BTK strategies and best options

BTK biforcations: best treatment

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Introduction

- Bifurcational lesions represent a challenge for interventionists in order to maintain the patency of both branches and to provide satisfactory mid term results.

- There is little information regarding the optimal treatment of bifurcational lesions located in infra-popliteal arteries.

- Most of the devices and techniques adopted are transferred from the coronary experience into BTK vessels.
Endovascular strategies for bifurcational lesions

Plain balloon angioplasty

DEB angioplasty

Atherectomy

Bare metal stenting (balloon expandable, self expandable)

DES stenting (balloon expandable)

Provisional stenting

Elective stenting

Single balloon inflations

Kissing balloon inflations

Plain atherectomy

single stent

T-stenting

V-stenting

kissing-stenting

crush-stenting

culotte-stenting
YUKON, DESTINY, ACHILLES trials

1-Year Patency Rates

- **YUKON**: 55.6% BMS/PTA, 80.6% SES
- **DESTINY**: 54.4% BMS/PTA, 85.2% SES
- **ACHILLES**: 58.1% BMS/PTA, 80.6% SES

P < 0.05 for all trials

Rastan et al. HHJ 2011; Scheinert et al. 2012; Bosiers et al. JVS 2012
Dedicated stents

- Pathfinder/ Frontier
- Petal
- Twin Rail
- Nile Croco
- Stentys
- Antares
- Sideguard
- Tryton
- Medtronic
- Devax Axxess
Dedicated stents

STRATEGY:

- stent only in the main branch with a dedicated stent which preserves the access to the side branch
- provisional stenting in the side branch

DRAWBACKS

- Bulky and with large profile
- Passive orientation
- Wire tangle
- Poor deliverability
Bifurcational lesions stenting: techniques

OST
KST
CRT
SBT
TST
CUT

BTK bifurcation
Critical limb ischemia

Coronary bifurcation
Stable angina
BTK bifurcations: clinical studies

**Patency rate**

- **Werner** (CCI 2013): 81% (1 vessel)
- **Silingardi** (J Vasc Surg 2011): 54% (2 vessels)
- **Spiliopoulos** (J End Ther 2012): 86%
- **Gargiulo** (EJVES 2008): 73%
- **Kissing balloon**: 75%

*N* = 11, 31, 39, 29
One–stent strategy

- Occlusion of all the BTK vessels
- Result after multiple inflations
- DES 3.5 x 15 mm Resolute Medtronic
- Kissing balloon inflation
- New stent struts geometry after kissing balloon inflation
- Final result
Two-stents strategy
Culotte techniques

DES
3.5 x 26 mm
Taxus

Result after multiple inflations
Two-stents strategy
Culotte techniques

Second DES implantation
3.5 x 26 mm Taxus

Final result

One-year Angiographic Follow-up
Two-stents strategy
Culotte techniques

Schematic representation

The two stents are overlapped in the proximal portion of the bifurcation
Role of atherectomy in bifurcational lesions

Bifurcational lesions
Atherosclerotic plaques are located in the lateral walls while the flow divider regions are spared
Role of atherectomy in bifurcational lesions

The cutting blade is **uncorrectly** addressed to the bifurcation flow divider (vessel carina).

Residual stenosis in the main branch

Sub-occlusion of the peroneal artery
The cutting blade is correctly addressed to the vessel wall opposite to the bifurcation flow divider (vessel carina).
Conclusions

- The information regarding the treatment of BTK bifurcational lesions are limited to small series of patients treated with different strategies.

- All the experiences indicate high success rates and good mid term patency.

- In absence of prospective randomized studies, operators should tailor their interventions according to lesion characteristics, clinical presentation and personal preference.