
Proceedings Paper:
Nawaz, S., Tong, T., Brindley, P. orcid.org/0000-0001-9989-9789 et al. (3 more authors) (2024) Time and regional trends in hybrid revascularisation for patients with lower limb ischaemia. In: EJVES Vascular Forum. The European Society for Vascular Surgery 37th Annual Meeting 2023, 26-29 Sep 2023, Belfast, Northern Ireland. Elsevier BV , S7-S8.

https://doi.org/10.1016/j.ejvsvf.2024.01.013

Conclusion: The introduction of the MPC-AAA has fulfilled the three primary aims of the service improvement in the AAA care pathway. This projected highlighted certain areas requiring attention, for example documentation of referral dates from satellite sites. Furthermore, from the analysis it was seen that since the introduction of the MPC-AAA there are more "decision not to treat" outcomes. It would be interesting to explore whether this change is due to improved shared decision making which is enabled by the MPC-AAA. The MPC-AAA has improved efficiency of care and patient experience and given new insights to explore areas for further work which were not visible to the service before.

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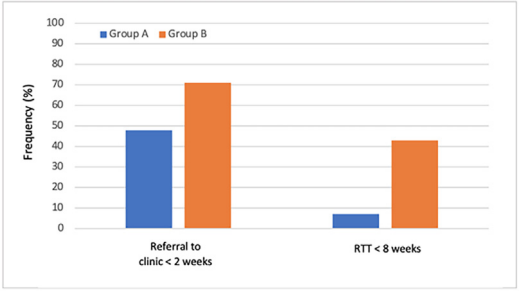

	Group A	Group B
Male	20 (74%)	35 (83.3%)
Female	7 (26%)	7 (16.6%)
Mean age (years)	77.0	76.2

	Group A	Group B
Referral to clinic (weeks)	1.86	2.04
Referral to clinic excluding those without referral dates (weeks)	3.23	3.89
Clinic to treatment (weeks)	11.9	8.81
Clinic to treatment excluding those without referral dates (weeks)	15.49	8.82
RTT (weeks)	13.6	10.71
RTT excluding those without referral dates (weeks)	18.44	12.45

https://doi.org/10.1016/j.ejvsvf.2024.01.012

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Time and Regional Trends in Hybrid Revascularisation for Patients With Lower Limb Ischaemia

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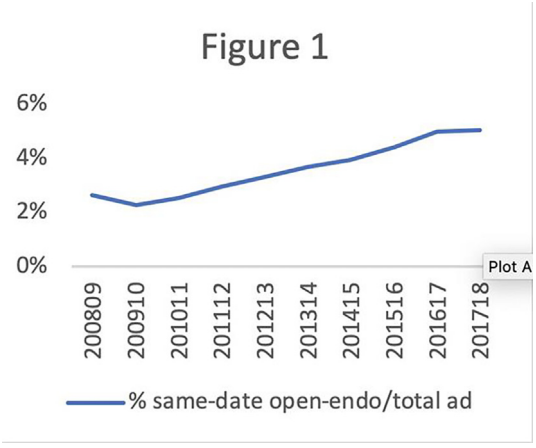
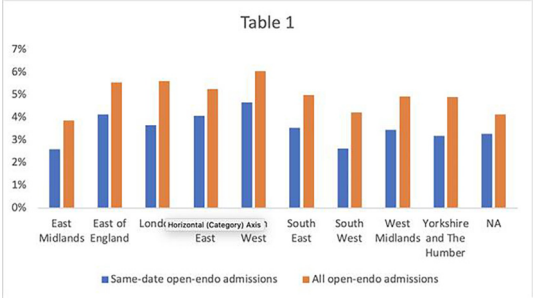
Objective: Open revascularisation surgery for lower limb ischaemia carries significant risks to patients both in terms of morbidity and mortality, this is especially increasing with increasing age and comorbidities in this group of patients. Conversely, endovascular treatments have reduced morbidity and mortality, but it is not always possible to offer an endovascular solution to all the patients. Combining both open and endovascular treatments allows one to extend the treatment options for the patient with reduced morbidity, mortality, and length of stay. The aim was to see what the national time trends and regional variations were in terms of hybrid procedures to inform policies to invest in future training and building of correct facilities (hybrid suites),

Methods: Hospital Episodes Statistics (HES) in patient records between 2008/09 and 2017/18 were used. Admissions with both open and endo-procedures in the same admission were flagged. Regional and time trends were analysed.

Results: Hybrid cases have increased by more than 200% over the last 10 years (Fig. 1). There was also significant regional variations, as much as 100% difference between the lowest and highest performing sites (Table 1). The National Vascular Registry (NVR) has recently started reporting hybrid cases, although the capture is likely to be under represented due to the voluntary nature of the NVR has also found increasing number of hybrid cases and significant regional variation. However, the above figures both from the HES and NVR are likely to be an underestimate as combined cases are not separately coded.

