



LINC

Drug Eluting Balloon Angioplasty Vs Bare Metal Stents in Femoropopliteal Disease - a Single Centre Experience

Maria Doyle M.Eng Hilary Coffey M.D

Brendan Barrett MBBS MSC MRCPC

Ravindra Gullipalli MBBS MRCS FRCR

St. Clare's Mercy Hospital, Memorial University, St. John's,

Newfoundland, Canada



L I N C

Disclosure

Speaker name:

Ravindra Gullipalli

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)

- I do not have any potential conflict of interest





LINC

Peripheral Arterial Disease

- Debilitating disease
- 800,000 people in Canada affected by PAD
- Up to 20% of individuals over 75 years old
- Endovascular Interventions
 - Conventional balloon angioplasty
 - Bare metal stents (BMS)
 - Drug eluting stents (DES)
 - Drug coated balloons (DCB)



LINC

Methodology

- Retrospective, single-center study
- Symptomatic femoropopliteal atherosclerotic disease
- Sample size: 401 patients from 2010-2015
 - DCB: 200
 - BMS: 201
- 1, 2 and 3 year follow up



LINC

Data collection

- **Patient characteristics:** Age, Diabetes, Smoking Status, Hypertension, Hyperlipidemia, Chronic Renal Insufficiency
- **Lesion location:** SFA, Distal SFA/Popliteal, Popliteal
- **Lesion type:** De novo, Recurrent stenosis, In-stent stenosis/occlusion
- **Lesion classification:** TASC II, Rutherford Classification, Lesion length, Multilevel disease



L I N C

Outcomes

Primary outcome

- Freedom from target lesion revascularization (TLR)
- TLR defined as repeat percutaneous intervention or bypass surgery

