UNIVERSITY OF CAMBRIDGE

VASCULAR SOCIETY
The Vascular Society for Great Britain and Ireland

Cambridge University Hospitals NHS
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^{18}F-Fluorodeoxyglucose and ^{18}F-Fluoride Positron Emission Tomography for Identification of Restenosis in Symptomatic Peripheral Arterial Disease: A Prospective Clinical Study

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Mohammed M. Chowdhury
JM Tarkin, NR Evans, MS Albaghdadi, FR Joshi, EPV Le, EA Warburton, J Buscombe, PD Hayes, JHF Rudd, PA Coughlin

Department of Vascular Surgery, Cambridge University Hospitals NHS Foundation Trust, University of Cambridge, UK

Restenosis in PAD and Molecular Imaging

First line treatment SFA disease – endovascular first approach (POBA)

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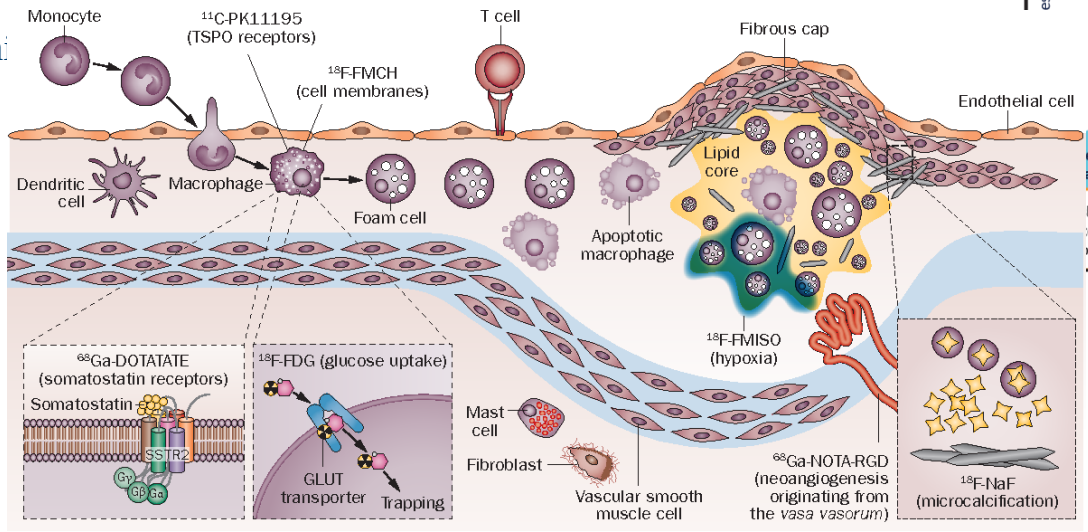

