

Trends in rate of acute myocardial infarction among patients aged < 30 years

Xiaofan Guo, Zhao Li, Eric Vittinghoff, Yingxian Sun and Mark J. Pletcher

We read with great interest the excellent Review by Andersson and Vasan (Epidemiology of cardiovascular disease in young individuals. *Nat. Rev. Cardiol.* <http://dx.doi.org/10.1038/nrcardio.2017.154>; 2017)¹. The authors discussed the high burden of cardiovascular disease risk factors and the worrisome trends of ischaemic heart disease, heart failure, atrial fibrillation, and sudden death in young individuals, highlighting a new epidemic of cardiovascular disease in this segment of the population. However, the Review focused mainly on the population aged >35 years, especially for acute myocardial infarction (AMI), owing to scarce data. In clinical practice, we have diagnosed patients aged <30 years with AMI more frequently than ever before, although AMI still remains rare in these young adults. Therefore, we want to discuss our recent findings on this topic further.

We obtained national data from the Healthcare Cost and Utilization Project Nationwide Inpatient Sample administrative

file in the USA². Using these data, we identified 2,832 hospitalizations with a principal discharge diagnosis of AMI among adult patients aged <30 years from 2005 to 2012, representing an estimated 13,492 AMI hospitalizations nationally after applying sampling weights. The prevalence of smoking, obesity, and heart failure among these young patients increased significantly from 2005–2008 to 2009–2012. As shown in FIG. 1, the annual number of AMI hospitalizations in young women increased from 363 to 470 cases during 2005–2012, with no decline in in-hospital mortality. Annual admissions among men reduced from 1,242 to 1,130 cases during 2005–2012, but in-hospital mortality increased significantly from 0.9% to 2.7% during the same period ($P=0.025$ for trend). An increasing trend of percutaneous coronary intervention utilization was observed for both sexes ($P<0.001$ for trend in both sexes). An increased trend in in-hospital mortality was also observed in all patients from 2010 onwards (FIG. 1).

Epidemiological data on AMI among adults aged <30 years have been reported in only a few case studies^{3,4}. However, the disease is not as rare in this population as previously thought. As mentioned in the Review by Andersson and Vasan¹, previous studies have shown a gradual reduction in AMI events in patients aged 35–64 years⁵, whereas Gupta and colleagues⁶ reported an absence of significant reductions in hospitalization rates among patients aged <55 years, indicating a potential shift of AMI to the younger population. Our findings suggest that this shift has even spread to very young adults aged <30 years, who show suboptimal outcome despite increased utilization of percutaneous coronary intervention. We believe more attention should be focused on young adult patients aged <30 years at risk of AMI.

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Competing interests statement

The authors declare no competing interests.

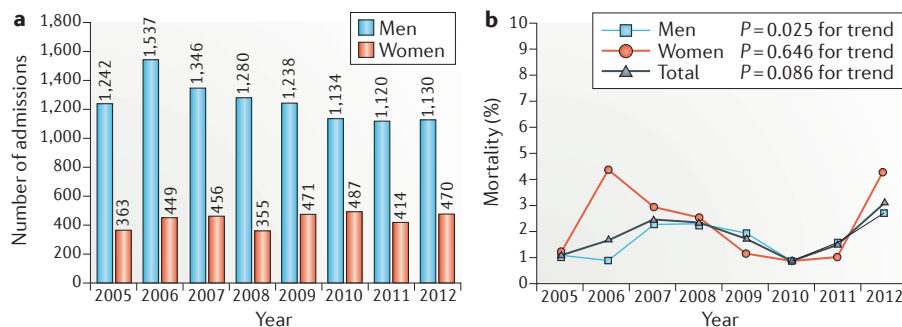


Figure 1 | Trends in adult patients aged <30 years with acute myocardial infarction in the USA. **a** | Annual number of admissions. **b** | Annual mortality. Sampling weights were used to produce nationally representative estimates.