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PRACTICE

GUIDELINES

Diagnosis and management of varicose veins in the legs: summary of NICE guidance

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This is one of a series of *BMJ* summaries of new guidelines based on the best available evidence; they highlight important recommendations for clinical practice, especially where uncertainty or controversy exists.

Varicose veins in the lower limbs are a common problem, estimated to affect at least a third of the UK population.[1] Although some individuals with varicose veins remain asymptomatic, others may experience pain, aching, heaviness, and itching, that can impair quality of life.[2 3] About 10% of people with varicose veins go on to develop skin changes, such as pigmentation or eczema,[4] while about 3% may develop venous ulcers.[5] At present there is substantial variation across the UK as to who qualifies for referral or treatment, and how varicose veins are treated.[6] Clear guidance on which individuals should be referred to specialist vascular services, as well as the most clinically effective and cost effective treatment, is required.

This article summarises the most recent recommendations from the National Institute for Health and Care Excellence (NICE).[7]

Recommendations

NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the Guideline Development Group's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are given in italic in square brackets.

Referral to a vascular service

- Refer people with bleeding varicose veins to a vascular service immediately. [*Based on the experience and opinion of the Guideline Development Group (GDG)*]

Refer people to a vascular service if they have any of the following:

- Primary or recurrent varicose veins that are symptomatic (associated with troublesome lower limb symptoms such as pain, swelling, heaviness, or itching) or associated with lower limb skin changes (such as pigmentation or eczema) thought to be caused by chronic venous insufficiency. [*Based on moderate to very low quality evidence from prognostic studies, low to very low evidence from randomised controlled trials and corresponding cost effectiveness analysis of interventional treatment for varicose veins, and the experience and opinion of the GDG*]
- Superficial vein thrombosis (characterised by the appearance of hard, painful veins) and suspected venous incompetence. [*Based on the experience and opinion of the GDG and on low and very low evidence from randomised controlled trials and the corresponding cost effectiveness analysis of interventional treatment for varicose veins*]
- A venous leg ulcer (a break in the skin below the knee that has not healed within two weeks) or a healed venous leg ulcer. [*Based on the experience and opinion of the GDG, low and very low evidence from randomised controlled trials and the corresponding cost effectiveness analysis of interventional treatment for varicose veins*]

Assessment and treatment in a vascular service

- Use duplex ultrasound to confirm the diagnosis of varicose veins and the extent of truncal reflux (backflow of blood through a main superficial vein), and to plan treatment for people with suspected primary or recurrent varicose veins. [*Based on the experience and opinion of the GDG, evidence from diagnostic studies and very low quality evidence from randomised controlled trials*]

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- For interventional treatment to people with confirmed varicose veins and truncal reflux:
  - Offer endothermal ablation, usually via radiofrequency or laser ablation (see NICE guidance on radiofrequency ablation of varicose veins[8] and endovenous laser treatment of the long saphenous vein[9])
  - If endothermal ablation is unsuitable, offer ultrasound guided foam sclerotherapy (see guidance on ultrasound guided foam sclerotherapy for varicose veins[10])
  - If foam sclerotherapy is unsuitable, offer truncal vein stripping surgery
  - If incompetent varicose tributaries are to be treated, consider treating them at the same time.

  [*Based on low and very low quality evidence from direct comparisons in randomised controlled trials and corresponding cost effectiveness analysis with mixed treatment comparisons in a network meta-analysis*]
- If offering compression bandaging or hosiery for use after interventional treatment, do not use for more than seven days. [*Based on low and very low quality evidence from randomised controlled trials and the experience and opinion of the GDG*]
- Do not offer compression hosiery as a standalone treatment for varicose veins unless interventional treatment is not suitable. [*Based on low and very low quality evidence from randomised controlled trials, cost effectiveness analysis on interventional treatments in varicose veins, and the experience and opinion of the GDG*]

Information for people with varicose veins

This should include:

