

Current medical management of patients with peripheral arterial disease and potential benefits of risk-factor optimization: A Vascular and Endovascular Research Network (VERN) collaboration

Athanasios Saratzis¹, Dave Bosanquet¹, Ruth Benson¹, Owain Fisher¹, Brenig Gwilym¹, Nikesh Dattani¹, George Dovell¹, Rachael Forsythe¹, SMART-REACH Collaborators², Vascular and Endovascular Research Network Collaborators¹

¹Vascular and Endovascular Research Network, VERN ²University Medical Center, Utrecht, Netherlands

Background

Previous research suggests patients with Peripheral Arterial Disease (PAD) are not offered adequate risk-factor modification, despite their high cardiovascular risk. We aimed to assess the cardiovascular profiles of patients with PAD in the UK and quantify the survival benefits of target-based risk-factor modification.

Methods

The Vascular and Endovascular Research Network (VERN) prospectively collected cardiovascular profiles of patients with PAD from ten UK vascular centres (April - June 2018) to assess practice against UK and European goal-directed BMT guidelines. Risk and benefits of risk-factor control were estimated using the SMART-REACH model, a validated cardiovascular prediction tool for patients with PAD.

Results

Overall, 440 patients (mean age: 70±11 years, 24% female) were included. Mean cholesterol (4.3±1.2 mmol/L) and LDL (2.7±1.1 mmol/L) levels were above recommended levels; 319 (73%) patients were hypertensive and 343 (78%) were smokers. Only 12% of patients were prescribed high-dose statin therapy and 39% an antithrombotic agent. The median risk of a major cardiovascular event over 10-years was 53% [Interquartile Range (IQR): 44-62%]. Controlling all modifiable cardiovascular risk-factors based on UK and European guidance targets (LDL<2mmol/L, SBP<140mmHg, smoking cessation, antiplatelet therapy) would lead to an absolute risk reduction of the median 10-year cardiovascular risk by 29% (range: 20-38%) with 6.3 cardiovascular disease-free years gained (range: 4.0-9.3 years).

Conclusion

The medical management of patients with PAD is suboptimal nationally. Controlling modifiable risk-factors to guideline-based targets confers a large therapy-benefit from both a 10-year and a lifetime perspective.

Real world costs and consequences of a failed SFA angioplasty

Lukasz P Zielinski, Mohammed M Chowdhury, Patrick A Coughlin

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

Introduction

Debate surrounds the optimal management of SFA disease. Randomised trial data rarely reflects real world findings, specifically the consequences to the patient of angioplasty failure.

Methods

We reviewed a consecutive series of 159 patients (94 men, median age 72 years) undergoing solely SFA angioplasty between 01/01/2015 and 31/12/2106. Patient pre-angioplasty demographics and 2-year post-PTA follow up data were collated, including hospital attendances (inpatient / outpatient), further imaging (including radiation exposure) and revascularisation attempts. We defined "failed angioplasty" as presence of clinical symptoms with radiological evidence of significant restenosis following an initial successful primary angioplasty.

Results

Fifty-six patients represented with a failed angioplasty (median time of 4 months post index PTA). In this group, failure of index angioplasty resulted in a further 196 restenosis-related clinic visits and a total of 548 bed days of inpatient stay. This group underwent a further 162 scans (19 CTa, 136 duplex, 1 MRA, 6 formal angiograms) and required a further 39 endovascular revascularisation procedures and 15 infrainguinal bypass procedures. These interventions and investigations corresponded to overall effective radiation dose across all patients of 206.74mSv. Of the cohort of 103 patients who did not have a "failed angioplasty", they required 109 clinic visits, 23 further scans (total radiation dose 6.42mSv) and 36 bed days of inpatient admission.

Conclusion

Failed angioplasty results in significant additional consequences for patients and healthcare systems. Further work should focus on refining decision making, providing the right procedure to the right patient at the right time.