Secondary outcomes

- Major events (above or below the knee amputation)
- Death



L I N C

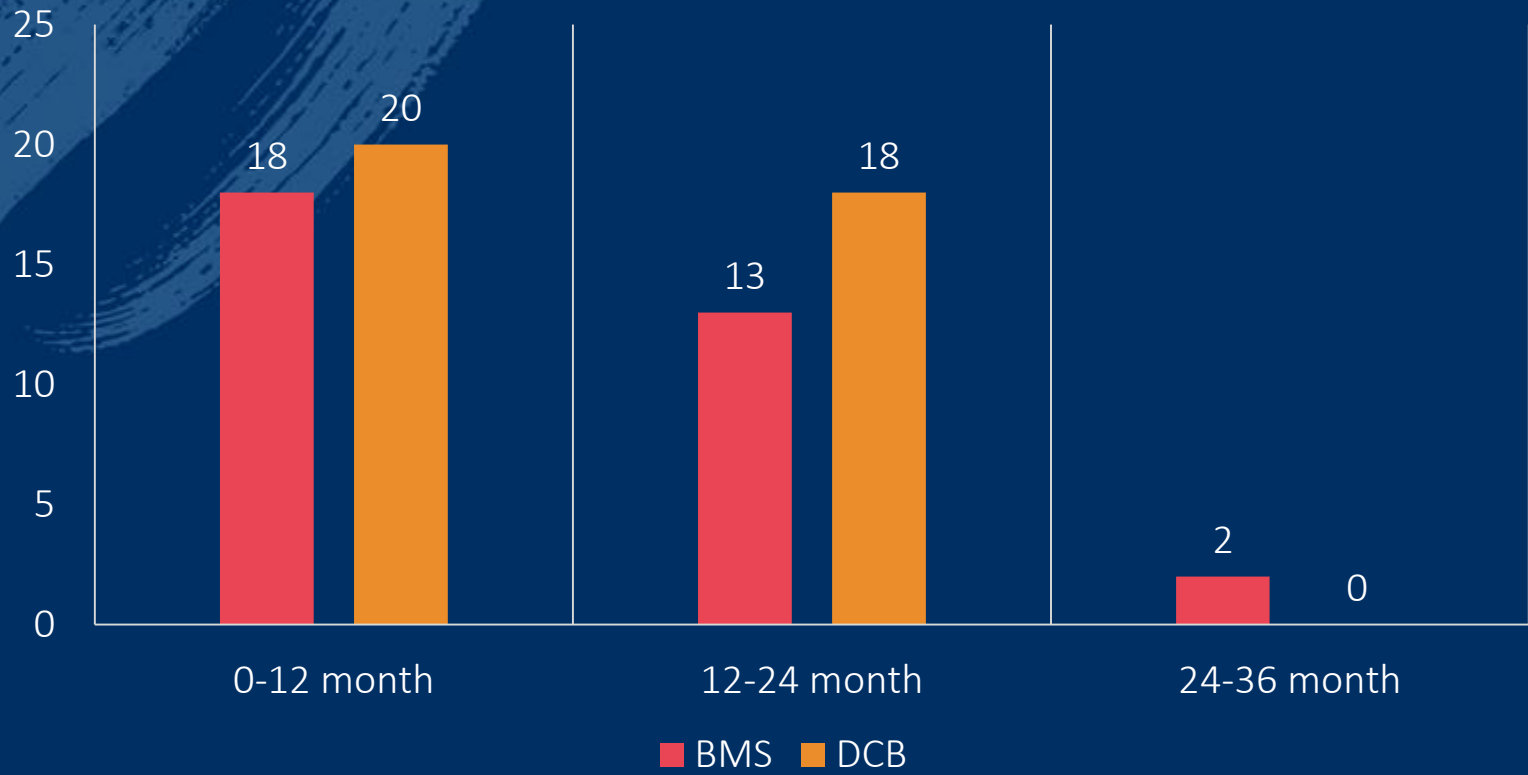
Statistical Analysis

- Baseline characteristics between the groups were compared using analysis of variance for continuous data or a chi-square test for categorical data.
- Propensity scores were built through a binary logistic regression using baseline covariates (CLI, TASC C+D, multilevel disease, popliteal involvement and prior stenosis) in order to adjust for any measured differences.
- Threshold for statistical significance was $p < 0.05$
- Deaths were excluded as they were considered competing risks.



LINC

Deaths



Major Amputations at 3 yrs - 12 (DCB) and 9 (BMS)



Baseline Characteristics

Patient Characteristics	BMS (n = 168)		DCB (n = 162)		p value
Age, y	67	+/- 10.4	67.5	+/- 9.7	0.722
Men	128	76.2%	90	55.6%	0.000
Hypertension	128	76.2%	131	80.9%	0.349
Hyperlipidemia	89	53%	129	79.6%	0.000
Past/current smoker	115	68.5%	135	83.3%	0.002
Diabetes Mellitus	97	57.7%	100	61.7%	0.501
Renal insufficiency	34	20.2%	52	32.1%	0.017
CLI	91	54.2%	63	38.9%	0.006



Classifying Lesions

Lesion Characteristics	BMS (n = 168)		DCB (n = 162)		p value
Lesion length, cm	11.5	+/-6.8	11.92	+/- 7.1	0.609
Recurrent/In-stent	4	2.4%	40	24.7%	0.000
Popliteal involvement	33	19.6%	80	49.4%	0.000
Total occlusion	58	34.5%	47	29%	0.29
Multilevel Disease	68	40.5%	61	37.7%	0.652
TASC C+D	59	35.1%	62	38.3%	0.57



