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Use of the Bard BD 12mm Lutonix[™] Drug Eluting Balloon to Improve Central Vein Patency for Haemodialysis Access Circuit –

Does it work?

INTRODUCTION

- Central veins are the main outflow of any upper extremity hasemodialysis (HD) vascular access.
- Central venous stenosis affects access patency of the arteriovenous fistula or graft, and therefore the efficacy of HD.
- There is increasing evidence to suggest that the use of drug-eluting balloons (DEBs) improves target lesion primary patency (TLPP) in dialysis access¹.
- DEB is also suggested to be a better and safer alternative to conventional balloon angioplasty (CBA) in treating patients with HD stenosis².
- However, there is a paucity of studies investigating the use of DEBs specifically in central venous stenosis because of either availability or cost issues.

OBJECTIVE

RESULTS

Table 1. Patient and access characteristics

Characteristic	N (%)
Age in years, median (Interquartile range)	62.0 (56.0-69.0)
Male	16 (53.3)
Co-morbidities	
Hypertension	26 (86.7)
Hyperlipidemia	20 (66.7)
Diabetes Mellitus	18 (60.0)
Ischemic heart disease	16 (53.3)
Cerebrovascular disease	6 (20.0)
Regular Anti-Platelet therapy	23 (76.6)
Side	
Left	15 (50.0)
Right	15 (50.0)
Type of Access	
Arteriovenous fistula (AVF)	23 (76.6)
Arteriovenous graft (AVG)	7 (23.3)
Configuration of access	
Radio-cephalic	3 (10.0)
Brachio-cephalic	11 (36.7)
Brachio-basilica	13 (43.3)
Brachio – axillary	3 (10.0)
Symptoms of Central vein stenosis	
Symptomatic with arm swelling/prolonged bleeding/thrombosis	19 (63.3)
Asymptomatic	11 (36.7)
No. of previous central venous interventions, median (Interquartile range)	4 (2-6)
Types of lesion on angiography	
Stenosis	19 (63.3)
Total occlusion	11 (36.7)
Site of lesion on angiography	
Brachiocephalic vein	11 (36.7)
Subclavian vein	12 (40.0)
Both Brachiocephalic vein and Subclavian vein	7 (23.3)

To present our initial experience and results with this DEB in symptomatic central venous stenosis, specifically looking at primary patency in comparison the use of CBA in a cohort of Asian patients

METHODS

- A retrospective cohort study was conducted in 30 HD patients who underwent central vein angioplasty with DEB from February 2017 to March 2018 in SGH.
- We compared the primary patency (defined as uninterrupted patency after intervention until the next access thrombosis or reintervention³) post DEB angioplasty to primary patency of the patient's previous central conventional balloon angioplasty (CBA).
- Each patient received at least one central vein CBA prior to the use of DEB, thus each patient serves as his own control.
- Descriptive statistics were performed and patency probability between DEB and CBA compared using the paired log rank test. P values of less than 0.05
- Mean follow up period was 151 days (IQR: 85.5 – 234 days) and none were lost to follow up.
- 100% anatomic and procedural success with no complications with DEB.
- 30- and 90-day TLPP after DEB were 93.3% and 75.7%, respectively.
- The median primary patency duration post DEB was longer at 164 days vs. 140 days post-CBA, but was not statistically significant (Figure 1).
 There were also no differences in primary patency between AVFs and AVGs, between lest and right central veins, and between central vein stenosis and occlusions.



were considered to be significant.

CONCLUSION

- Use of DEBs could lead to prolonged primary patency in treating central venous stenosis.
- However, there were several confounding factors such as differences in vessel preparation, length of stenosis, balloon to vessel diameter, number of DEBs used and inadequate post dilation.
- A well designed randomized controlled trial would determine the true utility of DEB in treating central venous stenosis

Fig 1: Kaplan Meier curve showing primary patency between CBA and DEB Deb: drug eluting balloon, poba: plain old balloon

angioplasty

REFERENCES

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 2.Wee *et al.* Journal of Vascular Surgery (In Press)
 3.Aruny *et al.* Journal of Vascular and Interventional Radiology, volume 14, issue 9, S247-S253