- An explanation of what varicose veins are. For example, people can be told that varicose veins are superficial veins with faulty valves that allow reversed venous blood flow, with subsequent venous pooling and distension.
- Possible causes of varicose veins, such as increased age or pregnancy.
- The likelihood of progression and possible complications, including deep vein thrombosis, skin changes, leg ulcers, bleeding, and thrombophlebitis. Address any misconceptions the person may have about the risks of developing complications.
- Treatment options aimed at symptom relief, an overview of interventional treatments, and an explanation of the limited role of compression hosiery.
- Advice on:
  - Weight loss (for guidance on weight management see NICE clinical guideline 43[11])
  - Light to moderate physical activity
  - Avoiding factors that are known to make their symptoms worse
  - When and where to seek further medical help.
- When discussing treatment for varicose veins at the vascular service, advise:
  - What treatment options are available
  - The expected benefits and risks of each treatment option
  - That new varicose veins may develop after treatment
  - That patients may need more than one session of treatment
  - That the chance of recurrence after treatment for recurrent varicose veins is higher than for primary varicose veins.

[*Based on very low quality evidence from prognostic studies, very low to moderate evidence from qualitative and quantitative survey studies, and the experience and opinion of the GDG*]

Management during pregnancy

- Give pregnant women presenting with varicose veins information on the effect of pregnancy on varicose veins. For example, although varicose veins may appear during pregnancy, these may regress spontaneously in the postnatal period. In other respects the symptoms of varicose veins in pregnant women are the same as those in people who are not pregnant.
- Do not carry out interventional treatment for varicose veins during pregnancy other than in exceptional circumstances.
- Consider compression hosiery for symptom relief of leg swelling associated with varicose veins during pregnancy.

[*Based the experience and opinion of the GDG, informed by NICE clinical guideline 62*[12]]

Overcoming barriers

Traditionally, conservative care (compression and advice) has been considered a low cost intervention for people with symptoms such as aching or pain from varicose veins. It has thus been routinely offered before interventional treatment. However, the evidence identified in this guideline challenges this practice, showing that interventional treatment is more clinically effective and cost effective than conservative care for people with symptomatic varicose veins.

In some regions of the UK, endothermal ablation is not currently available. The guideline provides solid evidence that this is the first choice of treatment on both clinical and cost effectiveness grounds, and should be made available throughout the UK.

The members of the Guideline Development Group were Alun Davies (chair), professor of vascular surgery, Imperial College London, and consultant vascular surgeon, Imperial College NHS Trust, London; Mustapha Azzam, MD vascular scientist/phlebologist, Ealing NHS Trust, Imperial College, London; Andrew Bradbury, Sampson Gamgee professor of vascular surgery and director of quality assurance and enhancement, College of Medical and Dental Sciences, University of Birmingham, and consultant vascular and endovascular surgeon, Heart of England NHS Foundation Trust, Birmingham; Jocelyn Brookes, consultant endovascular radiologist, University College London Hospitals; Joyce Calam, patient member; David Evans, patient member; Nick Hickey, consultant vascular surgeon, Worcestershire Acute Hospitals NHS Trust, Worcester; Keith Poskitt, consultant vascular surgeon, Cheltenham General Hospital; Hazel Trender, vascular nurse specialist, Sheffield Vascular Institute; and Mark Vaughan, GP, Avenue Villa Surgery, Llanelli. Jenny Greenfield was appointed as an expert advisor. The technical team at the National Clinical Guideline Centre included Quyen Chu, Kate Kelley, Grace Marsden, Mark Perry, Karen Head, Richard Whittome, Katharina Dworzynski, Katie Jones, Ebeneezer Tetteh, and David Wonderling.

Contributors: All the authors wrote and reviewed the draft, were involved in writing further drafts, and reviewed and approved the final version for publication. Other contributors who reviewed the final version were Mustapha Azzam, Andrew Bradbury, Jocelyn Brookes, Joyce Calam, David Evans, Nick Hickey, Keith Poskitt, Hazel Trender, and Mark Vaughan. AD acts as guarantor.

Further information on the guidance

Methods

The Guideline Development Group followed the standard NICE methods in the development of this guideline (www.nice.org.uk/aboutnice/howwework/developingniceclinicalguidelines/developing_nice_clinical_guidelines.jsp). The GDG comprised four consultant vascular surgeons (including the chair), one clinical vascular scientist, one consultant endovascular radiologist, one general practitioner, two patient members, and one vascular nurse specialist. The group also co-opted one practice nurse manager and sought expert advice from one consultant gynaecologist representing the Royal College of Obstetricians and Gynaecologists.

