

Title: ANESTHESIA IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME

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Introduction: Anesthetic management in patients with WPW syndrome has focused on the perioperative risk of arrhythmia. Assessment of risk factors for intraoperative arrhythmia and recommendations for anesthetic technique have been difficult to derive from the published experience in case reports and small groups of patients.¹⁻³ We retrospectively analyzed the records of 231 anesthetics in 88 patients undergoing surgery at our institution from 1969 to 1987.

Methods: The charts of all patients with a discharge diagnosis of WPW who underwent general or regional anesthesia for surgery were identified and reviewed. The diagnosis was established electrocardiographically by the presence of an abnormally short P-R interval (less than 0.12 sec.), associated with a prolonged QRS complex (0.12 sec. or more). Anesthesia for cardioversion in patients having diagnostic electrophysiologic studies were not included. Statistical analysis included z test for proportion, Fisher's exact and Chi-square tests, and log-linear models.

Results: 231 anesthetics were administered to 56 male and 32 female patients, ranging from 1 to 32 anesthetics for a given patient. Patients were from 1 month to 76 years old, mean 37 (s.d. 20 yrs.). 21 anesthetics were for cardiac surgical procedures (12 cryoablations of bypass tracts for WPW, and 9 CABG or valve replacements), and 210 for non-cardiac surgical procedures. Intraoperative arrhythmias occurred in 21 procedures (9.1%), but were more frequent in cardiac surgical operations, (47.6%), than in non-cardiac surgical cases, (4.7%), $p < 0.001$. 8 of the cardiac surgical group were anesthetized with a narcotic-relaxant technique, and all had intraoperative arrhythmias; only 2 of 13 patients anesthetized with a volatile agent or volatile agent supplemented with narcotic had arrhythmias, $p < 0.001$. In the non-cardiac surgical group, arrhythmias occurred in 6 of 53 using narcotic-relaxant, 5 of 157 using volatile, and 2 of 19 using regional anesthesia; differences that did not reach statistical significance. For non-cardiac surgical patients, intraoperative arrhythmias were noted in 5 of 157 cases giving a prior history of arrhythmia and 6 of 53 with an asymptomatic EKG abnormality, $p < 0.025$. Changes in conduction pattern (pre-excited vs. normal) occurred under anesthesia in 11

cases, but was not associated with a greater likelihood of arrhythmias, $p < 0.423$. Patients receiving pancuronium, intra-nasal cocaine or vasopressors for blood pressure support had a greater incidence of arrhythmias, 17.9% vs. 1.3%, $p < 0.0006$. The risk of arrhythmia in these cases was not higher in patients anesthetized with volatile agents versus a narcotic-relaxant technique. Arrhythmias occurred immediately before or post-operatively in 31 cases, but this occurrence was not associated with a greater incidence of intraoperative arrhythmias.

Discussion: Patients with WPW syndrome undergoing non-cardiac surgery are at low risk for intraoperative arrhythmias, and these tended to be benign and self-limited. Previous arrhythmia history is not useful to predict risk of arrhythmia under anesthesia. Arrhythmias occurred immediately preoperatively in a number of patients that went on to have uneventful anesthetics, and seems to be only a relative contraindication to proceed with surgery. Patients that have had a stable anesthetic course may unpredictably have arrhythmias in the recovery room or the immediate post-operative period. The likelihood of arrhythmia appears to be independent of anesthetic technique, and the anesthetic applied should be tailored to the usual clinical indications of the particular patient. The use of catecholamines or drugs with sympathomimetic activity should be avoided. Patients with WPW undergoing heart surgery are at particular risk for intraoperative arrhythmias. The arrhythmias in these patients were frequently severe, and in some cases required the emergent institution of cardiopulmonary bypass. For these patients, a volatile anesthetic technique may have a clinical advantage.

References

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