



THE INCIDENCE AND THE RISK FACTORS OF CONDUCTION DISTURBANCES AFTER THE PERCUTANEOUS CLOSURE OF PERIMEMBRANOUS VENTRICULAR SEPTAL DEFECTS IN CHILDREN: A MID-TERM FOLLOW-UP

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Background:

Percutaneous device closure of perimembranous ventricular septal defect (pmVSD) is a promising and less invasive method associated with an excellent success rate. However, the incidence of conduction disturbances remains relatively high during and a few days after the procedures

Objectives:

This study aimed to investigate the incidence and the predisposing factors of conduction disturbances following percutaneous closure of these defects.

Methods:

All consecutive patients whose defects were closed with percutaneous method from April 2016 to April 2021 were enrolled in this prospective study. The defects' size, septal aneurysms, and distance to the aortic valve annulus were determined with transthoracic echocardiography and catheterization.

The patients were monitored for any conduction disturbances during the procedure and 24 hours after that. Standard 12-lead electrocardiograms were obtained before and immediately after the procedure, every six hours for 24 hours, seven and thirty days later, and then every six months.

**Results:**

272 patients underwent successful defect closure, of whom 260 were enrolled in the study according to the inclusion criteria. One hundred thirty-five patients were male (52%), and 125 were female (48%). The patients' median follow-up was 36 months (9-210 months). 31 (11.9%) patients developed conduction disturbances, 25 cases recovered to normal conduction and six patients (3%) showed permanent conduction abnormality: 4 cases of right bundle branch block and 2 cases of left bundle branch block. No one had permanent 3rd-degree atrioventricular block. Closure of non-aneurysmal defects and more prolonged procedures were independent risk factors of conduction disturbances. Using Amplatzer duct Occluder type II was associated with less incidence of conduction abnormalities.

Conclusion:

Although the incidence of conduction disturbances after transcatheter closure was relatively high, most cases recovered to normal conduction. The use of softer devices and the placement of devices into the septal aneurysms might lower the risk of major conduction disturbances.

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