PDA OCCLUSION: COMPARISON BETWEEN TWO NEW GENERATION NITINOL DEVICES

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BACKGROUND

Percutaneous closure of patent ductus arteriosus (PDA) has become the method of choice for definitive therapy of PDA beyond the neonatal period. Innumerous devices, with different design, has been utilized with various degrees of success.

OBJECTIVE

To present the authors' experience with two different, new generation, Nitinol devices: the CERA PDA Occluder Flex (LIfetech, Shenzhen, China) and Occlutech PDA Occluder (Occlutech, Jena, Germany), and compare their results.

METHODS

Transthoracic echocardiograms (TTE) selected all consecutive PDA patients over 5 Kg, that were referred for transcatheter occlusion. Both devices were implanted under general anesthesia, with the conventional technique, described elsewhere. There was no learning curve for the duration of the study.

RESULTS

Procedures were performed in two non-consecutive time frames, from January 2012 through June 2015 (Group 1) and May 2016 through January 2017 (Group 2). CERA devices were implanted in 20 patients (6M:14F) in Group 1 and Occlutech devices were implanted in 12 patients (5M:7F) in Group 2. Mean age, mean weight and minimum ductal diameter were 12.8 years, 27.3 kg and 4.2 mm, for Group 1 and 14.2 years, 33.1 kg and 4.6 mm for Group 2 patients, respectively. In Group 1, there were 14 type A, 2 type D and 4 type E PDAs. Device sizes implanted were 6-4 in 4 patients, 8-6 in 9, 10-8 in 3 and 12-10 in 4. In Group 2 there were 9 type A and 3 type E PDAs. Device sizes utilized were 4-6 in 4 patients, 6-8 in 1, 8-10 in 5, 10-12 in 1 and 14-18 in 1 patient. The latter was implanted in an adult patient with pulmonary hypertension and showed significant, immediate, residual shunt. It was retrieved and replaced by a 24 Occlutech Flex ASD device. Only two long shank devices were used (4-6 and 8-10 devices) in Group 2 patients. Implants were possible in all cases and there were no complications in either group. All PDAs were completely closed at six months' follow-up.

CONCLUSION

Ductal occlusion with both devices was safe and effective. Although having a slightly different design, both devices presented comparable results. We believe that either the CERA or the Occlutech devices could have been used interchangeably in all PDAs closed in this study. CERA and Occlutech PDA occluders may become valuable alternatives for the other existing PDA devices, currently in the market.