

Antithrombotic Therapy Following Venous Stenting: International Delphi Consensus

Kristijonas Milinis ^a, Ankur Thapar ^b, Joseph Shalhoub ^c, Alun H. Davies ^{a,*}

^aImperial College London, London, UK

^bLondon Postgraduate School of Surgery and Imperial College London, London, UK

^cImperial College Healthcare NHS Trust and Imperial College London, London, UK

WHAT THIS PAPER ADDS

This is the first study to investigate antithrombotic practices after venous stenting, from a large body of venous stenting experts. Using the Delphi methodology consensus was achieved on a number of important issues, including the use of anticoagulation, duration of treatment, and thrombophilia screening. It is hoped that the findings of this consensus will facilitate clinical decision making in new units and guide future research.

Objective/background: Deep venous stenting is increasingly used in the treatment of deep venous obstruction; however, there is currently no consensus regarding post-procedural antithrombotic therapy. The aim of the present study was to determine the most commonly used antithrombotic regimens and facilitate global consensus.

Methods: An electronic survey containing three clinical scenarios on venous stenting for non-thrombotic iliac vein lesions, acute deep vein thrombosis (DVT), and post-thrombotic syndrome was distributed to five societies whose members included vascular surgeons, interventional radiologists, and haematologists. The results of the initial survey (phase 1) were used to produce seven consensus statements, which were distributed to the respondents for evaluation in the second round (phase 2), along with the results of phase 1. Consensus was defined a priori as endorsement or rejection of a statement by $\geq 67\%$ of respondents.

Results: Phase 1 was completed by 106 experts, who practiced in 78 venous stenting centres in 28 countries. Sixty-one respondents (58% response rate) completed phase 2. Five of seven statements met the consensus criteria. Anticoagulation was the preferred treatment during the first 6–12 months following venous stenting for a compressive iliac vein lesion. Low molecular weight heparin was the antithrombotic agent of choice during the first 2–6 weeks. Lifelong anticoagulation was recommended after multiple DVTs. Discontinuation of anticoagulation after 6–12 months was advised following venous stenting for a single acute DVT. No agreement was reached regarding the role of long-term antiplatelet therapy.

Conclusions: Consensus existed amongst respondents regarding anticoagulant therapy following venous stenting. At present, there is no consensus regarding the role of antiplatelet agents in this context.

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INTRODUCTION

Obstructive lesions of the deep venous system are an increasingly recognised cause of chronic venous disease.¹ Iliofemoral venous stenosis or occlusion can occur as a result of post-thrombotic or non-thrombotic iliac vein lesions (May–Thurner syndrome), or external compression, for example by a pelvic mass.

In recent years, venous stenting has risen to prominence as the intervention of choice to relieve the symptoms and signs of iliofemoral obstruction.^{1,2} Several non-randomised studies have demonstrated ulcer healing and improved quality of life following venous stenting.^{3,4} A number of international guidelines now recommend venous stenting for patients with iliac or common femoral vein obstruction who suffer from venous claudication, ulceration, or severe oedema resistant to compression (Grade 1B, Class II).^{5,6}

Although a number of studies have focused on technical factors associated with stent occlusion, there is paucity of research examining the role of antithrombotic therapy in maintaining stent patency.⁷ No controlled studies have previously investigated the use of anticoagulants or antiplatelet agents following venous stenting.⁷ The lack of consensus on this issue is reflected by the varied

* Corresponding author. Academic Section of Vascular Surgery, Division of Surgery, Department of Surgery & Cancer, Imperial College London, 4 East, Charing Cross Hospital, Fulham Palace Road, Hammersmith, London W6 8RF, UK.

E-mail address: a.h.davies@imperial.ac.uk (Alun H. Davies).

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antithrombotic therapies reported in the literature on outcomes of venous stents and the paucity of recommendations amongst international guidelines.^{7–9} For example, the American College of Chest Physicians' guidelines recommend anticoagulation for at least 3 months in patients following deep vein thrombosis (DVT) thrombolysis and venous stent placement; however, no specific guidelines exist for antithrombotic therapy following venous stenting for chronic venous obstruction.^{8,9}

The aim of this study was to identify international antithrombotic practices following venous stenting and to determine whether consensus could be achieved using Delphi methodology.

