

Long-Term Survival after First Acute Myocardial Infarction is Strongly Modulated by Smoking Status

Yariv Gerber¹, Laura Rosen², Yael Benyamini³, Uri Goldbourt¹, Yaacov Drory⁴

¹ *Epidemiology and Preventive Medicine, School of Public Health*, ² *Health Promotion, School of Public Health*, ³ *Bob Shapell School of Social Work*, ⁴ *Rehabilitation, Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel*

Background: Quitting smoking has been shown to improve prognosis after acute myocardial infarction (AMI). However, longitudinal data derived from community studies, with repeated assessment of smoking, are lacking. We compared survival post-AMI of non-smokers, pre-AMI quitters, post-AMI quitters, and persistent smokers.

Methods and Results: Consecutive patients aged ≤ 65 years discharged from all hospitals in central Israel after initial AMI between February 1992 and February 1993 were enrolled. Self-reported data on smoking were recorded at the index AMI and after 3-6 months, 1-2 years, and 5 years, with subsequent mortality follow-up lasting through December 2005 (median 8 years, 1,345 participants, 258 deaths). The age-standardized mortality rates (per 1,000 person-years) were 21.1 for non-smokers (n=358), 17.1 for pre-AMI quitters (n=277), 28.3 for post-AMI quitters (n=352), and 40.9 for persistent smokers (n=358). For pre-AMI quitters, the median (interquartile range) abstinence duration at the index AMI was 10 (5-18) years. In a proportional hazards model adjusted for age, sex, socioeconomic measures, cardiovascular risk factors, comorbidity, and disease severity indicators, the hazard ratios (HRs) for mortality were 0.48 (95% confidence interval (CI): 0.34-0.69) for non-smokers, 0.44 (95% CI: 0.30-0.65) for pre-AMI quitters, and 0.68 (95% CI: 0.49-0.94) for post-AMI quitters, compared with persistent smokers. Among ex-smokers, with further adjustment for age at quitting, the HR associated with pre- vs. post-AMI quitting was 0.51 (95% CI: 0.27-0.96). Among persistent smokers, after multivariable adjustment including pre-AMI smoking quantity, each reduction of 5 cigarettes smoked daily after the AMI was associated with a 12% decline in mortality ($P=0.018$).

Conclusions: Smoking cessation both before and after AMI improves survival. Quitting before initial AMI confers greater benefit. Among persistent smokers, reducing quantity appears to be protective.