

Practices and perceptions of physicians to prescribing elastic compression stockings in a single center in Saudi Arabia

Farjah H. AlGahtani, MD, Abdulrahman I. Al-Diab, MD, Arthur C. Isnani, MD.

ABSTRACT

الأهداف: تقييم سلوك الأطباء السعوديون وممارساتهم ووجهات نظرهم تجاه استخدام جوارب الضغط المطاطية (ECS) ومعرفةهم بالعلاج الفعال للجلطة الدموية في الأوردة (DVT).

الطريقة: في يناير 2009، قمنا باستفتاء 38 طبيب، جامعة الملك سعود، الرياض، المملكة العربية السعودية، والذين يعملون في معالجة المرضى الذين يعانون من الجلطة الدموية في الأوردة (DVT) لتحديد الوصفات الطبية والمعلومات عن جوارب الضغط المطاطية (ECS) ومدى امتثال المرضى مع جوارب الضغط المطاطية.

النتائج: وصف 30 من 38 (78.9%) طبيب جوارب الضغط المطاطية، بينما وصف 6 من 38 (20%) جوارب الضغط المطاطية في حالة ظهور العلامات والأعراض الوريدية. لم يستجيب جميع المرضى لاستخدام جوارب الضغط المطاطية. تشمل مزايا استخدام جوارب الضغط المطاطية (ECS) السيطرة على الوذمة 70%، ومنع عودة الجلطة الدموية في الأوردة 56.7%، والسيطرة على الأعراض 46.7%. كانت الأسباب الرئيسية لعدم امتثال المريض، عدم الراحة 66.7%، وصعوبة الارتداء 16.7%، والمظهر 13.3%، وعدم الفائدة 10%، تؤدي للإصابة في القدم 3.3%.

خاتمة: أن وصف جوارب الضغط المطاطية (ECS) للمرضى في مستشفى الملك خالد الجامعي يحتاج إلى استخدام منهجية ثابتة للعلاج. على الرغم من ذلك يفضل بعض الأطباء وصف جوارب الضغط المطاطية (ECS)، لذلك يحتاجون إلى المزيد من التعليمات بشأن البدء بجوارب الضغط المطاطية، ومدة العلاج، وقوة الضغط.

Objectives: To assess Saudi physicians' attitudes, practices, and perceptions towards use of elastic compression stockings (ECS) and knowledge of effective treatment in patients with deep vein thrombosis (DVT).

Methods: In January 2009, we surveyed 38 physicians from King Saud University, Riyadh, Kingdom of

Saudi Arabia who are involved in the management and treatment of patients with DVT.

Results: Thirty (78.9%) of 38 respondents have prescribed ECS in their practices wherein only 6 (20%) prescribed ECS to patients only if venous signs and symptoms are present. Not all respondents perceived benefit from use ECS. Common perceived benefits included control of edema (70%), prevention of DVT recurrence (56.7%) and control of symptoms (46.7%). The main reasons for patient non-compliance were discomfort (66.7%), hard to put on (16.7%), appearance (13.3%), no help (10%), and makes leg worse (3.3%).

Conclusion: The prescription of ECS in our institution needs to be systematically examined. Physicians involved in the management of DVT need to be further acquainted with the benefit of ECS. Although some of our respondents do prescribe ECS, they need to be further instructed on the timing of initiation of ECS, duration of therapy, and even compression strength

Saudi Med J 2009; Vol. 30 (11): 1465-1468

From the ivision of Hematology and Oncology, Department of Medicine (AlGahtani, Al-Diab), and College of Medicine and Research Center (Isnani), King Khalid University Hospital, King Saud University, Riyadh, Kingdom of Saudi Arabia.

Received 9th May 2009. Accepted 28th June 2009.

Address correspondence and reprint request to: Dr. Farjah H. AlGahtani, Division of Hematology/Oncology, Department of Medicine (38), King Khalid University Hospital, PO Box 2925, Riyadh 11461, Kingdom of Saudi Arabia. Tel. +966 (1) 4691461. Fax. +966 (1) 4691461. E-mail: falgahani@ksu.edu.sa/falgahani@gmail.com

