DEVICE INDUCED COARCTATION POST PDA CLOSURE

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BACKGROUND

Transcatheter patent ductus arteriosus (PDA) closure is a safe and effective procedure. Device induced coarctation is a well known complication which has been shown to be avoidable.

OBJECTIVES

To evaluate different PDA closure devices with regards to the incidence of device induced coarctation.

METHODS

Between January 2010 and January 2017, a total of 489 patients (342 females and 147 males) underwent transcatheter PDA closure using Amplatzer duct occluder (n=293, 60%), PDA-R (PFM) occluder (n=161, 33%) and coils (n=35, 7%).

RESULTS

The patients´ age ranged from 3 months to 45 years (median 6 months). Successful PDA closure was achieved in 479 patients (97.9%) with a 98% complete closure rate within 24 hours after the procedure. A total of 10 patients (2.1%) had unsuccessful attempts with embolization of the device occurring in 5 patients (1.6%). Angiography and invasive measurements showed encroachment of the aorta in 13% of the patients with no significant gradient (less than 30 mmHg) across the arch before the release of the device and 10 patients had a gradient of 30 mmHg at the time of device release. Follow-up showed significant obstruction of the arch post PDA closure in 5 patients (4 patients with Amplatzer duct occluder and 1 patient with PDA-R device). The coarctation was diagnosed between 6 months and 2 years following PDA closure. Each of the 5 patients underwent surgical correction. One of these patients who had surgical removal of the device developed re-coarctation 6 months later.

CONCLUSIONS

Transcatheter PDA closure is safe and effective and carries only a low risk of encroachment on the aortic arch. The complication rate is very similar among the devices with only a minimally higher rate with use of the Amplatzer duct occluder compared to the PDA-R device.