

Permanent Pacemaker Implantation following Aortic Valve Replacement, Isolated or Combined with Coronary Artery Bypass Grafts

*Mhandu, P; Lyons, O.T.A.; Bostock, J.; Cooklin, M.; Roxburgh, J.
Guys & St Thomas' NHS Foundation Trust, London, England*

Objectives: Permanent pacemaker (PPM) implantation after AVR is an avoidable invasive procedure. We present a single centre experience of a policy of delay prior to PPM implantation, and factors predicting need for PPM after AVR or AVR+CABG.

Methods : We performed a retrospective review of prospectively collected data (Philips CVIS vR6) on AVR and AVR+CABG (n=927; 712). Data were analysed in GraphPad Prism v5.

Results Mean (\pm SEM) age was 68(\pm 0.4); 74(\pm 0.3) ($p<0.0001$). Euroscore was 6.6(\pm 0.1); 7.9(\pm 0.1) ($p<0.0001$). Pre-op rhythm was sinus in 85.9%; 86.2% ($p=ns$). Biological valves were placed in 75%; 85% ($p<0.0001$). Mortality was 2.7%; 4.7% ($p<0.05$).

PPM rate was 11, 1.18%; 7, 0.98% ($p=ns$). PPM placement correlated with post-op infection ($p<0.01$); there was no related mortality. Mean time to implantation was 15; 9 days. Major PPM indications were persistent AV block (66%) and symptomatic bradycardia (33%).

After AVR, PPM rate associated with use of biological prosthesis ($p<0.001$), prosthesis size ($r=0.91$, 95%CI 0.49-0.99, $p<0.005$), pre-op endocarditis ($p<0.05$) dialysis dependency ($p<0.001$), pulmonary hypertension ($p<0.01$), emergency cases ($p<0.001$) and post-op infection ($p<0.001$).

After AVR+CABG, PPM rate associated with pre-op neurological dysfunction ($p<0.001$). PPM rate was not significantly associated with age, sex, Euroscore, pathology (stenosis/regurgitation/mixed) or operative technique (semi-continuous/interrupted) in either group.

Conclusion: Our PPM rate was low compared to other centres (3.4%-8.4%) which may relate to our policy of delaying insertion to allow conduction system recovery. The identified predictive factors could usefully allow identification at an earlier stage of those in whom PPM will be required.