

TRANSCATHETER CLOSURE OF PATENT FORAMEN OVALE (PFO) IN CHILDREN- SUMMARY OF 10 YEARS OF EXPERIENCE IN ONE CENTER

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BACKGROUND

The cause of ischemic stroke associated with PFO is paradoxical embolism. Studies in adult populations, demonstrated significantly higher coexistence of PFO and cryptogenic stroke in comparison with the control group. In patients with PFO and history of cryptogenic stroke the risk of recurrence of stroke in a year is between 3.8% to 16%. In the pediatric population, the incidence of stroke is 1-8/100 000/year. Although a rare occurrence, stroke is one of the main causes of death in the pediatric population. Mortality from ischemic stroke in children is 2-11% and neurological deficits occur in 68-73%. At the moment, there are no large studies on the safety and efficacy of percutaneous PFO closure as a secondary prevention of stroke in children.

OBJECTIVES

A summary of 10 years of experience in the closure of patent foramen ovale in children as secondary prevention with a history of ischemic neurological incidents.

METHODS

A retrospective analysis of cases of children treated with percutaneous closure of PFO set in the years 2006-2015.

RESULTS

In the years 2006-2015 fourteen children underwent percutaneous closure of PFOs. At the same time, PFO closure was performed in 247 adult patients (mean age 43). The ischemic stroke was confirmed by MRI or CT. The PFO and L-R shunt was detected by ECHO or TCD. The other known causes of stroke were excluded. The age of the children at the time of treatment ranged from 3-17 years (mean age 12). In the study group there were seven girls (50%) and seven boys (50%). Eight patients (57%) had a transient ischemic attack (TIA). Six of the patients (43%) had ischemic stroke. In 13 patients (93%) procedure was performed under general anesthesia and 1 patient (7%) under local anesthesia. After the procedure one patient experienced a transient ischemic attack, one patient had an attack of migraine with aura immediately after closing PFO. There were no permanent, serious complications associated with the procedure. The most commonly used device was Occlutech Figulla PFO occluder. Other devices used were Cardia, Star-flex and Amplatzer. During the follow-up period of 2-10 years there was not a recurred TIA or stroke.

CONCLUSIONS

Ischemic stroke in children in the mechanism of paradoxical embolism is extremely rare. There are almost no studies evaluating percutaneous PFO closure in children and comparing its effectiveness with respect to pharmacological prevention. Due to a long life expectancy in children the cumulative risk of recurrent neurological incident (stroke or TIA) is very high. In our opinion, despite the lack of studies on this topic, percutaneous PFO closure in individually selected children with stroke and in absence of other identified causes of ischemic neurological symptoms can bring great benefits. A major factor is the high mortality in stroke as well as the high incidence of neurological deficits. Percutaneous PFO closure is a safe and effective method in the treatment of children.