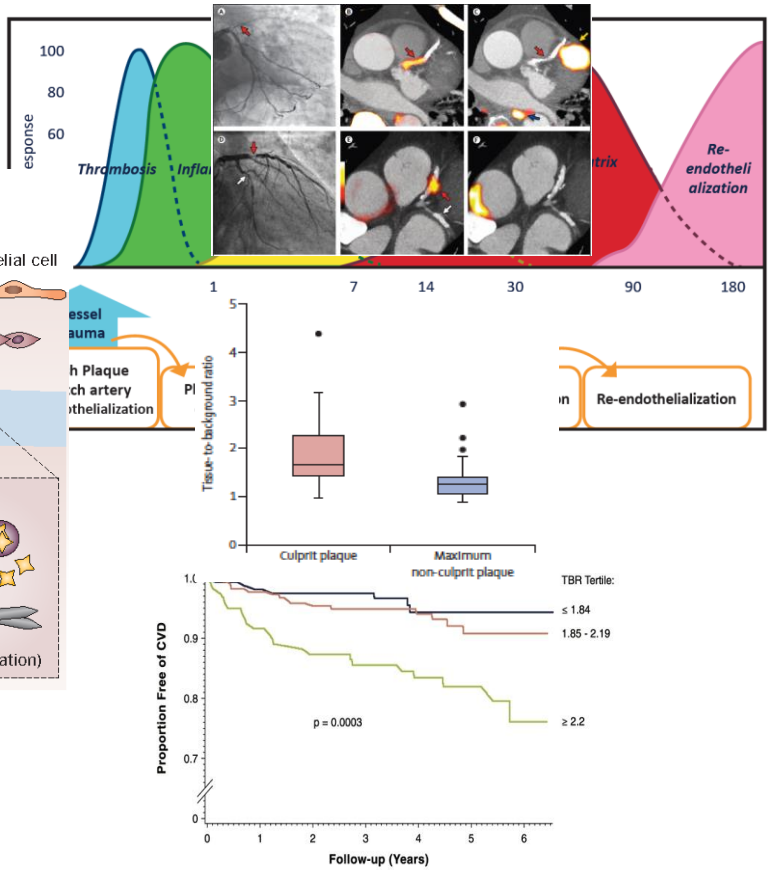

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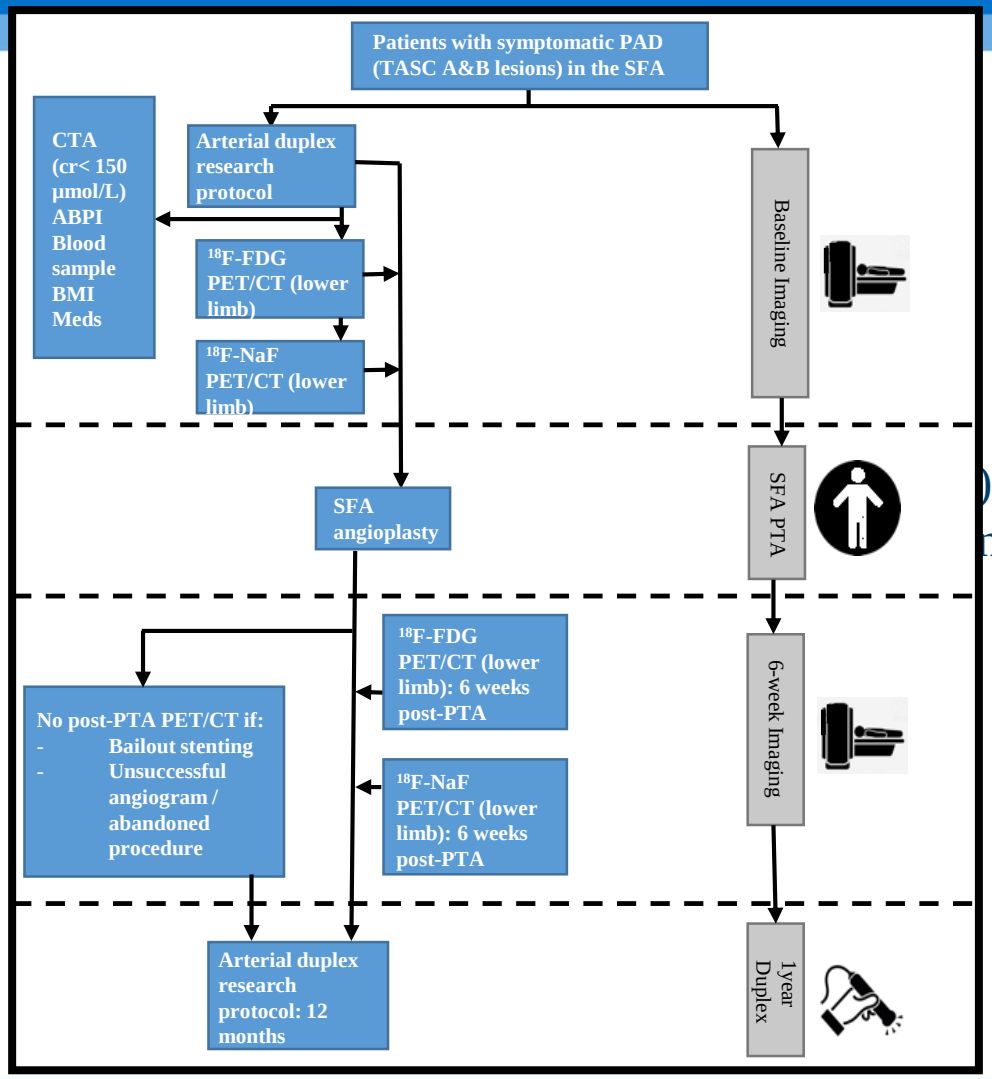