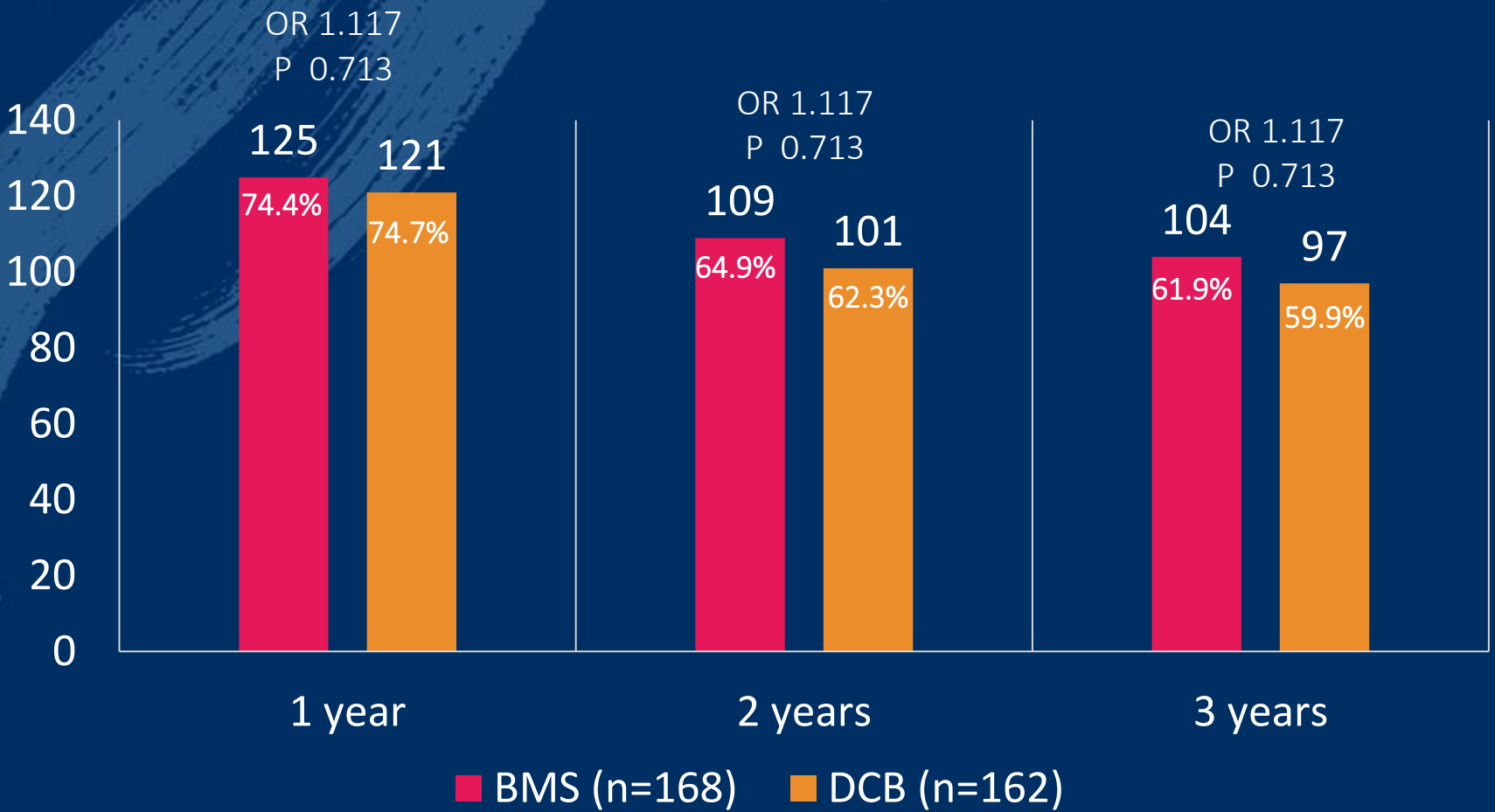
TLR at 1, 2, and 3 years

	BMS (%)	DCB (%)	p value
0 - 12 months	43(25.6)	41(25.3)	1
12 - 24 months	16(9.5)	20(12.3)	0.481
24 - 36 months	5(3.0)	4(2.5)	1



