Comparison of angiographic dissection patterns caused by Long vs. Short balloons during balloon angioplasty for chronic femoropopliteal occlusions [1]

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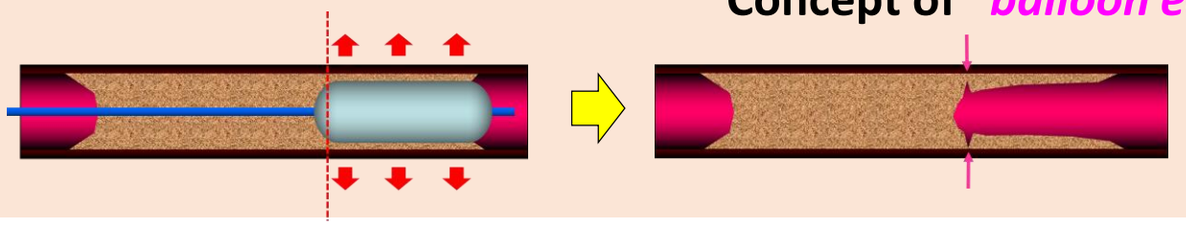
Concept of "balloon edge dissection"



Vessel dissection will occur at the transition between **the edge of a balloon** and the adjacent lesion.

OBJECTIVE

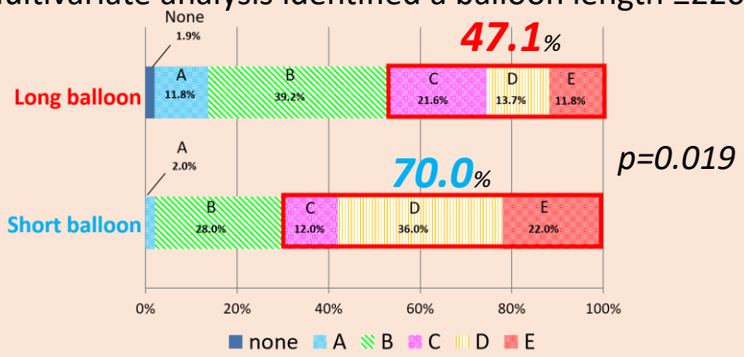
- The aim of this study was to describe the feasibility of balloon angioplasty using a long-length balloon for chronic femoropopliteal occlusions with TASC Ⅱ class C/D lesions by evaluating angiographic dissection patterns.

METHODS

- A retrospective, single center analysis examined 101 patients with de novo 101 symptomatic femoropopliteal occlusive disease treated with endovascular therapy between August 2012 and October 2016.
- The patients were classified into 2 groups;
  - **Long**-length balloon group; **L-BA** (≧ **220mm**) : 51 patients
  - **Short**-length balloon group; **S-BA**(≦**150mm**) : 50 patients

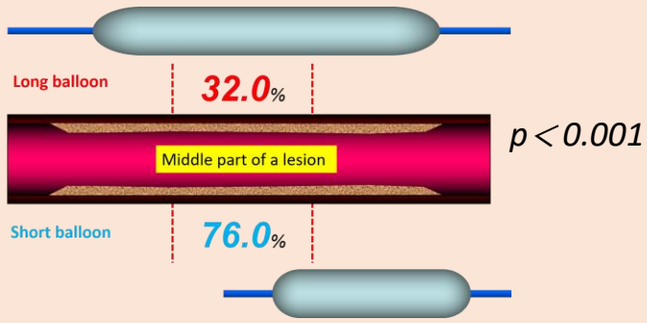
RESULTS

- Severe vessel dissection patterns, defined as type C or higher, were fewer in the L-BA group (47.1% vs 70.0% in the S-BA group, p=0.019). Although the results showed no significant differences between the two groups regarding the length of chronic total occlusions (L-BA: 228.6±73.2 vs S-BA: 226.0±53.8 mm, p=0.83), inflation pressure (L-BA; 8.2±2.6 vs S-BA: 8.1±2.9 atm, p=0.86), and the other lesion characteristics, inflation time was significantly longer in the L-BA group (161.2±68.7 seconds vs 51.1±54.0 seconds in the S-BA group, p<0.001).
- Multivariate analysis identified a balloon length ≥220 mm as an independent negative predictor of severe vessel dissection.



p=0.019

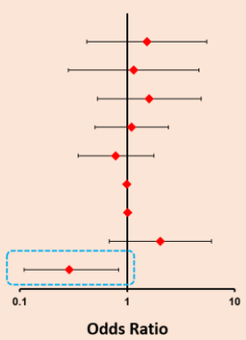
Comparison of vessel dissection patterns



p＜0.001

Comparison of location of dissections

	OR	[95% CI]	p value
Hemodialysis	1.53	[0.42,5.54]	0.52
PACSS grade4	1.15	[0.28,4.65]	0.84
Inflation time≧3min	1.61	[0.53,4.90]	0.40
RVD	1.10	[0.50,2.42]	0.81
Balloon diameter	0.78	[0.35,1.77]	0.55
Lesion length	0.99	[0.98,1.01]	0.59
CTO length	1.01	[0.99,1.02]	0.27
IVUS usage	2.04	[0.68,6.12]	0.20
Balloon length≧220mm	**0.29**	**[0.11,0.83]**	**0.02**



Multivariate analysis of severe dissections

DISCUSSION

- The development of DCBs has resulted in favorable outcomes and has made a substantial contribution to "leave nothing behind" therapies. In terms of preventing severe dissection, optimization of balloon angioplasty outcomes is key to achieving "leave nothing behind" therapies.

CONCLUSION

- Based on the concept of balloon edge dissection in CTOs, **the use of long balloons covering as much of the CTO length as possible** may help prevent severe vessel dissection in the femoropopliteal segment. Additional validation needs to be performed to optimize balloon angioplasty outcomes.

Reference; [1]*Tan M, Urasawa K et al. J Endovasc Ther. 2018 Apr;25(2):192-200.*