The group developed clinical questions, collected and appraised clinical evidence, and evaluated the cost effectiveness of proposed interventions through literature review and original economic modelling. The draft guideline went through a rigorous reviewing process, in which stakeholder organisations were invited to comment; the GDG took all comments into consideration when producing the final version of the guideline. NICE has produced four different versions of the guideline: a full version; a version known as the "NICE guideline" (which summarises the recommendations); a NICE pathway (an interactive tool that brings together all related NICE guidance on a topic in one interface); and a version for patients and the public. All these versions, together with a suite of tools to help with implementation of the guidance, are available from the NICE website (http://guidance.nice.org.uk/CG168). Quality ratings of the evidence were based on GRADE methodology (www.gradeworkinggroup.org). These relate to the quality of the available evidence for assessed outcomes rather than the quality of the clinical study. Quality assessment of diagnostic studies was based on QUADAS-II methodology (www.bris.ac.uk/quadas/quadas-2) and presented in customised GRADE tables. Where standard methods could not be applied, a customised quality assessment was undertaken. These were either presented as a narrative summary of the evidence or in customised GRADE tables (such as for qualitative and prognostic reviews). There are no current plans for any updates.

Cost effectiveness analysis and network meta-analysis of treatments for varicose veins

An economic model was developed from an NHS and personal social services perspective to compare the cost effectiveness of surgery, foam sclerotherapy, endothermal treatment, and compression therapy for the treatment of varicose veins. The cost effectiveness analysis included a network meta-analysis which evaluated surgery, foam sclerotherapy, and endothermal treatment, based on the outcome of clinical recurrence. Endothermal treatment was found to be the most clinically effective treatment, and the most cost effective, yielding the highest net monetary benefit at a willingness to pay threshold of £20 000 per QALY.

Future research

The GDG identified the following areas as needing further research:

- In people with varicose veins without skin changes, what are the factors that influence progression of the disease to irreversible skin changes such as pigmentation, eczema, or ulceration?
- During truncal endothermal ablation for varicose veins, what is the clinical and cost effectiveness of completing concurrent phlebectomies for varicose tributaries, compared with
  - Truncal endothermal ablation without concurrent phlebectomies?
  - Truncal endothermal ablation with subsequent phlebectomies if needed 6-12 weeks later?
- What is the clinical and cost effectiveness of compression hosiery versus no compression for the management of symptomatic varicose veins?
- What is the clinical and cost effectiveness of compression hosiery after interventional treatment for varicose veins compared with no compression hosiery? If there is a benefit, how long should compression hosiery be worn for?
- What is the optimal treatment strategy (compression versus surgery versus endothermal ablation versus foam sclerotherapy) for varicose veins at different levels of severity?

Competing interests: We have read and understood the BMJ Group policy on declaration of interests and declare the following interests: All authors were funded by NICE for the submitted work. AD received expenses to attend conferences and courses (Turkish Vascular Society, European Society of Vascular surgery, European Venous Forum, ARAB vein meeting (Saudi Arabia), Veith symposium (USA), Academic meeting of CACVS (Controversies and Updates in Vascular Surgery), American Venous Forum (USA), Charing Cross Symposium, annual meeting of the Australasian College of Phlebology, European Vascular Course (GM also attended), Veith Vascular Symposium, ISVS Miami, AVF Phoenix, vascular meeting in India); all meetings had commercial sponsorship from many organisations. AD received expenses to attend a meeting with Servier (Paris) to discuss Daflon and research opportunities, a pharmaceutical treatment of varicose veins. AD's research department was awarded grants from HTA/NIHR, Venous Forum UK, European Venous Forum, Circulation Foundation, Stroke Association, Vascular Insights Ltd, FirstKind Ltd, Actegy Health, Sapheon INC, Urgo Laboritoire (Paris), Royal College of Surgeons of England, and Graham Dixon Charitable Trust.

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