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Comparative analysis of nursing care during pacemaker implantation, using different approaches of surgery in young children

Apanovich V., Firsova N.

Research Clinical Institute of Pediatrics, Arrhythmology Department, Moscow, Russian Federation

Introduction: it is necessary to take into account a number of features during pacemaker implantation in pediatric patients (pts): the age and weight, the dimensions of heart chambers and vessels, the fast growth and high activity level. These are important factors for choosing the lead implantation method and searching for new, more modern and less traumatic approaches. We have developed and evaluated an alternative method: video-assisted thoracoscopic surgery (VATS) implantation of epicardial electrode.

Objective: to compare the nurse support for different kind of surgical approach during pacemaker implantation in children.

Methods: 5 VATS implantations of ventricular epicardial leads were performed in our department. There were 5 pts aged 2 to 4 with (body mass less than 15 kg), with complete atrioventricular block. We evaluated the following data: preoperative care, preparation of thoracoscopic equipment and surgical instruments, anesthetic support time, amount of consumables for the procedure, procedure time, as well as disinfection and all steps of sterilization. We investigated financial and time costs in comparison with the standard endocardial implantation approach and pacemaker implantation using thoracotomy.

Result: Comparative study showed the advantage of the VATS method at the stages of preoperative preparation of the instruments, the anesthesiological and surgical parts, and reduction of financial and time costs. All patients received effective heart stimulation, there were no complications in the postoperative period and all patients leave hospital in 7 days after surgery.

Conclusion: The development of an efficient nursing support algorithm makes it possible to optimize the financial and time costs. VATS procedure in children is less traumatic in comparison with the standard endocardial lead implantation approach and implantation using thoracotomy. We believe VATS to be an appropriate approach for infection risk reducing and postoperative complication prevention.