Major Electrocardiographic Abnormalities in Brazilian Adults: Prognostic value and reclassification potential in primary prevention (From the ELSA-Brasil Cohort Study).

Introduction

- The role of electrocardiogram (ECG) as a screening tool for cardiovascular diseases (CVD) prevention is still unclear for intermediate and high-risk subjects.
- The Minnesota Code Classification System (MC) allowed standardization of ECG evaluation in population studies.

Hypothesis

Major electrocardiographic abnormalities (MEA) according to the MC may have a negative impact on all cause and cardiovascular mortality.

Objective

- Evaluate if MEA according to the MC are independently associated with all-cause and cardiovascular mortality.
- Investigated if MEA would improve cardiovascular death risk prediction when incorporated to the European SCORE.

Methods: Participants

The ELSA-Brasil cohort is a multicenter study that included 15,105 civil servants from universities and research institutions of six Brazilian cities.

- **Inclusion criteria**: participants from ELSA-Brasil with valid ECG
- **Exclusion criteria**: participants with prevalent cardiovascular diseases.
- **N = 13,428** (45% men, age range: 45-58)

Methods: Varialevs & Statistical Analyses

- **Explanatory variable**: MEA defined by the MC
- **Covariates and potential confounders**: European SCORE (<1: low risk, ≥1 and <5: intermediate risk, ≥ 5 high risk), hypertension, diabetes, present smoking, dyslipidemia, obesity and school years as a proxy for socioeconomic status
- **Dependent variable**: All-cause and cardiovascular death
- **Mean follow up**: 8±1 years
- **Statistical analysis**: Cox regression for all cause mortality, Fine and Gray competitive risk analysis for cardiovascular mortality and net reclassification index assessment to evaluate incorporation of MEA to the SCORE

Results

**Figure 1**: Kaplan-Meier curves for cumulative survival from all-cause mortality according to presence of major electrocardiographic abnormality at baseline, in the general population.

**Figure 2**: Fine and Gray model for competitive risk from non-cardiovascular and cardiovascular death between those with and without major electrocardiographic abnormalities at baseline.

Table 1: Systematic Coronary Risk Evaluation score reclassification for the outcome of cardiovascular death after addition of the variable “presence of major electrocardiographic abnormality”.

Conclusion

- **MEA defined by the MC are associated with increased risk of all cause and cardiovascular death**.
- **ECG may have a role in defining strategies for CVD risk prediction and prevention**.