The Incidence of Fatal Arrhythmia Among Patients with Early Onset Acute Coronary Syndrome and Familial Hypercholesterolaemia

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Background: Familial hypercholesterolaemia (FH) is a common inherited disease which causes premature acute coronary syndrome (ACS). Fatal ventricular arrhythmias are the leading cause of mortality in ACS patients worldwide. However, there are limited data on the association of FH and cardiac arrhythmias.

Objective: This study aimed to examine the association of cardiac arrhythmia profile and FH in the setting of ACS.

Methods: We included 231 patients with early onset ACS out of 997 total admissions to coronary care unit in a large tertiary centre between January-December 2015. FH was diagnosed using the Dutch Lipid Clinic Network Criteria. Fatal ventricular arrhythmias (FVA), defined as primary ventricular fibrillation (VF) or sustained ventricular tachycardia (VT), were confirmed by reviewing rhythm strips and 12-lead electrocardiograms.

Results: Among all subjects with premature ACS incidence of fatal arrhythmia was 4.7%. 26 patients (11.2%) with early-onset ACS had probable/definite FH, with mean age 46.8 ± 7.4 years and mean low density lipoprotein-cholesterol 5.6 ± 1.9 mmol/L. There was no significant difference in the prevalence of diabetes (25.9% vs 24.7% vs 23.0%, p = 0.94), hypertension (46.1% vs 49.5% vs 50.0%, p = 0.87) or smoking (62.2% vs 61.3% vs 76.9%, p = 0.24) among all groups [Unlikely (n = 104), Possible (n = 103), Probable/Definite (n = 26)]. When compared to patients with no FH, patients with FH had significantly lower rates of FVA (4.3%, 0.9%, 0%, p = 0.007). Left ventricular ejection fraction (LVEF) was not significantly different between the groups (p = 0.11). On multivariable analysis, FH was independently associated with lower frequency of FVA, adjusted for age, LVEF <40% and type of ACS (p = 0.04).

Conclusion: This study suggests FH is associated with lower incidence of FVA in the setting of ACS. Further investigation via multicentre prospective studies with larger populations is warranted.

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Methods: Data were collected from medical records and dedicated TLE database, on all patients who underwent TLE in Victoria between 2008 and 2017.

Results: Out of a total TLE cohort of 499 patients, 12 were aged ≥80. Mean age in the ≥80 cohort was 92.5 vs 65.2 overall. Average lead duration was longer in the ≥80 group; 7.5 years vs 6.9 years (p < 0.01). Indications for extraction (≥80 group vs overall) were local infection (83% vs 61%), endocarditis (17% vs 21%), lead problem (0% vs 15%) and ‘other’ (8% vs 3%). There was no significant difference in laser use (44% vs 52%, p = 0.42), success rate (100% vs 93%, p = 0.16) or complication rate (0% vs 1.4% major/4% minor, p = 0.26).

Conclusion: TLE is safe and effective in all age groups, when undertaken by an experienced operator. With careful patient selection, even very elderly patients can be confident of a success rate comparable to the general population, without increased risk of complications.

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Trends in the Use of Permanent Pacemakers in Australia: A Nationwide Study from 2008–2017

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Background: There is an increasingly ageing and comorbid population in Australia. Although prior studies have demonstrated that permanent pacemaker (PPM) insertions were rising in this context, there is a lack of contemporary data.

Methods: Data from the Australian Institute of Health and Welfare were analysed to determine the annual nationwide number of PPM generator and electrode insertions, plus replacement, removal and adjustment procedures between 2008–2017. Rates were calculated using the mid-year estimated population from the Australian Bureau of Statistics.

Results: PPM generator insertions increased from 12,153 in 2008–09 to 17,862 in 2016–17. As a percentage of all cardiovascular procedures, generator insertion increased from 2.14% to 2.99%. Generator insertion rates increased from 55.3 to 72.6 per 100,000 with rises seen in all age groups. In contrast, generator replacements decreased from 20.5 to 18.3 per 100,000. The highest proportion of generator insertions was in the 80+ age group (46.6%) and in males (58.4%). Although the rate of generator insertions increased in all age groups and both genders, the proportion of insertions appeared stable across age groups and gender, with the greatest absolute increase seen in the 80+ age group.

Conclusions: The rate and number of PPMs increased in Australia between 2008–2017, while the rate of PPM generator replacements decreased. This increasing demand for pacing services is in large part driven by an ageing population, in addition to rising insertion rates across all age groups. Our evidence supports a continued increase in future pacing demand and has significant implications for healthcare planning.

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