Self-Expanding Versus Balloon-Expandable Stents for Aortic Coarctation in adolescents and adults: A 12-year Single-Center Experience

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Disclosure

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I have the following potential conflicts of interest to report:

- [ ] Consulting
- [ ] Employment in industry
- [ ] Stockholder of a healthcare company
- [ ] Owner of a healthcare company
- [ ] Other(s)

- [x] I do not have any potential conflict of interest
Objective

• CoA is a congenital aortic disease of aorta
Objective

• Stent implantation has been demonstrated to be efficacious for relieving coarctation of aorta (CoA).

• The options of stents used in the location of aorta include Self-Expanding or ......
Objective

- The options of stents used in the location of aorta include Self-Expanding or Balloon-Expandable stents, ......
Objective

- ............of those self-expanding stents are more convenient to implant and adapted better to the wall of the aorta.

- In this study we sought to compare the results of self-expanding and balloon-expandable stents for CoA to evaluate whether there is any difference in the efficacy of these devices.
Methods and Materials

- In a retrospective study, a consecutive cohort of patients with CoA who underwent angioplasty between January 2004 and December 2015 in Rajaie Cardiovascular Medical and Research Center, Tehran, Iran; were reviewed.

- Patients undergoing stent implantation were evaluated and those were followed up using medical charts and telephone interview.

- Baseline demographics, procedure data, and post-procedure outcomes (i.e. hypertension and complications) were identified.
Results

• A total of 196 patients scheduled to undergo stent implantation, of which 190 patients underwent stent implantation, including self-expanding (n=79) and balloon-expandable stents (n=111).

• Mean age of patients was 26.5 ± 9.2 years.

• Gender (Male: 119)
Results

• The median of baseline peak systolic gradient was 55 (50-75) and 60 (50-69) mmHg in the self-expanding and balloon-expandable groups, respectively ($P=0.136$).

• The number of patients with immediate post-procedure peak systolic gradient $<20$ mmHg (99% in balloon-expandable and 97.2% in self-expanding stents, $P=0.38$)........

........ and $<10$ mmHg (97% in balloon-expandable and 94.4% in self-expanding stents, $P=0.40$) were comparable between the groups.
Results

• BASELINE SYSTOLIC BP

- Ballon-Expandible: 150mmHg (140-160mmHg) [Median (Percentile 25-75)]

- Self-Expandible: 150mmHg (130-160mmHg) [Median (Percentile 25-75)]

No Statistically significant difference in BASELINE SYSTOLIC BP ($P=0.63$)
Results

• The median of systolic blood pressure after stenting was significantly lower in
  – self-expanding compared with balloon-expandable stents (130 [120-138] versus 135 [130-140] mmHg, \( P=0.023 \)),
  – while diastolic blood pressure was not.
Complications

- The rate of postprocedure events, including
  - transfusion
  - hematoma
  - dissection
  - stent migration
  - and re-balloon

was comparable between groups
Conclusions

The use of self-expanding stents provide immediate outcomes non-inferior to the balloon-expandable stents in patients with CoA.
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