

# Exaggerated Blood Pressure Response and Outcomes in Asymptomatic Executives Undergoing Exercise Treadmill Testing

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## Introduction

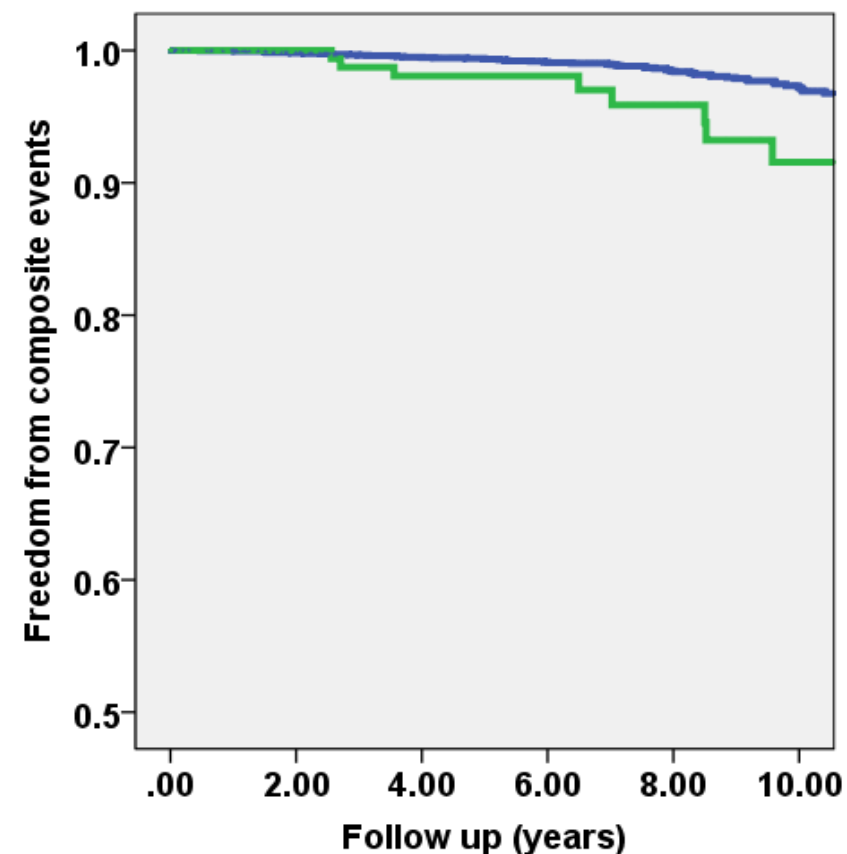
- Exaggerated systolic blood pressure response (ESBPR, >220 mm Hg) during exercise treadmill testing (TMT) is associated with incident hypertension.
- The effect of ESBPR on clinical end points remains unknown.
- We sought to assess whether ESBPR adds incremental prognostic value to Reynolds risk score (RRS, a combination of traditional risk factors and c-reactive protein) and exercise capacity in asymptomatic individuals without documented hypertension.

## Methods

- We studied 3401 self-referred, normotensive (excluding documented hypertensives (n=463), asymptomatic subjects patients (mean age 50±7 years, 76% males, 83% Caucasian) presenting for a prospective clinical and TMT evaluation between 1/2005-12/2013. RRS and % age-gender predicted metabolic equivalents (AGP-METs) were calculated.
- Primary endpoint was a combination of death, non-fatal myocardial infarction and stroke (MACE).

## Results

Diabetes mellitus, statin use, smoking history and family history of premature coronary disease were present in 2%, 18%, 13% and 9% subjects, respectively. Mean RRS was 3.2±4. ESBPR was observed in 168 (5%) subjects; 97% had normal Duke TMT score and 78% achieved >100% AGP-METs.



Kaplan Meier graph showing the association between ESBPR and freedom of pre specified events over time.

## Results

- At 7.3±3 years, 67 (2%) had MACE [death in 36 (1%)].
- On multivariable Cox survival analysis, higher RRS (Hazard ratio or HR 1.13 [95% confidence interval or CI 1.09-1.17]), lower% AGP-METs (HR 1.20 [95% CI 1.06-1.35]).
- ESBPR (HR 2.38 [95% CI 1.19-4.38]) were associated with longer-term MACE (all p<0.05).
- Survival curves, separated on ESBPR vs. not, are shown in Figure 1. Findings were similar for longer-term death.

## Conclusions

- In a low-risk asymptomatic cohort, ESBPR is associated with longer term MACE, independent of exercise capacity and standard risk prediction model.
- These findings should be validated in other cohorts.

## Translational Outlook

Patients developing ESBPR may represent a subset of patients with higher risk of MACE.

## Disclosures

None for this study