



# Imaging

## LONG-TERM PROGNOSIS ASSOCIATED WITH SYSTOLIC BLOOD PRESSURE RESPONSE TO EXERCISE IN PATIENTS UNDERGOING EXERCISE SPECT MPI

ACC Moderated Poster Contributions  
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**Background:** While resting hypertension has been associated with an increase in mortality, information regarding the prognostic association between the systolic blood pressure (SBP) response to exercise is sparse and contradictory. The aim of this study was to find a relationship between SBP change during exercise and mortality.

**Methods:** 4,062 patients ( $55 \pm 12$  yrs, 43% males) with no known history of CAD underwent treadmill exercise SPECT MPI. SBP response to exercise was categorized as an increase of: 0 - 20, 21 - 40, 41 - 60, and 61 - 80 or > 80 mm Hg; or a decrease of -1 to - 40 mmHg. Patients were followed for a mean of  $8 \pm 4.2$  yrs for all-cause mortality assessed using the SSDI.

**Results:** There were 878 (22%) abnormal SPECT studies and 399 deaths (10%). 99 (2%) patients had a decrease of SBP of -1 to -40. SBP increased as follows: 1369 (34%) with 0 - 20; 1501 (37%) with 21 - 40; 799 (20%) with 41 - 60; 243 (6%) with 61 - 80 and 51 (1%) with > 80. After adjusting for age, gender, CAD risk factors and SPECT results, survival analyses revealed that patients with a decrease in SBP or an increase in SBP >80 mm Hg had the worst mortality rates. Those with a moderate increase in SBP (40-80 mm Hg) had the lowest mortality (Figure).

**Conclusions:** Marked increase in SBP (>80 mm Hg) is comparable to exercise hypotension as a risk factor for long-term mortality following exercise SPECT MPI. In our cohort an increase in SBP of 40 - 60 mm Hg was associated with the best survival. Further prospective study is needed to ascertain the optimal SBP response to exercise.