Conclusion: If this trend is to continue then a paradigm shift is needed in both emphasis and investment in training of vascular specialists and resource allocation. Separate coding is also needed for more accurate data and correct tariffs to enable appropriate resource allocations.





https://doi.org/10.1016/j.ejvsvf.2024.01.013

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Optical Coherence Tomography as Therapeutic Imaging Modality in Intravascular Lithotripsy of Human Peripheral Vasculature

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Objective: Optical coherence tomography (OCT) is a novel imaging technique that uses near infrared light to provide high definition intra-luminal imaging of a vessel. It has been extensively utilised in cardiology for intra-coronary imaging. However, the extension of this diagnostic modality to *in vivo* human peripheral vasculature imaging is limited.[1] Luminal calcification of human vasculature has been one of the most dreaded and concerning issues with prognosis defining ramifications. The calcium disrupting potential exhibited by intravascular lithotripsy (IVL) technology has long been used for lesion modification in intra-coronary vasculature. The novel technique had for long seen a limited deployment in peripheral vasculature. PAD DISRUPT Trial has recently added objectivity to the usage.[2] This study was an endeavour to utilise OCT as a therapeutic imaging in *in vivo* human arterial vasculature and amalgamate it with IVL, producing realistic intra-operative evidence of calcium fragmentation and luminal expansion, with or without stent deployment. The amalgamation of these two novel techniques in peripheral human vasculature has shown promising results. The authors could not refer to any similar study in the world literature.

Methods: All patients presenting with disabling claudication and those with critical limbs who had evidence of calcification (180 degrees or more) on computed tomography angiography and were willing for enrolment into the study were included in the study. Patients with thrombotic disorders, those with aortoiliac disease with calcification and patients unwilling for enrolment in study were excluded. All patients were operated under local anaesthesia, with an antegrade, ipsilateral approach. In a few cases intravascular ultrasound was also deployed, in addition to OCT. Over a standard 0.014 inch wire system, the single operator exchange commercially available platform of OCT was deployed. The same 0.014 inch wire based platform was used to deploy commercially available IVL balloon. OCT was first used to delineate and characterise the lesion. Once the calcium score was calculated and found within acceptable limits of inclusion criteria, the patient was offered IVL, always keeping the minimal luminal area (MLA) acquired on OCT in the lithotripsy deployment zone. A post-procedure OCT pull back was done to assess luminal patency, flap creation, and other complications. Based on luminal gain and target vessel characteristics a decision to deploy stent was taken. The primary endpoints were procedural success as defined by residual stenosis $\leq$30% without flow limiting dissection, symptomatic relief, and healing of pre-existing limb ulcer. The secondary endpoints were any major adverse limb events (MALE) and all cause mortality.

Results: A total of 20 patients have been enrolled at the time of writing this pilot report on this ongoing prospective study. The mean age of the participants was 64 $\pm$ 5 years, with a male gender predilection (85% males). Diabetes mellitus was the predominant associated comorbidity. The majority of the cases had presented with a non-healing ulcer in the target limb. OCT based IVL assisted stenting was done in 30% patients, with 100% stent apposition before hardware withdrawal. Intraluminal calcium disruption was achieved in all cases with maximal luminal gain in infragenicular vessels. The stent apposition to lesion could be assessed intra-operatively and corrective measures taken, if any. Luminal gain at MLA registered post lithotripsy was to a maximum of 318 times. The primary end point was reached in all patients. One patient had to undergo target limb amputation and there was one all cause mortality. No flow limiting dissection and access site complications were noticed. The patency rates achieved over six month follow up period were 90%.

Conclusion: OCT has a potential role in therapeutic *in vivo* human vascular architecture imaging, with its inherent capability of achieving a vascular biopsy. It provides unparalleled imaging of the lesion thus paving way for further intra-operative decision making. A new "frozen section" of vascular surgery! The accolades of the versatile technique synergistically enhance the advantages offered by IVL by helping in target lesion localisation, assessment of calcium arch and its disruption post IVL deployment. Any complications post intervention can be delineated with pin point precision, by post-procedure OCT use. Use of OCT assisted IVL in peripheral vasculature seems to be sitting at crossroads to redefine the usage of the two revolutionary techniques in human peripheral arterial vasculature.

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https://doi.org/10.1016/j.ejvsvf.2024.01.014

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Delay to CEA

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Objective: In the UK, it is estimated that 10 000 out of 120 000 strokes recorded each year are related to carotid disease.[1] In an attempt to reduce these, the National Vascular Registry (NVR) and the European Society of Vascular Surgeon (ESVS) has set a national target which is that surgery should take place within 14 days from onset of symptoms.[2,4] A yearly estimate of 4 500 carotid endarterectomy (CEA) procedures are carried out in the NHS.[1] A survey of the current practice in the UK found that only 20% of the recently symptomatic patients underwent a CEA within two weeks.[3] Carotid endarterectomy is carried out in patients who have had minor stroke, transient ischaemic attack (TIA), or amaurosis fugax. This is aimed at preventing a major stroke. CEAs should ideally be undertaken as soon as possible after the patient has stabilised following a TIA or minor stroke in order to maximise its benefit.[2] The vascular network offers centralised vascular services to three separate health boards. This study aims to ascertain