

Thoughts about the change in incidence, treatment, and outcomes of first myocardial infarctions across the 21st century

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We congratulate Jortveit *et al.*¹ for their analysis of the trends in incidence, treatment, and outcomes due to a first acute myocardial infarction (AMI). The authors of this Norwegian registry-based longitudinal study found a 6.2% reduction in hospitalizations in first AMI presentations amongst patients, and the authors also reported a 1.3% decrease in the adjusted 1-year mortality rate after AMI.

Christensen *et al.*² conducted a similar study in Denmark, showing a significant decline in incidence rates of AMI from 2005 to 2021. This study showed a 52.3% reduction in males aged 70–84 years and a 58.4% reduction in females aged 70–84 years (confidence interval 95%). Although the timeframe of this study varies slightly, the Denmark study supports the results of Jortveit *et al.* and shows a significant reduction in AMI incidence across both male and female populations.

It is interesting to note that the paper by Jortveit *et al.* does not show an improvement in the mortality rate in women, which is a finding corroborated by a 2017 study by Vázquez-Troche *et al.*,³ which found an annual percentage change of –1.20 in mortality rates of ischaemic heart disease among female patients in Peru from 2005 to 2017.

However, we note that geographical location was not considered a variable in the original paper by Jortveit *et al.*, as their study was based on the national Norwegian Myocardial Infarction Registry. This contrasts with a 2022 study by Fuglsang *et al.*⁴ who studied the 28-day mortality rate of 368 839 individuals and how it varied between different municipalities in Denmark. They found that the 28-day mortality rate decreased over time at a national level (odds ratio 0.788; 95% credible interval 0.784–0.792), but it was geographically unequally distributed across the country. There is also a lack of ethnicity or other socio-economic data, which can be associated with mortality outcomes. For example, a 2022 study by Tertulien *et al.*⁵ looked at 5284 individuals with AMI and found that Black race and household income remain associated with a lower likelihood of revascularization compared to

White race among patients presenting with AMI (hazard ratio 0.79; 95% CI 0.66–0.95).

To conclude, we support the findings of this paper as the outcomes are corroborated by the multiple similar studies mentioned above. It is also essential to explore the effects of other factors that can affect the rate of first AMI presentations. For example, a 2020 retrospective study by Odoi *et al.*⁶ looking at the socio-demographic determinants of AMI hospitalization risks in Florida concluded that Black race, divorce, rural residence, low education level, and lack of health insurance were significant determinants of MI hospitalization risks. Therefore, these socio-demographic factors are essential to consider when considering the changes in incidence, treatment, and outcomes of first AMIs.

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