

The association of smoking to cardiovascular death differs according to age and sex following myocardial infarction complicated by heart failure or left ventricular dysfunction

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Background: Smoking is associated with higher morbidity and mortality following myocardial infarction (MI), but reports of the impact on cardiovascular (CV) death in aged and female patients experiencing MI complicated with left ventricular dysfunction or overt heart failure are limited.

Methods: In an individual patient data meta-analysis of high-risk MI patients, the association of smoking to CV death was investigated. Cox proportional hazard models exploring smoking status and risk according to age and sex were performed to study the relationship of smoking to independently adjudicated CV death endpoints.

Results: 28,771 patients from the CAPRICORN, EPHEBUS, OPTIMAAL and VALIANT trials were assessed. 18,325 (64%) reported smoking (9185 (32%) current and 9051 (32%) past), 2662 (9%) were above ≥ 80 years and 8607 (30%) were women. Overall, using non-smokers as referent, the association of smoking to CV mortality was neutral (HR=1.07, 0.98 to 1.16, $p=0.12$ for active smoking and HR=1.10, 1.02 to 1.18, $p=0.01$ for past smoking). The associations for active and past smokers with outcome,

adjusted for age and sex in the overall study sample and according to different age and sex categories, are presented in figure 1. In analyses that included interaction terms, the association for active smokers depended on age and sex; the risk of CV mortality was weakened in women (interaction HR=0.81, 0.69 to 0.96, $p=0.01$) and older age (interaction HR per 10 years increase=0.88, 0.82 to 0.95, $p=0.001$). In contrast, the association to CV death for past smokers was not modified by sex or age ($p=0.86$ and $p=0.17$ respectively).

Conclusions: The association of smoking to CV death differed according to age and sex in MI complicated with left ventricular dysfunction or overt heart failure. Significant association of active and/or past smoking with increased risk of CV death was mainly observed in the 60–69 years category. The underlying reasons of the lack of association of smoking with outcome in older patients in this specific context should be explored further in future studies.

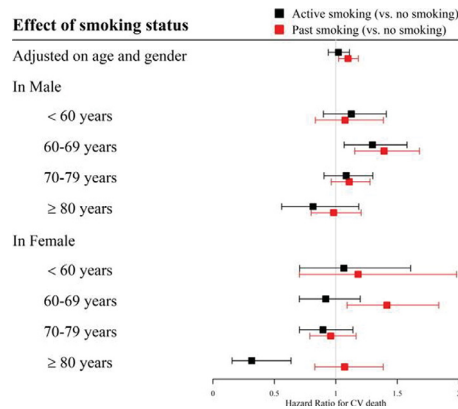


Figure 1