

Steroid use for recovery of advanced atrioventricular block immediately after valvular surgery (survival): a randomized clinical trial

Masoudkabar F.; Ghodsi S.; Hosseini Z.; Davarparand T.; Haj Hossein Talasaz A.; Jalali A.; Bagheri J.

Tehran Heart Center, Tehran University of Medical Sciences, Tehran, Iran (Islamic Republic of)

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Background: Limited inconsistent evidence support use of steroids in recovery of atrioventricular block (AVB) after trans-catheter aortic valve implantation. However, there is no study to examine the efficacy of steroids in recovery of high-grade AVB following valvular surgery.

Purpose: To assess the effect of high-dose dexamethasone on recovery of advanced AVB following valvular heart surgery.

Methods: In this randomized controlled trial, patients with advanced postoperative AVB (either Mobitz type II or third degree) were randomly assigned to receive either dexamethasone (0.4 mg /kg, maximum 30 mg /day in three divided doses) intravenously for three days or conservative care only. Primary endpoint was recovery rate in day five since randomization. Secondary endpoints were recovery rate in day 7 and day 10, cumulative AVB time, PPM implantation rate, length of stay in critical care units, and post-operative major adverse events (MAE) during one month. We defined MAE as composite of all-cause mortality, all-type infections, major bleeding, prolonged sternal dehiscence, new stroke, postoperative MI, complicated uncontrolled hyperglycemia and readmission for decompensated heart failure.

Results: We enrolled 139 subjects (48.9% male) with mean age of 59.9 years who were randomly allocated to intervention group (n= 69) and control group (n= 70). Dexamethasone led to higher recovery rates at day 5 (82.6% vs. 62.9%, P= 0.009) and day 7 (88.4% vs. 61.4%, P< 0.0001) respectively. Random 24-hours ECG Holter monitoring of patients at day 5 revealed the same results and confirmed the superiority of dexamethasone for recovery of AVB (80.5% vs 61.2%, respectively, P = 0.024). Although this benefit ceased at day 10 (83.05 vs 78.6 %, P = 0.547), Generalized Estimating Equation analysis for recovery over 10 days favored intervention (odds ratio: 2.56, 95% CI: 1.27-5.15, P = 0.008). Median cumulative AVB time was shorter in dexamethasone group compared to control group (41 hours vs 64 hours, P = 0.044). PPM implantation rates were similar between the dexamethasone and control groups (15.9% vs 17.1 %, respectively, P = 0.849). Median length of stay in ICU (10 days vs 12 days, P= 0.03) and MAE (17.4 % vs 25.7%, P = 0.133) tended to be lower with dexamethasone.

Conclusion: Our findings suggest that dexamethasone may serve as a safe and effective medication to improve recovery of advanced AVB after valvular surgery. Further studies are needed to confirm these findings, particularly regarding subsequent PPM implantation rate.

