J-shaped relationship between admission diastolic blood pressure and 2-year cardiovascular mortality in elderly patients with acute coronary syndrome

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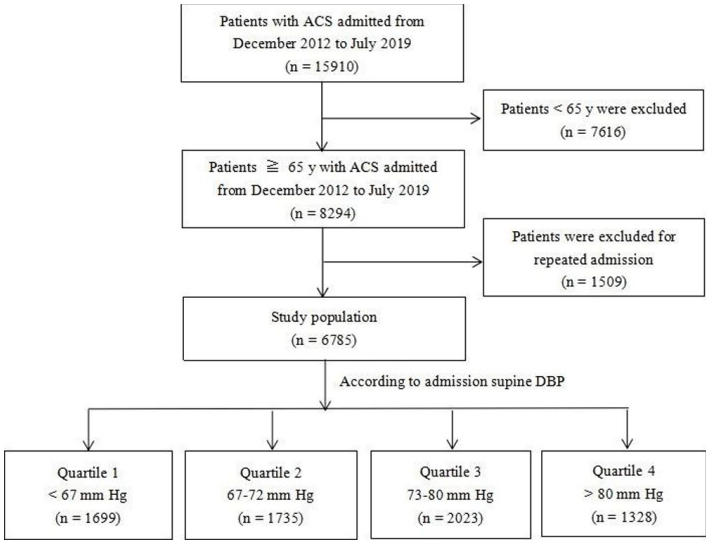
Objective: To investigate the relationship between admission diastolic blood pressure (DBP) and subsequent cardiovascular and all-cause mortality in elderly patients with acute coronary syndrome (ACS).

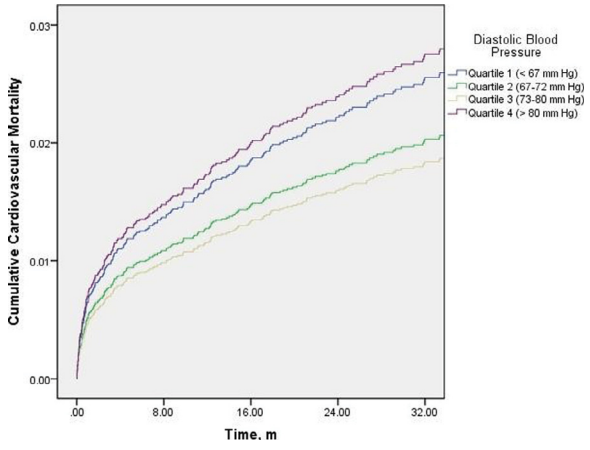
Methods: This is a retrospective observational study. Consecutive patients ≥65 years of age admitted for ACS at a 2,300-bed tertiary hospital from December 2012 to July 2019 were included. The association between admission DBP and cardiovascular and all-cause mortality during hospitalization and over the follow-up period among this population were analyzed using multivariate COX regression model. Results were presented according to DBP quartiles: Q1, less than 67 mm Hg; Q2, from 67 to 72 mm Hg; Q3, from 73 to 80 mm Hg; and Q4, above 80 mm Hg.

Results: A total of 6 785 patients were included in this cohort study. Mean (SD) patient age was 74.0 (6.5) years, and 47.6% were women. Mean (SD) follow-up time was 2.54 (1.82) years. A non-linear relation was observed between DBP at admission and cardiovascular and all-cause mortality during hospitalization and over the follow-up period using restricted cubic splines. After adjustment for potential confounders, patients in Q3 or Q2 had lower risk for 2-year cardiovascular death by Cox proportional hazard model compared with patients in Q4 (hazard ratio [HR] 0.66; 95% confidence interval [CI], 0.48–0.90, P=0.010, for Q3 vs Q4; and HR 0.72; 95% CI, 0.53–0.99, P=0.041, for Q2vs Q4), while patients in Q1 had similar risk for cardiovascular death with that of patients in Q4. Meanwhile, when compared with patients in Q1, patients in Q3 had lower risk for 2-year cardiovascular death (HR, 0.72; 95% CI, 0.53–0.97, P=0.033). However, lower or higher admission DBP was not an independent predictor of 2-year all-cause mortality in this population.

Conclusion: Among patients aged ≥65 years admitted for ACS, there is a J-curve relationship between supine admission DBP and risk for 2-year cardiovascular death, with a nadir at 73–80 mm Hg.



Study population and selection



Adjusted multivariate COX regression