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Is There Seasonal Variation in the Incidence of Atrial Fibrillation?

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Background: Atrial fibrillation is a common, prevalent, and challenging condition associated with increased morbidity, mortality, and economic burden. It is well known that the prevalence of atrial fibrillation (AF) varies seasonally, particularly in mild temperate climates. However, the prevalence of AF in highly urbanised areas is less well understood. The aim of this study was to investigate whether there is a seasonal variation in the incidence of AF in a metropolitan area.

Methods: A retrospective review of our AF database was performed from 1 January 2017 to 31 December 2018. Data were collected on 1,575 patients with a confirmed diagnosis of AF. The incidence of AF was calculated for each month and the distribution of cases was compared using the chi-squared test.

Results: The prevalence of AF was significantly higher in the summer months of January, February, and March (30.9%) compared to the winter months of July, August, and September (21.5%; P < 0.001). The highest incidence of AF occurred in February (33.7%), followed by January (33.4%) and March (30.6%). The lowest incidence of AF was observed in August (16.6%) and September (15.7%).

Conclusion: Our findings suggest that there is a significant seasonal variation in the incidence of AF in an urban setting. Further studies are needed to investigate the reasons behind this variation and their potential implications.

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Learning Curve and Initial Experience of Implementing a HIS Bundle PACing Program

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Background: HIS Bundle Pacemaker (HBP) technology is a promising technology to avoid pacing complications associated with dyssynchrony in right ventricular (RV) pacing. There are limited Australian data on HBP and most international data are limited to experienced operators and centres.

Methods: Data were retrospectively collected on 45 consecutive HBP procedures at two Victorian centres from commencement of the program in March 2018 to February 2019. The cohort was divided into three groups (A: cases 1–15, B: cases 16–30, and C: cases 31–45) to determine changes over time in relation to operator experience.

Results: Mean age was 70.1 ± 18.4; 69% were male. Impaired LV function was present in 27%, 13% had a previous device, and 5% and 30% had a pre-existing right or left bundle branch block (BBB) respectively. HBP was successful in 82% of procedures, but was less likely to be successful if AV block was the indication (70% vs 100%, p = 0.02). QRSD increased by mean 9.8 ± 19.4 ms in patients without BBB and decreased by mean 20.9 ± 44.3 ms in patients with BBB. Rates of procedural success, QRSD improvement, and use of an RV backup lead were 80%, 50%, and 40%, respectively for group A, and 93%, 78% and 27%, respectively for group C. Procedural time and fluoroscopy time decreased over time across the three groups (p ≥ 0.05 and p < 0.001 respectively).

Conclusions: HBP has a high success rate and is feasible in an Australian setting with improvements in procedural performance and outcomes seen with operator experience.

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Background: Catheter ablation of atrial fibrillation (AF) is a technically challenging procedure with sub-optimal success rates. In recent years, remote magnetic navigation (RMN) technologies have emerged in an effort to facilitate safer, more durable lesion formation during AF ablation. However, the impact of RMN on safety and efficacy of AF ablation is unclear.

Methods: Electronic databases were searched for controlled studies comparing outcomes of AF ablation performed using RMN versus manual catheter navigation (MCN). The primary efficacy endpoint was freedom from AF at ≥1 year follow-up. The primary safety endpoint was major peri-procedural complications. Secondary endpoint included fluoroscopy and procedure durations.

Results: Fifteen observational studies were included, involving a total of 3246 patients (RMN = 1475; MCN = 1771). Compared to MCN, RMN was associated with reduced major peri-procedural complications (relative risk [RR] 0.51; 95% CI, 0.29–0.91), but similar recurrence of AF at ≥1 year follow-up (RR 0.97; 95% CI, 0.89–1.05). Fluoroscopy times were significantly shorter with RMN (mean difference [MD] 13.3 minutes; 95% CI, 6.9–19.7) but total procedure (MD 51.3 minutes; 95% CI, 32.0–70.6) and ablation (MD 15.7 minutes; 95% CI, 8.2–23.2) durations were significantly longer.

Conclusions: RMN was associated with reduced peri-procedural complications and fluoroscopy exposure during AF ablation, albeit with longer procedure duration. However, freedom from AF at follow-up was not improved with the use of RMN.