Long term patency outcomes in deep venous stenting

Kemal Kemal, Tristan Lane, Sarah Onida, Mohamed Hifny, Mary Ellis, Joseph Shalhoub, Nicholas Burfitt, Alun H Davies

Academic Section of Vascular Surgery, Imperial College London, UK & Imperial College Healthcare NHS Trust,, London

Background

Deep venous stenting has become more popular over the past few years with the advent of dedicated venous stents. Stenting is now commonly used in the treatment of May Thurner syndrome or in patients with post thrombotic syndrome to alleviate venous obstruction. Re-intervention rates for stent thrombosis or stenosis can be high and are a big concern with regards to this treatment. The aim of this study was to assess stent patency and re-intervention rates in patients who had undergone lower limb deep venous stenting in a tertiary vascular unit. In addition, a comparative analysis of stent patency for acute and chronic occlusions was performed.

Methods

This was a retrospective single centre study of prospectively collected data. All patients who underwent stenting (with dedicated venous stents) for acute and chronic deep venous disease between November 2011 and June 2018 were included in the study. During the post-stent surveillance programme, duplex ultrasound was used to assess stent patency.

Results

Seventy-eight deep venous stents were inserted between November 2011 and June 2018. Ten patients were immediately lost to follow up and were therefore excluded from the analysis. The median age was 41.5 years (range 13-79 years) and twenty-eight procedures were for acute presentations and forty for chronic occlusions. Twenty-two limbs required re-intervention (32%) (thrombolysis, venoplasty and/or additional stent insertion). There was no statistical difference in primary, primary assisted or secondary patency between stents inserted in the acute or chronic setting. The primary patency rate at 12, 24, 48 and 60 months was 84%, 75%, 30% and 30% respectively. The primary assisted patency rates at 12, 24, 48 and 60 months was 91%, 88%, 82% and 82% respectively. The secondary patency rate at 12, 24, 48 and 60 months was 90%, 87%, 82% and 82%.

Conclusion

These results demonstrate good overall secondary patency outcomes in patients who have undergone deep venous stent procedures. Thirty-two per cent of patients required re-intervention; this underlines the importance of stent surveillance for timely identification of these individuals. There was no significant difference in patency outcomes comparing stents sited for acute versus chronic disease.

Hybrid revascularisation for multi-level peripheral vascular disease: 5-year outcomes

Muzzafer Chaudery¹, Trixie Yap¹, Talia Lea¹, Sanjiban Mandal¹, Syed Zaidi¹, Iulia Bujoreanu¹, Hany Zayed¹, Ashish Patel^{1,2}, St Thomas' Hospital Vascular Research Collaborative¹

¹Guy's & St Thomas' NHS Foundation Trust, London ²King's College London, London

Background

Hybrid surgery (femoral endarterectomy with endovascular revascularisation) is an alternative treatment to reconstructive surgery for multi-level arterial disease. The aim was to analyse outcomes in patients undergoing this procedure.

Methods

Patients undergoing hybrid surgery between 2013-2018 were included. Primary outcomes were major adverse limb events (MALE) and peri-operative adverse cardiovascular events (MACE). Secondary outcomes were post-operative morbidity and target vessel patency.

Results

322 patients, mean age 72±11(sd), 75% males, underwent hybrid surgery (72% electively) for Rutherford III (47%), IV (20%) and V-VI (33%) ischaemia. Median follow up was 15 months. Patients underwent femoral endarterectomy followed by endovascular treatment of their iliac (69%), SFA/crural (27%) or both inflow and outflow vessels (4%). Stenting was required for 88% and 58% of iliac and SFA lesions respectively. The median length of stay was 4 (2-8) days. 13% had a groin complication (bleeding [4%], haematoma [3%] or wound infection [6%]).

1, 2 and 3 year primary patency (>70% stenosis) was 65%, 48% and 41%; primary assisted and secondary patency rates were 96%, 92% and 80% vs 97%, 92% and 89% respectively. MACE and 5-year MALE events occurred in 12% and 11% of patients respectively. 1, 2 and 5-year survival and amputation-free survival rates were 88%, 81%, 44% vs 86%, 76%, 38%.

