Cardiovascular disease

Heart rate and age predict progression of atrial fibrillation

Heart rate is associated with progression of atrial fibrillation (AF) independent of rhythm, a large nationwide cohort study from the United States has found.

Data from the Outcomes Registry for Better Informed Treatment of AF (ORBIT-AF) were analysed to determine incidence and predictors of AF progression.

Progression is defined either as a transition from a self-terminating to a non-self-terminating form (paroxysmal to persistent or permanent) or any transition to a more sustained form of AF (paroxysmal to persistent/permanent or persistent to permanent).

The authors also tested the discrimination and calibration of the HATCH score (hypertension, age, TIA/stroke, chronic obstructive pulmonary disease, heart failure) and CHA_2DS_2VASc score for identifying AF progression.

Of 6,235 patients with paroxysmal or persistent AF at baseline, 1,479 progressed, during a median follow-up of 18 months. Of these patients, 1,032 (70%) had paroxysmal AF at baseline and 447 (30%) had persistent AF.

The patients who progressed were older and had more comorbidities than patients who did not progress ($CHADS_2$ 2.3 ± 1.3 vs 2.1 ± 1.3; P < 0.0001).

At baseline, patients with AF progression were more often on a rate control as opposed to a rhythm control strategy (66 vs 56%; P < 0.0001) and had a higher heart rate (72 vs 68 bpm; P < 0.0001).

The strongest predictors of AF progression were:

- AF on the baseline ECG, OR 2.30 (95% CI: 1.95-2.73; P < 0.0001) and
- Age, OR 1.16 (95% CI: 1.09-1.24, P < 0.0001, per 10 year increase)

Patients with lower heart rate OR 0.84 (95% CI: 0.79-0.89, P < 0.0001, per 10 bpm decrease < 80 bpm) were less likely to progress. There was no significant interaction between rhythm on baseline ECG and heart rate.

The HATCH and CHA_2DS_2VASc scores had only modest discriminatory power for AF progression.

Paroxysms of AF tend to become longer in duration and more frequent over time with many patients progressing to permanent AF. Electrophysiological and structural remodelling promotes the maintenance and persistence of AF.

Predicting which patients are likely to progress from paroxysmal AF to more sustained forms can be difficult. The progression of AF has been shown to be associated with increased risk of hospitalisation and thromboembolic events.

In this study progression was strongly associated with heart rate and age. Within 18 months, almost a quarter of the patients with paroxysmal or persistent AF progressed to a more sustained form.

'While a rate or rhythm control strategy was not independently associated with AF progression, lower heart rate and/or stricter rate control may be of importance to prevent AF progression,' the authors conclude.

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● Holmqvist F, Kim S, Steinberg B et al. *Heart* 2015;101:894-899 doi:10.1136/heartjnl-2014-307043

Urology

Add-on therapy for overactive bladder shows promise

Mirabegron in combination with solifenacin significantly reduced overactive bladder (OAB) symptoms, in a small preliminary study from Japan.

A total of 223 patients (84% female), aged over 20, mean 65 years, with overactive bladder, currently being treated with either 2.5 mg or 5 mg of solifenacin, entered the treatment phase of the study. Mirabegron was given at 25 mg once daily for the first eight weeks of the 16-week open label study, and increased to 50 mg once daily if ineffective at eight weeks. Overall 130 patients increased their mirabegron dose at this time point.

Efficacy was assessed using the Overactive Bladder Symptom Score (OABSS). Overall, this score decreased significantly in patients taking combination therapy, with further improvement seen when increasing the dose of mirabegron. In all treatment groups the threshold for minimal clinically important change i.e. 3 points was exceeded (range -3.4 to -4.0).

Across all treatment groups, urinary frequency, nocturia episodes, urgency episodes and urgency incontinence episodes all decreased, see below, while the mean volume voided per micturition increased.

- Reduction in mean number of micturitions/24 hours ranged from -1.89 to -2.36
- Reduction in mean number of nocturia episodes/night ranged from -0.31 to -0.60
- Reduction in urgency episodes/24 hours ranged from -1.57 to -2.59 »