Recurrence after resolution of symptomatic atrioventricular block and correction of transient causes, should we keep an eye on everyone?

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Introduction: Atrioventricular block (AVB) can be associated with secondary causes, some of which are potentially reversible. Permanent Pacemaker (PPM) implantation is not recommended in transient causes that can be corrected and prevented. However there is a high rate of recurrence which eventually warrant PPM implantation.

Purpose: Our aim was to characterize the population which had recurrence of symptomatic AVB after having recovered from an index event and having corrected secondary causes.

Methods: We performed a retrospective analysis between February 2011 and November 2022 of all patients admitted with symptomatic second degree AVB (including 2:1 and high-grade), third degree AVB and atrial fibrillation with AVB who had a reversible cause capable of being corrected and had a recovery of rhythm without PPM implantation, in a single expert centre. AVB secondary to Acute Coronary Syndromes and patients who required PPM to tolerate bradycardia inducing drugs were excluded from analysis. Medical records were analysed for demographics, clinical data and outcomes.

Results: Of the 135 patients analysed, 25 fulfilled all inclusion criteria and were analysed. The mean age at analysis was 77 ± 8 years with a male preponderance (52%).

The rhythm of presentation had been complete AVB for most of the cohort (68%). A prior ECG was obtained for most patients (92%), with atrioventricular (AV) conduction abnormalities identified in 28% of patients and intraventricular (IV) conduction abnormalities identified in 56% of patients. At index admission, bradycardic drug therapy was the most identified reversible cause (92%) and significant hyperkalaemia (categorized as above 5.5 mmol/L) was identified in 40% of patients.

In 20 patients (80%) there was recurrence of symptomatic AVB during follow-up (median time to recurrence of 11.5 months, minimum less than a month and maximum 130 months) which warranted a PPM implantation.

The independent predictors of recurrence were the presence of hyperkalaemia as a causal factor at index admission and of non-recurrence the dual therapy with bradycardic drugs at index admission (Qui square test for both p < 0.05).

The age, sex, prior of chronic kidney disease (with or without dialysis) prior AV or IV conduction abnormality, high dose bradycardic drug therapy at index admission, association between hyperkalaemia and bradycardic drug therapy and presentation rhythm different from complete AVB were non-significant.

Conclusions: Patients with a transient cause for symptomatic AVB which recovers with its correction have a high rate of recurrence in follow-up, particularly if the transient cause was hyperkalaemia, and only the initial presence of dual bradycardic drug therapy which was suspended predicted sustained recovery.