Title

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Comparison of 5 devices used to treat Patent Foramen Ovale (PFO)

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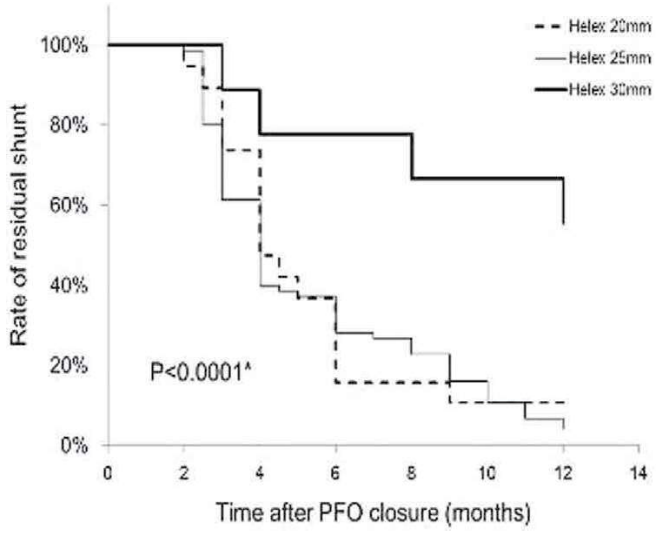
Background: Several devices have been used in the past decade for transcutaneous PFO closure to prevent conditions associated with PFO. Selection of the appropriate device is important to effectively close the PFO but the closure rate of different devices are not well described. In this retrospective study, the degree of right-to-left shunting was quantified following the placement of 5 different PFO closure devices. **Methods:** From January 2001 to January 2013, 327 patients underwent trans-cutaneous PFO closure in our hospital. 167 patients received transcranial Doppler (TCD) studies at pre procedure and after 3 months and repeated every 3 months to evaluate effective PFO closure.

Results: An effective closure occurred in 150 patients (90%) over all devices. Comparison of device type revealed the highest effective closure rate was associated with the Amplatzer ASO device (100%), followed by the Amplatzer Cribriform (93%), Gore Helex (90%), Amplatzer PFO (86%), and CardioSEAL (86%) device. The highest rate of residual shunting at the end of the 12-month period was observed in patients who received the 30mm Gore Helex device which has a significantly higher rate of residual shunting compared with the 20mm and 25mm Helex devices ($p<0.0001$, Figure 1).



Conclusions: Transcutaneous PFO closure has a high success rate, with residual shunting occurring in about 10% of cases. The 30 mm Helex non-self-centered device should be avoided in patients with large size PFO defects as it provides insufficient closure of the PFO tunnel. We recommend an Amplatzer ASD occluder for PFO diameters greater than 12 mm based on balloon sizing.

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