Systolic blood pressure at emergency department presentation and 1-year mortality in acute chest pain patients

A. Irfan¹, P. Haaf¹, J. Meissner¹, R. Twerenbold¹, M. Reiter¹, T. Reichlin², M. Potocki¹, B. Drexler¹, S. Osswald², C. Mueller¹ - (1) University Hospital Basel, Department of Internal Medicine, Basel, Switzerland (2) University Hospital Basel, Department of Cardiology, Basel, Switzerland

Purpose: To determine the prognostic role of Systolic Blood Pressure (SBP) to predict 1-year mortality among acute chest pain patients presenting to the Emergency Department (ED).

Methods: In an observational multicentre study we enrolled 1240 consecutive chest pain patients who presented to the ED. Three models were developed to adjust for age, gender, diastolic blood pressure, use of antihypertensive medications and nitroglycerin on admission and discharge and use of statin, aspirin and warfarin on discharge (Model 1); those in model 1 and significant risk factors - coronary artery disease, hypertension, peripheral artery disease, diabetes, previous myocardial infarction and stroke (Model 2); and model 2 including chronic kidney disease (CKD) (Model 3). SBP at presentation was categorized into quartiles: Q1≤127; Q2 128–142; Q3 143–160; Q4≥161 mmHg.

Results: 60 deaths occurred. There was a significant association between SBP quartiles and 1-year mortality (p=0.001). In models 1 and 2, Cox proportional equation showed that patients in Q3 and Q4 had significantly better prognoses than Q1. However after also adjusting for CKD (model 3), only Q4 had better prognosis than Q1 (p=0.05). The SBP of the patients with CKD was lower than the rest (p=0.001). Total of 280 patients had chest pain for more than 12 hours before their ED presentation. Only these patients showed significant progressively better prognosis from Q2 through Q4 vs Q1. The AUC of SBP quartiles to predict 1-year mortality was also higher in these patients vs rest (p=0.04).

Conclusion: The 1-year mortality risk is progressively lower at higher SBP only in patients who present to ED with onset of chest pain for more than 12 hours. Those with CKD are more likely to present with higher SBP and are at a higher risk of long term mortality.

Conflict of Interest: This study was supported by research grants from the Swiss National Science Foundation (PP00B-120853), the Department of Internal Medicine, University Hospital Basel, the Swiss Heart Foundation, and Abbott. The sponsors had no role in study design, data analysis and interpretation. Dr. Mueller has received research support from the Swiss Heart Foundation, the Novartis Foundation, the Krokus Foundation, Abbott, Astra Zeneca, Biosile, Brahm, Roche, Siemens, and the Department of Internal Medicine, University Hospital Basel, as well as speakers honoraria from Abbott, Bayer, Biosile, Brahm, Roche, and Dade Behring. Dr. Reichlin has received research support from the Swiss Heart Foundation, the University of Basel and the Department of Internal Medicine, University Hospital Basel, as well as speakers honoraria from Brahm and Roche. All other authors declared no conflict of interest.

Congress of the European Society of Cardiology, 28. - 31 Aug, 2011 Paris