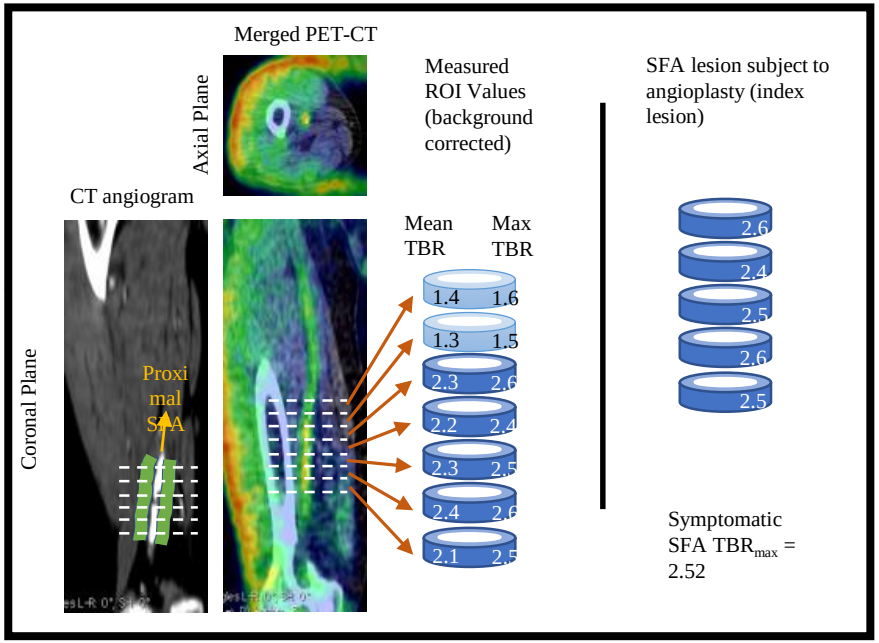
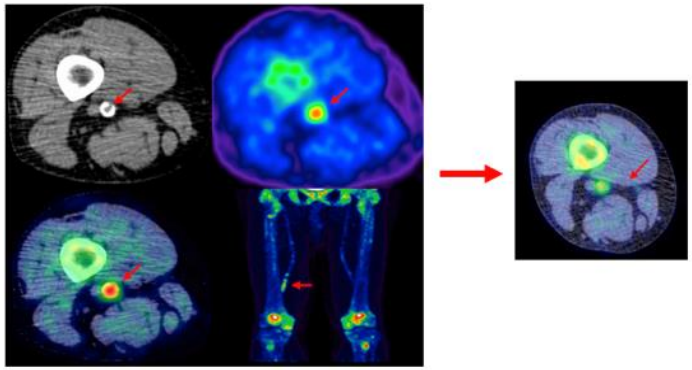
CIRLA Study: Aims, Protocol, Index Lesion



