock Seng Hospital, Singapore

PURPOSE
• There is limited data on the clinical features of young adults (age ≤ 45) with acute myocardial infarction (AMI) in Singapore.
• We evaluated the clinical characteristics, risk factors and in-hospital outcomes of young adults with AMI in Singapore.
• As Singapore is a multi-racial society, we analyzed whether ethnic differences exist between the three dominant races, Malay, Chinese and Indian with regards to the clinical features.

METHODS
• From October 2004 to September 2010, 352 consecutive patients aged between 25-45 years were diagnosed to have AMI at our centre.
• Clinical data was collected retrospectively on demographic characteristics, presenting symptoms and signs, blood investigation, hospital course and in-hospital mortality

RESULTS
• For the overall study group, the mean age of presentation was 40.2 ± 4.0 years with male predominance (93.5%).
• The majority of patients were Chinese (48.6%) followed by Indians (29.2%), Malays (16.8%) and others (5.4%). (Figure. 1)
• The most common risk factor was smoking (73.0%) followed by hypertension (28.7%), dyslipidemia (20.2%) and diabetes mellitus (16.2%). (Figure. 2)
• 85.2% of patients were considered overweight (BMI ≥ 23 kg/m²).
• The mean total cholesterol, low-density lipoprotein and high-density lipoprotein levels were 5.6 ± 1.2 mmol/L, 3.8 ± 1.1 mmol/L and 0.93 ± 0.25 mmol/L respectively.
• The mean left ventricular function was 43.6 ± 9.9 % with the incidence of heart failure 3.1% and cardiogenic shock 4.8%. Overall in-hospital mortality was low with 4 deaths (1.1%).
• For ethnic subgroup analysis, Indians has a highest age adjusted risk of developing young AMI (3-fold), compared with Malays (1.4-fold risk) and Chinese (0.7-fold risk). There was no significant difference between the 3 races with regards to traditional cardiovascular risk factors and lipid profile. However, Indians have the strongest family history of ischaemic heart disease and were more likely to be diagnosed with new-onset diabetes mellitus at presentation. The incidence of in-hospital major complications and in-hospital mortality did not differ between the 3 races.
• For angiographic analysis, left main stem artery involvement was 6.5%. The majority of patients were single vessel involvement (39.8%) followed by triple vessel (30.1%) and double vessel (28.4%). (Figure. 3)

CONCLUSION
• Young adults with AMI in Singapore are characterized by male predominance, high incidence of smoking and obesity in Singapore population.
• Overall in-hospital clinical outcomes are favorable.
• Among the 3 races, Indians have the highest risk of developing young AMI.

Declaration of interest: We declare that there is no conflict of interest in this study