MATERIALS AND METHODS

Study design

The Delphi method is a technique used to gain expert consensus on a particular issue. It is an iterative process, which involves a series of questionnaires and controlled feedback.¹⁰ The survey results are collated, analysed, and fed back to the participants until an a priori consensus is reached. The benefits of the Delphi approach have been extensively described in the literature.^{11,12} Briefly, it obviates the need for experts to meet physically, which enables international participation and rapid turnaround to facilitate a group consensus, despite uncertainties.

Phase 1

Three scenarios were presented, which included non-thrombotic iliac vein lesion (mentioned as “May–Thurner syndrome” in the clinical scenario; case 1), acute iliofemoral DVT with a residual obstruction after thrombolysis (mentioned as “May–Thurner lesion” in the clinical scenario; case 2), and post-thrombotic syndrome (case 3). Brief descriptions of the scenarios are given in Figs. 1–3. The choice of cases was based on a literature review of the indications for venous stenting and the authors' clinical experience. Feedback from four venous stenting experts was sought and resultant changes were made to content, wording, and response options before the survey was circulated. A web based electronic survey tool (SurveyMonkey; <https://www.surveymonkey.co.uk/r/deepvenousstenting>) was used to design and distribute the survey. For each scenario, the respondents were asked to provide the details of their chosen antithrombotic regimen, including the type of agent, duration, and any other relevant details. Demographic details and caseloads of the respondents were recorded to ensure that clinicians without a special interest in venous stenting were not included in the study.

An invitation to take part in the study was e-mailed to the members of the following societies: the European Venous Forum, the British Society of Interventional Radiology, the Australasian College of Phlebology, the European Society for

CASE 1

A 25 year old man presents with painful left leg oedema and varicose veins. He has no personal or family history of venous thromboembolism. His venous duplex, venogram and intra-vascular ultrasound (IVUS) suggest May-Thurner Syndrome. He undergoes left iliofemoral deep venous stenting with a good technical result and there is good inflow and outflow from the stent. Pre-discharge duplex shows a patent, well aligned stent.

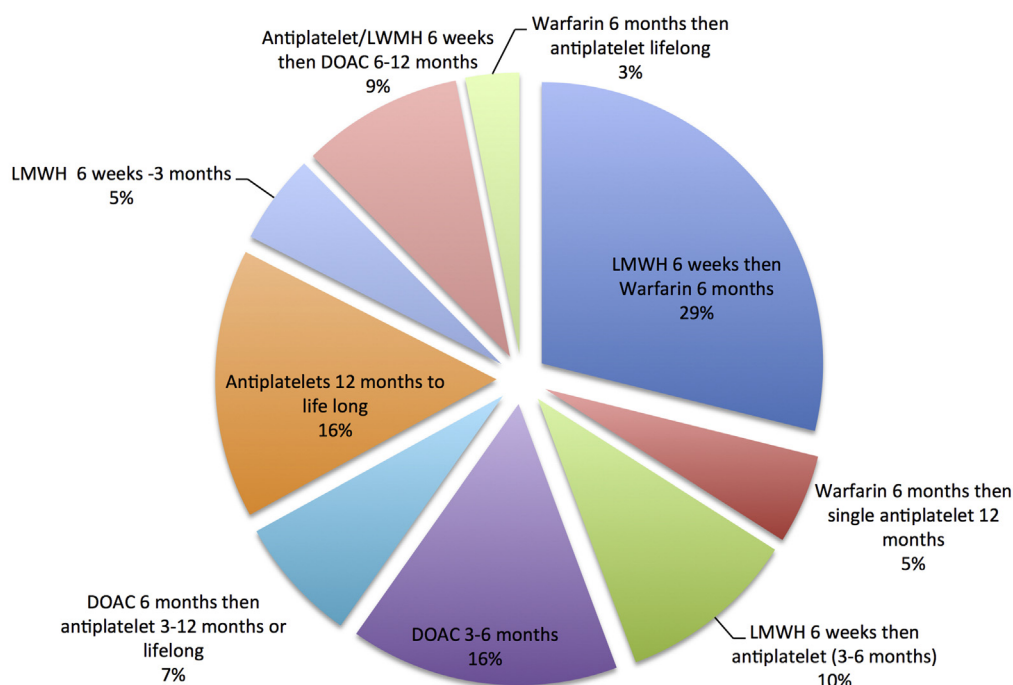


Figure 1. The choice of antithrombotic regimens in scenario 1. *Note.* LMWH = low molecular weight heparin; DOAC = direct oral anticoagulant.

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