

METAL FREE PER-CUTANEOUS CORONARY INTERVENTION

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Background

In many trials, DEB (Drug-eluting Balloon) has shown superiority in treating In-stent restenosis (ISR) and Small calibre vessels. However scope for DEB usage has widened in situations such as Acute Coronary Syndrome, Large vessels, Diffusely diseased vessels, Multi-vessel PCI, High bleeding risk patients, Side branches in Bifurcations aka Hybrid approach.

Complications such as Stent thrombosis, ISR due to neointimal hyperplasia can be avoided by DEB. There is preservation of physiological vasomotion, prevention of vascular remodelling and caging of vessel. This is a case series of DEB usage in a tertiary care centre.

Aim

To show DEB is a reasonable strategy and can complement DES in various clinical scenarios including Acute Coronary Syndrome, Large vessels, Diffusely diseased vessels, Multi-vessel PCI, High bleeding risk patients, Bifurcations lesions.

Outcome

Outcomes of the procedure (Angiographic presence of dissection flap and Intra-Vascular Imaging wherever performed) was studied. A 6-month follow up study measuring MACE, Target Vessel Revascularisation.

Methods

There are 8 patients in distinct clinical scenarios who were carefully selected to perform DEB

Case 1- 87/M Acute AAMI; CAG showed Single Vessel Disease (SVD); Moderate LV dysfunction. Due to elderly age and high bleeding risk, Balloon angioplasty was planned to LAD followed by DEB. Intra-Vascular Ultrasonography (IVUS) showed 270 degree calcium. Intravascular Lithotripsy (IVL) was followed by DEB.

Case 2- 45/F Acute AAMI; CAG showed SVD; Mild LV dysfunction. In ACS situation with diffusely diseased LAD with no landing zones, DEB was planned. Cutting balloon was done to break superficial calcium followed by DEB to proximal and mid LAD. There was a dissection in mid LAD which was followed up with a stent in mid LAD.

Case 3- 77/M Unstable Angina; CAG showed Triple Vessel Disease (TVD); Normal LV function. Plan was Balloon angioplasty followed by DEB to Mid and Distal RCA due to Small calibre vessel & DEB to LMCA to LAD lesion to prevent jailing of Dominant LCX. We avoided Multiple stents and thereby stent related complications.

Case 4- 54/M PTCA to LAD – 10 yrs ago; CAG showed LAD-ISR-CTO without significant collaterals. IVUS showed marked under expansion of stent due to densely calcified vessel wall. IVL was done to break the calcium which was followed up with DEB.

Case 5- 57/F Severe LV dysfunction developed ISR in mid LAD-CTO. After crossing the CTO lesion, there was another lesion at the Distal LAD. Hybrid approach with DEB to distal LAD and stent to mid LAD was done.

Case 6- 54/M Policeman came with Acute PWMI; CAG showed Double Vessel Disease; Mild LV dysfunction. Primary angioplasty to Dominant LCX was done. LMCA- LAD had a critical lesion. DEB was preferred due to ACS, TIMI-2 flow in LCX and to avoid jailing the LCX.

Case 7- 64/M TMT showed High probability of CAD; CAG showed SVD; Good LV function. DEB was done in view of diffusely diseased LMCA-LAD and to avoid jailing of LCX

Case 8- 45/M Unstable Angina; CAG showed TVD; Good LV function. By using DEB and Hybrid approach, we could avoid multiple stents.

One month after discharge in all patients, DAPT was stopped and changed to aspirin alone.

Results

All the above cases are ongoing 6 month follow up. There was no occurrence of any major adverse cardiovascular events and no need for Target vessel revascularisation.

Conclusions

DEB is a reasonable strategy in the presence of co-morbidities preventing DAPT usage, High bleeding risk patients and where optimal stenting cannot be done such as diffusely diseased vessels, small calibre vessels, ISR, bifurcations lesions.

DEBs are finding favour among interventional cardiologists with newer Balloon catheter devices, better Drug delivery system, better pharmacokinetics and increased operator skill.