

Low preoperative heart rate increases the risk of postoperative atrial fibrillation (POAF) after cardiac surgery

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Background

Postoperative atrial fibrillation (POAF) is the most common arrhythmia to occur after cardiac surgery with an incident of 20-50%. It is associated with postoperative complications, including increased stroke, prolonged hospital stay and increased costs.

Methods

This study is based on the baseline measurements of the on-going trial "Personalised intervention to increase physical Activity and reduce sedentary behaviour in rehabilitation after Cardiac Operations (PACO)". The data of this study was collected from May 2018 to June 2023. A total of 154 patients were scheduled for elective open-heart surgery procedures. Of those patients 32 were excluded because of the history of paroxysmal or chronic atrial fibrillation. For the baseline measurements, a 6-minute walk test (6MWT) was performed after admission to the hospital on the first preoperative day. 6MWT was done using the protocol instructed by the American Thoracic Society (ATS). Blood pressure was measured at baseline, immediately after 6MWT, and after 3 min recovery.

Heart rate was recorded at baseline, during maximal heart rate, after 1 min and 3 min recovery. Walking distance was measured, and if the 6MWT was interrupted, the time of elapsed, distance of walked and the reason why test was interrupted were recorded. This trial is registered with ClinicalTrials.gov (NCT03470246).

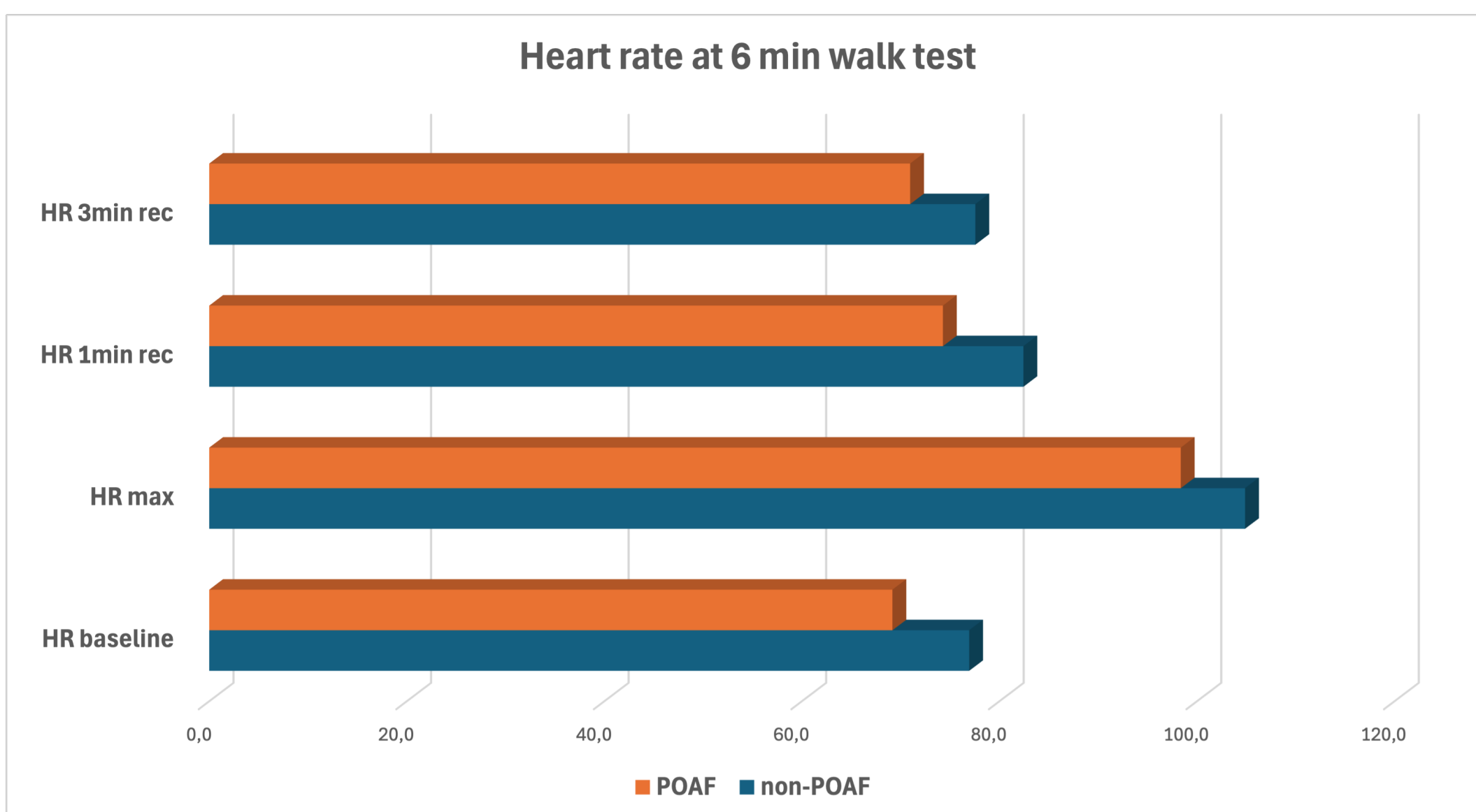
Results

Of the remaining 122 patients, 59 (48%) experienced POAF. There was no statistical difference between the patients with POAF and patients without POAF in baseline, maximal or 3 min recovery in systolic or diastolic blood pressure, in walking distance or maximal VO₂ peak. Surprisingly, the heart rate at baseline, at maximal level and after 1 min and 3 min recovery were significantly lower in the POAF group compared to the non-POAF group ($p < 0.05$ in all, figure).

Conclusions

Our study suggests that the lower heart rate might be a risk factor for POAF after cardiac surgery. If the low heart rate is a risk factor for POAF, it might be useful to recognize these patients before the cardiac surgery.

Heart rate at 6 min walk test



References of the PACO trial

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