LINC

Freedom from TLR at 1, 2, and 3 years

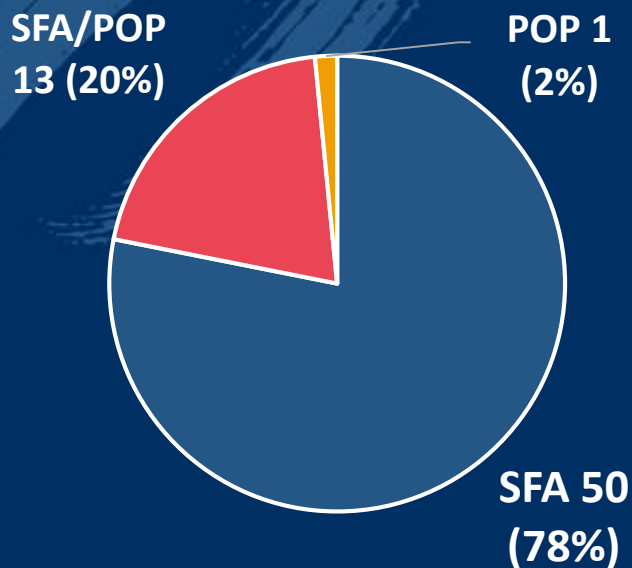




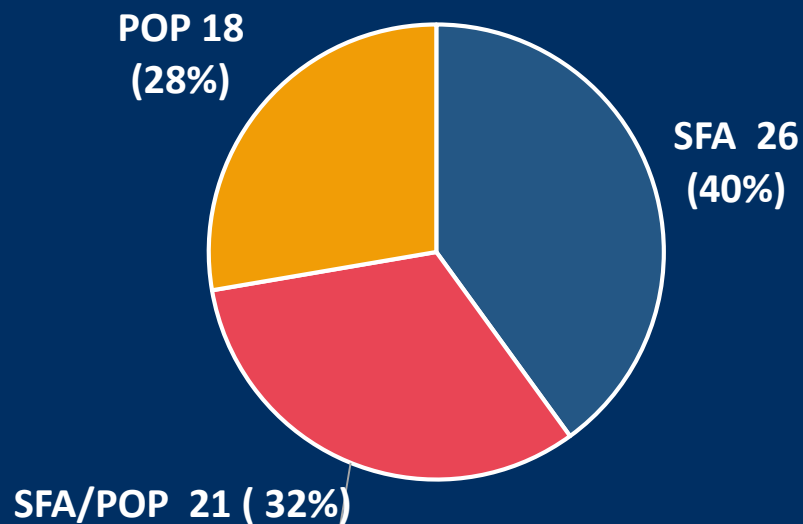
LINC

TLR according to lesion location

BMS



DCB





LINC

On-going work

- Survival analysis
- Risks of mortality of using Paclitaxel coated devices
- Analysis of TASC C+D



LINC

Conclusions

- Freedom from TLR at 3 years in Femero-popliteal interventions was similar in both BMS and DCB cohorts
- DCB have role in TASC C & D patients
- DCB have major role in popliteal lesions and in-stent stenosis



References

- M. Lovell, K. Harris, T. Forbes, G. Twillman, B. Abramson, M. H. Criqui, P. Schroeder, E. R. Mohler 3rd, A. T. Hirsch and Peripheral Arterial Disease Coalition. Peripheral arterial disease: Lack of awareness in Canada. *Can. J. Cardiol.* 25(1), pp. 39-45. 2009.
- S. Steiner, A. Schmidt, Y. Bausback, M. Piorkowski, M. Werner, M. Yahiaoui-Doktor, U. Banning-Eichenseer and D. Scheinert. Midterm patency after femoropopliteal interventions: A comparison of standard and interwoven nitinol stents and drug-coated balloons in a single-center, propensity score-matched analysis. *J. Endovasc. Ther.* 23(2), pp. 347-355. 2016. . DOI: 10.1177/1526602816628285 [doi].
- K. Marmagkiolis, A. Hakeem, N. Choksi, M. Al-Hawwas, M. M. Edupuganti, M. A. Leesar and M. Cilingiroglu. 12-month primary patency rates of contemporary endovascular device therapy for femoro-popliteal occlusive disease in 6,024 patients: Beyond balloon angioplasty. *Catheter. Cardiovasc. Interv.* 84(4), pp. 555-564. 2014. . DOI: 10.1002/ccd.25510 [doi].
- M. Fusaro, S. Cassese, G. Ndrepepa, L. A. King, T. Tada, I. Ott and A. Kastrati. Paclitaxel-coated balloon or primary bare nitinol stent for revascularization of femoropopliteal artery: A meta-analysis of randomized trials versus uncoated balloon and an adjusted indirect comparison. *Int. J. Cardiol.* 168(4), pp. 4002-4009. 2013. . DOI: 10.1016/j.ijcard.2013.06.081 [doi].
- <http://www.socscistatistics.com/tests/chisquare2/Default2.aspx>



LINC

Drug Eluting Balloon Angioplasty Vs Bare Metal Stents in Femoropopliteal Disease - a Single Centre Experience

Maria Doyle M.Eng Hilary Coffey M.D

Brendan Barrett MBBS MSC MRCPC

Ravindra Gullipalli MBBS MRCS FRCR

St. Clare's Mercy Hospital, Memorial University, St. John's,

Newfoundland, Canada