

# Current and new perspectives for interventional closure of ventricular septal defect

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by Cen et al,  
see p. 401

Ventricular septal defect (VSD) is the most common congenital heart defect with a prevalence of 5.27 diseased children per 1000 live births.<sup>1</sup> In toddlers and small children with especially large defects, early treatment by surgical closure is the preferred and still frequent surgical procedure, whereas larger children or those with smaller defects may be alternatively treated with percutaneous device implantation. However, both methods carry a potential risk of, for example, complete atrioventricular block, with a risk rate of 0.1% to 6.8% after interventional VSD closure and less than 2% after surgical VSD closure.<sup>2,3</sup> However, success and complication rates of interventional VSD closure depend on centers' experience and the device, which have been reported for various devices.<sup>4-7</sup> With the increasing demand for more flexible devices and smaller profile, especially if compared with the Amplatzer perimembranous and muscular VSD occluder, more and more interventions have been performed with Amplatzer patent ductus arteriosus devices, such as Amplatzer Duct Occluder (ADO) I and II.<sup>7,8</sup> With these devices, nearly optimal short- and long-term clinical outcome data were achieved.<sup>4,7</sup>

In this issue of *Kardiologia Polska (Kardiol Pol)*, Cen et al<sup>9</sup> conducted a meta-analysis and systematic review on the worldwide experience with the use of the ADO II entitled "Efficacy and safety of the Amplatzer Duct Occluder II for ventricular septal defect closure: a meta-analysis." Although ADO I and II are still considered an "off-label" treatment, they have become available worldwide for successful patent ductus arteriosus and VSD closures in the last decades. Out of 150 potential publications (from 2012 to 2019), the authors selected 13 studies including 478 patients who underwent interventional VSD closure, with an overall optimal success rate of 99%.

Complication rates were low with 4% (95% CI, 1%–7%) for residual shunt, 0% for aortic valve regurgitation, 1% for tricuspid valve regurgitation, and 0% (95% CI, 0%–1%) for complete atrioventricular block with the mean follow-up ranging from 6 to 40 months. Based on the meta-analysis, interventional VSD closure seems to have a high success rate and really low complication rate.

The new Lifetech Konar multifunctional occluder seems to combine or even optimize the requirements for a successful interventional VSD closure. It resembles a fusion of the ADO I and a disc from the ADO II, since it has a more conical shape on the left or high-pressure disk (similar to the ADO I), but still remains comparable to the ADO II with regard to the implantation cable and profile (5F–7F). Moreover, it received the CE mark already in 2018, and the first experiences have been reported.<sup>7,10</sup> The ADO and Konar multifunctional occluders may hopefully imply a "renaissance" of interventional VSD closure.

## ARTICLE INFORMATION

**DISCLAIMER** The opinions expressed by the author(s) are not necessarily those of the journal editors, Polish Cardiac Society, or publisher.

**CONFLICT OF INTEREST** Consultant & Proctor for Abbott, CARAG, Edwards, Lifetech, Medtronic.

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