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Commentary: Permanent pacemaker implantation after cardiac surgery: Patience for our patients

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In this issue of the *Journal*, Bis and colleagues¹ report their experience in 145 patients who received permanent pacemakers (PPMs) following cardiac surgery who also had electrophysiologic follow-up. Intrinsic conduction recovered during follow-up in roughly one half of the patients; independent factors associated with not being PPM dependent included pacemaker implantation on or before postoperative day 6 and sinus-node dysfunction.

Surgeons must decide how to approach PPM placement in the postoperative setting to balance the timing of PPM implantation, waiting for the return of intrinsic conduction, and avoiding unnecessary device placement and resulting complications^{2,3} while discharging patients in a timely manner. To this end, the authors recommend PPM implantation on or after postoperative day 7.

The main limitation of this study is that the entire surgical denominator was not included; the institutional PPM insertion rate was 1.2%, but we do not know the clinical status of the rest of the population and how recovery of intrinsic conduction progressed postoperatively. Complete assessment of the postoperative population would provide insight into progression in clinical status from postoperative days 4 and 5 and how things had changed by postoperative day 6 and 7. Omission of these data may have skewed the analysis. Appreciating that this would be a great undertaking for the authors and not feasible in this manuscript, it is a point of interest for future studies.

Another point of interest would be a time-to-event analysis of freedom from PPM dependence. The authors

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analyzed freedom from PPM dependence as a dichotomous variable, meaning that return of intrinsic rhythm 2 months postoperatively was treated the same as if intrinsic rhythm returned at 2 years following surgery. This analysis may not impact the early decision to place a PPM but would likely provide insight to late mortality outcomes.^{4,5}

Bis and colleagues¹ should be congratulated on this analysis and this substantial contribution to the literature. Questions regarding impact of valvular surgery and the clinical status leading up to postoperative 7 remain. In the end, patience is a virtue when electing to proceed with PPM implantation while continuing to facilitate hospital discharge to minimize impact on hospital length of stay.

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