First in man results from a novel device providing real time, quantitative feedback on tissue perfusion during peripheral intervention

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Lots of debates in peripheral intervention.....
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POBA is all you need

It has to be DCBs
Lots of debates in peripheral intervention.....

You must go below the knee

I’m treating the SFA 1st
Lots of debates in peripheral intervention.....

Angiosomes are best

I’m relying on collaterals
We rarely talk about quality control though ...
Simply comparing images isn’t always helpful.
Quality control not easy...

- TcPO2 slow and can be fiddly
- Laser doppler cameras bulky
- Hyperspectral imaging needs to see foot
Potentially easier quality control...
Diffuse Speckle Contrast Analysis Technology

**Left:** Laser light scatters off red blood cells in tissue

**Right top:** A laser speckle pattern generated from constructive/destructive interference of scattered light.

**Right bottom:** The amount of perfusion in the underlying tissue relates to the level of scattering and blurring of the speckle pattern.
Tests in 20 non-vascular patients

• 2 sensors per leg
• BP cuff occlusion
• Rapid fall in perfusion
• Rebound hyperaemia
Tests in 20 non-vascular patients

- Very anxious patient
- Rise in systemic BP mirrored by detection of increased blood flow
Real-time feedback from interventions
Improving Radiological Outcomes in Arterial Disease

- Ongoing study with University of Cambridge Hospitals in the UK run by Mr Ayoola Awopetu
- Evaluating outcomes across 40 patients
- PEDRA evaluation pre-, intra- and post-op
- Also measuring ABPI, TBI, TcPO2
- Cath lab assessment of images
- Data collection for improvement in walking distance and clinical outcomes
IROAD cases - claudication
IROAD cases – night pain

**Baseline**
- Walking distance 15m
- Ischaemic pain most nights

**Post angioplasty**
- Walking distance 750m
- Freedom from pain
IROAD – tissue loss
IROAD – tissue loss
Patient with combined popliteal and tibial artery disease – only the popliteal stenosis opened...
IROAD – cath lab fail

Patient readmitted 10 days later with significant deterioration in symptoms
IROAD – summary so far

- 35 patients recruited
  - Mixture of claudicants and CLI
- Device has been very well tolerated in cath lab
- Lots of physician interest
- Easy to use and reliable
- Early indications of a threshold number for CLI
- Successful intervention = rise in BPI
IROAD – summary so far

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• Successful intervention = rise in BPI
• 3 negative clinical outcomes all associated with a failure to increase the BPI during intervention
Could Pedra help elsewhere?

DFU clinic 2010

DFU clinic 2020
Triage problem at the frontline

ABI’s low real-world sensitivity

Ischemic patients wrongly triaged as healthy on a regular basis.

Delay In vascular intervention

More Infection, Refractory Wounds and Limb Loss

Ischemic or Neuropathic? Or Both?
From Primary Care To The Angio Suite And Beyond

Pedra

Primary Care Diagnosis

- More accurate diagnosis of DFUs caused by severe ischemia.
- Early referral to vascular diagnostic centers for fuller workup.
- Direct appropriate patients towards balloon angioplasty earlier.

Angio Suite

- Real-time feedback to doctor while patient is on-table.
- Enables smart use of peripheral devices.
- Helps doctor decide the appropriate time to end the procedure with best result and least risk.

Post-Op Monitoring

- Doctor/Nurse can monitor the degree of post-op ischemia at clinical center.
- Patient with history of recurrent DFUs can monitor at home and seek timely intervention as needed.

Tracking tissue perfusion from diagnosis to healing.
Thanks for your attention
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