The incidences of post-thrombotic syndrome (PTS) and deep vein thrombosis (DVT) are increasing.¹⁻³ Post-thrombotic syndrome develops in 20-40% of patients within 1-2 years after symptomatic DVT.^{1,4} Because of its severity and chronicity, post-thrombotic syndrome (PTS) is associated with great morbidity

and cost. Therapeutic options are extremely limited and results are often disappointing, thus prevention, recognition of clinical signs or complications, and early treatment remain the keys to reducing its morbidity. Elastic compression stockings (ECS) may reduce the incidence of PTS by as much as 50%.^{5,6} Elastic compression stockings in conjunction with adequate treatment of the DVT coupled with immediate deliberate ambulation may significantly improve well-being and DVT-related quality of life by decreasing pain, swelling and thrombus progression, and reducing the frequency of PTS.^{7,8} Despite the fact that the incidence of PTS and DVT are increasing, only few studies,^{9,10} have provided information on physicians' perception and use of ECS in Saudi Arabia, little is known about what Saudi physicians think and know about prescription of ECS. We conducted this study adapted with permission from the study carried out in 2002 by Kahn,¹⁰ to assess Saudi physicians' attitudes, practices, and perceptions towards the use of ECS and knowledge of effective treatment in patients with DVT.

Methods. In January 2009, a questionnaire was distributed to 38 physicians (hematologist, hematopathologist, and medical internist) involved in the management and treatment of patients with DVT based at our institution. All respondents were based in King Khalid University Hospital, King Saud University, a tertiary teaching hospital in Riyadh, Saudi Arabia. The study was approved by the research ethics committee reference number E/2094/08 of King Saud University, Riyadh, Saudi Arabia.

Survey recipients were asked to complete the form (*Appendix 1) consisting of questions adapted with permission from a survey carried out by Kahn et al¹⁰ in 2002 regarding prescription habits and knowledge of ECS, and their perception of patients' compliance with ECS. Survey recipients were asked questions on whether they prescribe ECS after DVT, factors that influence their prescribing habits, how soon after DVT the ECS are initiated, preferred length, strength and duration of use of stockings, and their impressions regarding effects of ECS, and patient's compliance with their use.⁹

Data collected were analyzed using Statistical Package for Social Sciences volume 16 (SPSS Inc., Chicago, Illinois, USA). Frequency analyses were reported as numbers and percentages.

Results. The survey was distributed to 38 physicians, all of whom responded and returned the form. Thirty (78.9%) of the 38 physicians prescribed ECS in their practices. Eight (21.1%) respondents had never

prescribed ECS. Among the reasons for not prescribing ECS were 1) Fear that the use of ECS might dislodge thrombus. 2) No clear evidence of efficacy of ECS. 3) Unaware of the benefits of using ECS and 4) Preferred to start on anti-thrombus medications rather than use ECS. Two respondents had no definite reason for not prescribing ECS. The practices and perceptions were analyzed for the 30 respondents who had prescribed ECS to patients.

Physicians' practices. Six respondents (20%) prescribe ECS to patients only if venous signs and symptoms were present, whereas 24 (80%) routinely prescribe ECS whether or not signs or symptoms of DVT were present. Seventy percent of the respondents prescribed ECS regardless of the site of DVT, whereas 8 (26.7%) prescribed ECS based on the site of DVT. One respondent gave no answer to this question.

Fifty percent of respondents' prescription of ECS was initiated as soon as DVT is diagnosed. The others initiated use of ECS on admission or after anticoagulation, after diagnosis of pregnancy and as prophylaxis for leg ulcers (Figure 1). Thirteen respondents (43.3%) recommend use of ECS until symptoms or swelling improved, 7 (23.3%) recommends use of ECS for a definite period such as 6-12 months, whereas 6 (20%) prescribe their use indefinitely. Four (13.3%) respondents did not state for how long they recommend use of ECS.

Fifteen respondents prescribe mid-thigh length of ECS, 9 (30%) prefer full-thigh, and 6 (20%) knee-length ECS. Ten (33.3%) respondents choose class 1 ECS with compression strength of 20-30 mm Hg, 7 (23.3%) choose class 2 (30-40 mm Hg), 2 (6.7%) choose lightweight (<20 mm Hg), and one (3.3%) choose class 3 (40-50 mm Hg). Ten (33.3%) respondents did not specify what compression strength they prescribe to their patients.

Physicians' perceptions. The most commonly perceived benefits were control edema (70%), prevention of DVT recurrence (56.7%), control symptom (46.7%), treatment of PTS (33.3%), prevention PTS (6.7%), and cosmetic reasons (6.7%). Three respondents (10%) do not believe that ECS offer benefits to patients. On average, respondents estimated that 53.3% of patients wear ECS occasionally, 33.3% daily, and 3.3% never wear them. Three respondents did not give any answer on this query. The main perceived reasons for patient's non-compliance were discomfort (66.7%), hard to put on (16.7%), appearance (13.3%), "don't help" (10%), and makes leg worse (3.3%).

