

Ethnicity is independently associated with SYNTAX scores in stable and myocardial infarction patients

Purpose

Coronary artery disease (CAD) is a global problem affecting all ethnic groups. The largest rise in incidence is expected to take place in Asia. Certain Asian ethnic groups have been reported to suffer from more severe CAD than Caucasians. In this study we quantify the severity of CAD with the SYNTAX score in the four most populous ethnic groups in the world: Caucasians, Chinese, Indians and Malays.

Methods

Patients were retrospectively and consecutively selected from the coronary angiography population of the University Medical Center, Utrecht, the Netherlands and the National University Hospital, Singapore. This study was conducted in accordance with the Declaration of Helsinki. We performed SYNTAX scores on 1,000 patients (150 stable and 100 ST-elevated myocardial infarction (STEMI) patients per ethnic group) who underwent percutaneous coronary intervention (PCI). Furthermore, we performed multivariable linear regression to assess whether ethnicity is independently associated with SYNTAX score.

Results

Indian and Malay patients were strikingly younger than Caucasian patients (56.9 and 57.7 vs. 63.7 years in the stable CAD group). Among stable CAD patients highest scores were found for Indians (13.1) and Malays (13.5) presenting with stable CAD, lowest for Caucasians (10.2), $p < 0.001$ for overall difference. Among STEMI patients Chinese (18.4) and Malays (18.6) had the highest scores, Caucasian the lowest (14.0), $p < 0.001$ for overall difference.

Among patients with stable CAD Chinese, Indian and Malay ethnicity as compared to Caucasian ethnicity were significantly associated with higher SYNTAX scores (β 2.2, 3.6 and 3.7, respectively).

Among patients presenting with STEMI Chinese and Malay ethnicity were independently associated with higher SYNTAX scores when compared to Caucasian ethnicity (β 4.7 and 5.7, respectively).

Conclusion

Indian and Malay stable CAD patients experience a high burden of CAD early in life. Chinese and Malays showed highest SYNTAX scores in the STEMI group. Chinese, Indian (only for stable CAD) and

Malay ethnicity are independently associated with higher SYNTAX scores. Future research should be focused on unveiling the relation of our findings with ethnic differences in clinical outcome.