Conclusions

This is the largest hybrid series for multi-level peripheral vascular disease. Strict postoperative surveillance is necessary to maintain acceptable patency rates. It is associated with acceptable MALE and MACE and should be considered for treatment in high-risk patients.

A novel vascular limb salvage clinic for the management of critical limb threatening ischaemia and diabetic foot disease: Our first year results

Andrew Nickinson¹, Jivka Dimitrova², Lauren Rate², Svetlana Dubkova², Hannah Lines², Tanya Payne¹, Rob Sayers¹, Robert Davies²

¹University of Leicester, Leicester ²University Hospitals of Leicester NHS Foundation Trust, Leicester

Background

Dedicated vascular limb salvage clinics may reduce delays in the management of critical limb threatening ischaemia (CLTI) and diabetic foot disease (DFD). We report the first year outcomes of a nurse-led, vascular limb salvage (VaLS) clinic for assessing patients with suspected CLTI and/or DFD, which aims to revascularise patients within 10 working days of referral, as recommended by the VSGBI's Provision of Vascular Services (POVS) 2018.

Method

Analysis of consecutive patients referred to the VaLS clinic over a 12 month period from inception (February 2018-February 2019). Data was prospectively collected on: a) time from referral to assessment and revascularisation and b) major amputation rates.

Results

Two-hundred and ninety-nine cases (295 patients, median age=73 years, male=205, median follow-up=160 days) with suspected CLTI and/or DFD were assessed over a 12 month period. One-hundred and seventy-five (58.5%) cases occurred in patients with diabetes. General practice (n=133) and loco-regional diabetic foot clinics (n=101) were the leading referral sources. Overall, 128 cases (42.8%) underwent revascularisation following assessment, with primary endovascular being the most common technique (n=105, 82.0%). Median time from referral to assessment was 2.1 [IQR= 1.3-4.1] days and assessment to first revascularisation was 6.1 [4.0-11.0] days. Sixteen major amputations were performed (5.4%) (AKA=6, BKA=10) and 30 patients (10.2%) died during follow-up.

Conclusions

The VaLS clinic has achieved rapid assessment and revascularisation times, facilitating the attainment of the POVS standard. Early major amputation rates are encouraging, however longer follow-up data is required to fully assess this model of care.

Revascularise at all costs: Are the costs of revascularisation justified in avoiding amputation in a cash-strapped health service?

Daniel Urriza Rodriguez¹, Dominic Howard^{1,2}

¹Department of Vascular Surgery, John Radcliffe Hospital, Oxford ²Nuffield Department of Surgical Sciences, University of Oxford, Oxford

Background

Despite peripheral arterial disease (PAD) affecting over 200 million people worldwide, there is a paucity of published data on costs of PAD on healthcare systems. This study aims to calculate the financial effect of PAD and consider if interventions to avoid major amputations are justified in cash-strapped healthcare systems.

Methods

The Oxford Vascular Study is a large-scale prospective population-based study (92,728 participants) of all vascular events. For this analysis, all patients with first-ever incident of acute limb ischaemia (ALI) and critical limb ischaemia (CLI) episodes were included (2002-2017). Hospital resource usage and institutional data were obtained to calculate mean 10-year healthcare costs.

Results

CLI is the most common acute PAD event type identified; with an incidence of 22/100,000/year compared to ALI at 10/100,000/year. CLI is the most expensive cardiovascular event with a mean 10-year healthcare cost of £44,727.

Intervention was a strong independent predictor of long-term costs. Mean 10-year costs for any PAD event was £32,971. Performing one or more angioplasty/stent interventions or one or more bypass procedures increased the costs to £39,648 and £43,839 respectively. This was considerably less than mean costs of a below knee and above knee amputation, £59,130 and £63,150 respectively.

Conclusion

The study provides evidence of the impact of PAD events on healthcare systems. The results justify the approach to revascularise patients presenting with ALI or CLI, when appropriate, on grounds of overall healthcare costs when compared to a primary major amputation.