*The full text including Appendix is available in PDF format on Saudi Medical Journal website (www.smj.org.sa)

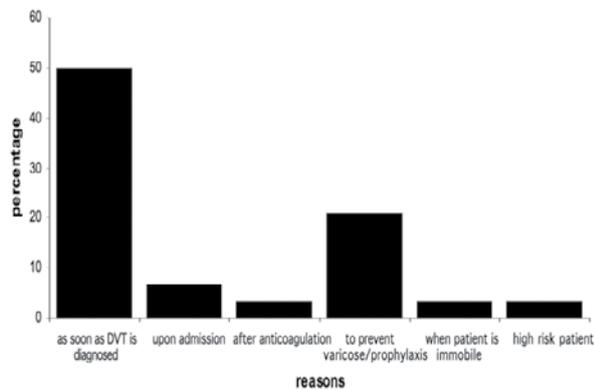


Figure 1 - Physician survey. Responses to “when do you initiate ECS therapy?”

Discussion. In Saudi Arabia, patients with DVT are seen by different specialty namely medical internist, hematopathologist, and hematologist; and this may reflect the discrepancy between physician attitudes and practices. Even though ECS therapy is the most recommended for prevention PTS, its application lower than we anticipated, this generally due to lack of knowledge and training. In contrast, the study carried out by Kahn et al¹⁰ our result showed rather discouraging results since we obtained 21.1% of our physicians who are directly involved in the management of DVT never prescribed use of ECS for reasons which directly imply lack of knowledge on ECS and its use in DVT. In our study, only 50% of our respondents prescribe ECS when DVT is diagnosed, much less than the 2/3 of respondents reported by Kahn et al.¹⁰ Much more, 80% of our respondents prescribed ECS to patients even without signs and symptoms of DVT. This could reflect the insufficiency of physicians' perception on the role of ECS in preventing PTS. Next is that 70% of our respondents prescribed ECS regardless of the site of DVT and only 6.7% used ECS for proximal DVT. This is in direct contrast to the efficacy of ECS use more in proximal DVT than distal DVT.¹¹ Proximal DVT has been more associated to higher risk of PTS than distal DVT.¹² The duration of wearing ECS as recommended by our respondents varied from “until symptoms improve” to an indefinite period of time, however, our results showed that 53.3% of respondents perceived that their patients wear ECS occasionally. This reflects a lack of definitive consensus guidelines addressing optimal use and timing for use of ECS in the management of DVT, probably, the role of ECS in preventing PTS, the timing of initiation of ECS, and duration of therapy need to be address further. While 46.7% of our respondents believed that using ECS to control symptoms of DVT, a larger percentage (70%) believed its use for edema control only. Ten percent of our respondents do not

believe in the benefits of stockings. The issue of patients' non-compliance can be reflected by 66.7% physician's perception of discomfort, 16.7% difficulty of wearing ECS, 13.3% cosmetic appearance, 10% “don't help,” and 3.3% “makes leg worse”. All these reasons could have been avoided or to a much lesser degree minimized if prescribing physicians have thoroughly discussed the benefits of ECS use and need with patients indicating inadequate time available to physicians. Patients usually response to treatment guidelines and procedures when their knowledge and perception of the management is increased. Effective practice involves the patient in the management protocol. We believe that our results represent underestimation of ECS use in patients with DVT, inappropriately prescribed or even not prescribed at all due to insufficient knowledge on the benefits of ECS. The results that we documented reflect that practice with use of ECS in our institution differ from the study conducted by Kahn et al¹⁰ since half of our respondents were less aware of and have less experience with use of ECS. However, this study is limited by the fact that our respondents could have exaggerated or down-played the responses to items in the questionnaire. We tried to minimize this potential bias by encouraging the respondents to actively participate in the survey, by filling the form completely.

In conclusion, the prescription of ECS in our institution needs to be systematically examined. Physicians involved in the management of DVT need to be further acquainted with the benefit of ECS. Although some of our respondents do prescribe ECS, they need to be further instructed on the timing of initiation of ECS, duration of therapy, and even compression strength.

