

Premature acute coronary syndrome patients do not have a better prognosis for their age than mature ACS patients by propensity score match analysis

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Background: Acute coronary syndrome (ACS) is the most important cardiovascular (CV) disease with a prevalence that increases with age. There is no data which compared the prognosis with premature ACS and mature ACS using propensity score matched analysis

Purpose: The purpose of this study was to compare the prognosis of premature ACS patients and mature ACS patients using propensity score matched analysis.

Methods: We analyzed of 4249 ACS patients (69.1±12.6, male 77%) including 773 premature ACS patients (50.1±6.8, male 78%) and 3476 mature ACS (73.3±9.3, male 77%) from January 2013 to December 2018, using data from Mie ACS Registry, a prospective and multicenter registry in Japan.

Premature onset of ACS was defined as younger than 65 years old in male and 55 years old in female.

Primary end point was as major adverse cardiac event (MACE) including cardiovascular death, non-fatal myocardial infarction, heart failure requiring admission and unstable angina.

Results: During median follow duration of 742 days ranging from 409 to 828 days, 502 MACE were occurred. Premature ACS patients were younger and showed higher body mass index compared to mature ACS patients (50.1±6.8 vs 73.3±9.3 y.o., 25.5 vs 23.0, P<0.001, respectively). However, premature ACS patients were more likely to be associated with

ST elevation myocardial infarction, dyslipidemia, family history of coronary artery disease (CAD) and lower Killip classification compared to mature ACS patients (P<0.01, respectively). Common CAD risk factors such as hypertension, diabetes mellitus and past history of CAD were less associated with premature ACS patients compared to mature ACS patients (P<0.01, respectively). Unadjusted Kaplan-Meier survival curves demonstrated the favorable prognosis in premature ACS patients compared to mature ACS patients with hazard ratio of 0.57 (95% CI 0.45–0.71, P<0.001, see Figure 1A). We compared a 1:1 propensity score-matched cohort of 1208 patients with or without premature onset of ACS adjusting the several factors mentioned above (n=604, respectively). Age could not be introduced as a factor of propensity score match when comparing premature and mature ACS patients. After propensity score-match, premature ACS patients is about 18 years younger than mature ACS patients (50.7±6.5 vs 68.5±8.2 y.o., P<0.001). The average age of premature ACS was younger than that of mature ACS, but MACE by Kaplan-Meier survival analysis for premature ACS patients was equivalent to mature ACS patients (P=0.77, see Figure 1B).

Conclusion: Premature ACS patients are required very careful management because they might have factors with unfavorable prognosis, such as lifestyle habit and genetics, that may be beyond age.

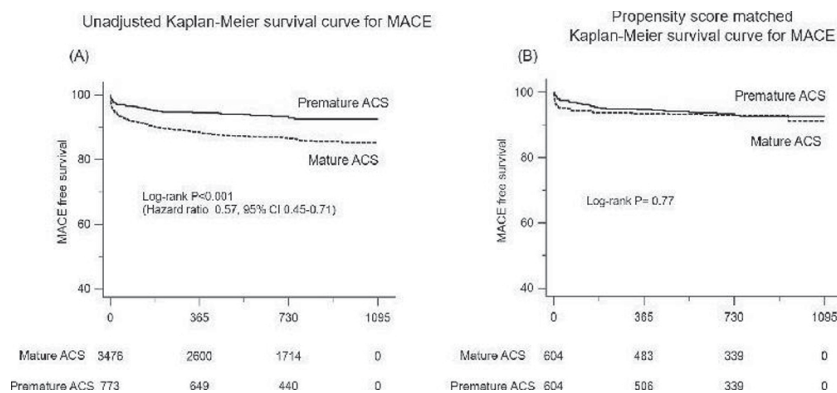


Figure 1