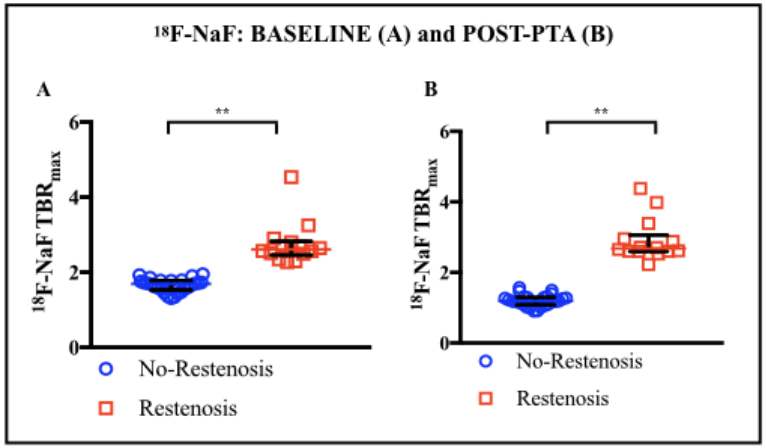


Clinical Characteristics of Patients

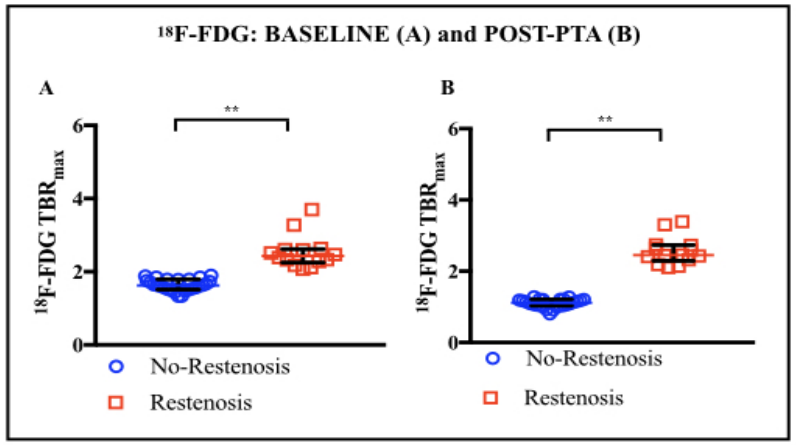
Patient baseline characteristics stratified by restenosis status (n=40)	All n=40	No-restenosis n=26	Restenosis n=14	p value
Age in years, median (IQR)	71·5 (64·8-79·3)	73·5 (67·5-80·5)	63 (60-75)	0·051
Men, n (%)	26 (65%)	17 (65%)	9 (64%)	0·945
Sub-group, n (%)				
TASC A	26 (65%)	19 (73%)	7 (50%)	0·243
TASC B	14 (35%)	7 (27%)	7 (50%)	0·327
Previous Medical History, n (%)				
Hypertension	32 (80%)	19 (73%)	13 (93%)	0·141
Non-insulin dependent diabetes	14 (35%)	9 (35%)	5 (36%)	0·945
Ischaemic heart disease/ MI	15 (38%)	7 (27%)	8 (57%)	0·063
Cerebrovascular event / TIA	5 (13%)	3 (12%)	2 (14%)	0·805
Smoker, n (%)	4 (10%)	3 (12%)	1 (7%)	0·663
Medication, n (%)				
Antiplatelet	33 (83%)	21 (81%)	12 (86%)	0·178
Anticoagulation	4 (10%)	3 (12%)	1 (7%)	0·892
Statin	36 (90%)	22 (85%)	13 (93%)	0·458
ACE-inhibitor	20 (50%)	13 (50%)	7 (50%)	0·982
BMI (kg/m^2), mean ± SD	28·57 ± 4·35	28·84 ± 4·84	28·07 ± 3·37	0·821
ABPI	0·72 (0·68 - 0·77)	0·74 (0·68 - 0·79)	0·70 (0·66 - 0·75)	0·154
High sensitivity CRP (mg/dL), median (IQR)	2·77 (1·10-8·80)	3·90 (1·19-8·71)	2.1 (1·05-8·61)	0·61



Baseline PET/CT tracer uptake is higher in restenosis patients



^{18}F-NaF PET/CT Signal Stratified by Restenosis Status at 12 months



^{18}F-FDG PET/CT Signal Stratified by Restenosis Status at 12 months

Conclusion

First PET/CT study in symptomatic PAD cohort to demonstrate that baseline arterial inflammation and microcalcification activity can identify patients who will progress to restenosis within a year.

Symptomatic anatomical restenosis is associated with persistent vascular inflammation and calcification activity following PTA.

Metabolic activity of the atherosclerotic plaque determines downstream restenosis, and this is a potential target for patient selection and therapeutic manipulation.

Acknowledgments

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