In order to improve the use of ECS among physicians and patients, we recommend that medical professionals and administrators should be informed about the post-thrombotic syndrome burden and direct and indirect costs, raise the physician's awareness on PTS and the magnitude of the symptoms and economic cost, promote protocol for DVT patients in relation to preferred practices and increase awareness of ECS among physician through, workshops, lectures, pamphlets. Furthermore, physicians should try to develop tools and materials to help them manage patients with PTS and use of ECS. The use of ECS should be promoted among DVT patients and there should be promotion of public awareness on the advantages of ECS through media and social events.

Acknowledgment. We thank the physicians at King Khalid University Hospital, King Saud University, Riyadh, Saudi Arabia who participated in the survey. We are indebted and very grateful to Dr. Susan Kahn of McGill University, Sir Mortimer B. Davis Jewish General Hospital, Montreal, Quebec, Canada for allowing us to use the physicians' survey questionnaire for this study.

References

1. Pirard D, Bellens B, Vereecken P. The post-thrombotic syndrome - a condition to prevent. *Dermatol Online J* 2008; 14: 13.
2. Tick LW, Kramer MH, Rosendaal FR, Faber WR, Doggen CJ. Risk factors for post-thrombotic syndrome in patients with a first deep venous thrombosis. *J Thromb Haemost* 2008; 6: 2075-2081.
3. Stain M, Schönauer V, Minar E, Bialonczyk C, Hirschl M, Weltermann A, et al. The post-thrombotic syndrome: risk factors and impact on the course of thrombotic disease. *J Thromb Haemost* 2005; 3: 2671-2676.
4. Kahn SR, Shbaklo H, Shapiro S, Wells PS, Kovacs MJ, Rodger MA, et al. Effectiveness of compression stockings to prevent the post-thrombotic syndrome (the SOX Trial and Bio-SOX biomarker substudy): a randomized controlled trial. *BMC Cardiovasc Disord* 2007; 7: 21.
5. Prandoni P, Lensing AW, Prins MH, Frulla M, Marchiori A, Bernardi E, et al. Below-knee elastic compression stockings to prevent the post-thrombotic syndrome: a randomized, controlled trial. *Ann Intern Med* 2004; 141: 249-256.
6. Kahn SR. Review: elastic compression stockings prevent the postthrombotic syndrome in deep venous thrombosis. *ACP J Club* 2004; 141: 10.
7. Blättler W, Partsch H. Leg compression and ambulation is better than bed rest for the treatment of acute deep venous thrombosis. *Int Angiol* 2003; 22: 393-400.
8. Kahn SR. Frequency and determinants of the postthrombotic syndrome after venous thromboembolism. *Curr Opin Pulm Med* 2006; 12: 299-303.
9. Arpaia G, Cimminiello C, Mastrogiacomo O, de Gaudenzi E. Efficacy of elastic compression stockings used early or after resolution of the edema on recanalization after deep venous thrombosis: the COM.PRE Trial. *Blood Coagul Fibrinolysis* 200; 18: 131-137.
10. Kahn SR, Elman E, Rodger MA, Wells PS. Use of elastic compression stockings after deep venous thrombosis: a comparison of practices and perceptions of thrombosis physicians and patients. *J Thromb Haemost* 2003; 1: 500-506.
11. Wittkowsky AK, Nutescu EA, Devine EB. Compression stockings to prevent post-thrombotic syndrome: a role for anticoagulation clinics? *J Thromb Thrombolysis* 2008; 26: 248-250.
12. Mohr DN, Silverstein MD, Heit JA, Petterson TM, O'Fallon WM, Melton LJ. The venous stasis syndrome after deep venous thrombosis or pulmonary embolism: a population-based study. *Mayo Clin Proc* 2000; 75: 1249-1256.

Illustrations, Figures, Photographs

Four copies of all figures or photographs should be included with the submitted manuscript. Figures submitted electronically should be in JPEG or TIFF format with a 300 dpi minimum resolution and in grayscale or CMYK (not RGB). Printed submissions should be on high-contrast glossy paper, and must be unmounted and untrimmed, with a preferred size between 4 x 5 inches and 5 x 7 inches (10 x 13 cm and 13 x 18 cm). The figure number, name of first author and an arrow indicating "top" should be typed on a gummed label and affixed to the back of each illustration. If arrows are used these should appear in a different color to the background color. Titles and detailed explanations belong in the legends, which should be submitted on a separate sheet, and not on the illustrations themselves. Written informed consent for publication must accompany any photograph in which the subject can be identified. Written copyright permission, from the publishers, must accompany any illustration that has been previously published. Photographs will be accepted at the discretion of the Editorial Board.