

### Evaluation of awareness on the role of elastic compression stocking use in preventing post-thrombotic syndrome in patients in a tertiary hospital in Saudi Arabia

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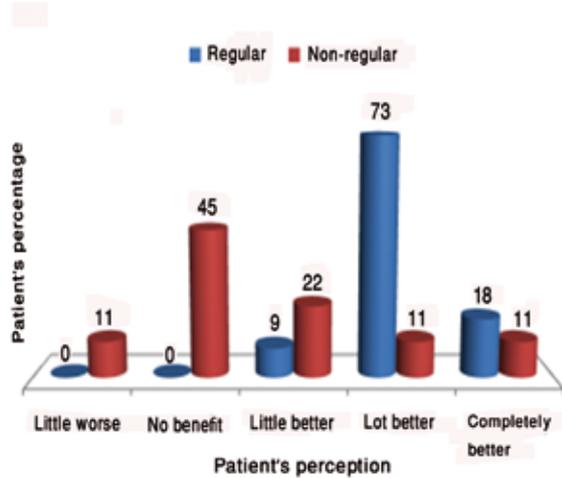
Post-thrombotic syndrome (PTS) is a group of limb symptoms and signs following deep venous thrombosis (DVT). It is the most common complication of lower limb DVT, occurring in 20-50% of patients with symptomatic DVT, and 5-10% of such patients develop severe PTS.<sup>1</sup> Identification of patients at high risk for PTS, prevention, early diagnosis, and treatment are the advisable options for minimizing PTS morbidity.<sup>2</sup> Although PTS is one of the most common complications of DVT, and is associated with significant morbidity and cost, there are few published studies of the awareness on the role of elastic compression stockings (ECSs) use in preventing PTS thus, we conducted this study to describe the use and relate patients' experiences of ECS in the treatment of DVT.<sup>2,3</sup>

A descriptive survey was conducted between March to September 2009, wherein a convenience sample of 51 patients with confirmed lower limb DVT who were attending the anticoagulation clinic at King Khalid University Hospital were asked to participate in the survey. Patients were considered eligible if their physicians had prescribed ECS at least 12 months after the diagnosis of DVT. Non-consenting patients including those who were just recently diagnosed DVT (<1 year), with no follow-ups were excluded from the study. This study was approved by the research ethics committee (reference number E/2094/08) of King Saud University, Riyadh, Kingdom of Saudi Arabia.

Patients were interviewed using the survey form adapted with permission from survey forms used by Kahn et al<sup>4</sup> in a study of practices and perceptions regarding the use of ECS after DVT, which included questions on timing of initiation of use of ECS, cost, reasons for using ECS, effectiveness, and compliance. Collected data were analyzed using Statistical Package for Social Sciences version 16 (SPSS Inc., Chicago, IL, USA). Data were first summarized in frequencies and percentages, and then subjected to a series of statistical analyses using the Chi-square test. The mean age of the patients was 42.7, and 66.7% were female. Seventy-six percent of patients had proximal DVT, and 21.6% with bilateral DVT. The ECS were prescribed to 71% of patients, of whom 75% acquired ECSs in the early days or weeks after the diagnosis of DVT. One-third of patients with unilateral DVT did not receive an ECS prescription, compared with 23% of those with bilateral events. One patient with symptomatic bilateral

DVT acquired ECSs for one side only. A total of 92% of survey respondents thought that the main reason their physicians prescribed ECS was to relieve swelling and/or reduce pain, 6% thought the ECS were meant to prevent the occurrence of a new clot, and 5% did not know why they had ECS. Ninety-seven percent of patients were either offered ECS (81%), or filled their prescription for ECS (16%). The mean cost reported by those who filled their prescription was SR211 (US\$56) per pair, which 83% of survey respondents considered expensive. The ECS were reported to be used daily by 31% of patients, less than once a week by 14%, and never or rarely by 55%. Among the non-regular users, 48% noted that discomfort was the main reason for irregular use, 24% cited difficulty in putting ECS on, and 16% said that other doctors had advised them not to use ECS. Other reasons noted were interference with the choice of clothing, the perception that ECS made the leg(s) worse, presence of urticaria, a busy life, or the belief that ECS are only of help during long walks. The respondents reported improvement of leg swelling (92%) and pain (77%) as noted by regular users. Overall, the respondents reported that the leg was completely better after treatment in 15%, a lot better in 45%, a little better in 5%, a little or a lot worse in 5%, and unchanged in 30%. Patients with distal DVT, compared with those with proximal DVT, reported less prescription of ECS by their physicians (50 versus 77%,  $p>0.05$ ), less adherence (17 versus 33%,  $p>0.05$ ), and poorer outcome (17 versus 37%,  $p>0.05$ ), but all these differences were statistically insignificant. With regard to the overall effect of using ECS, regular users were more likely than non-regular users to have a good outcome (82 versus 33%,  $p<0.05$ ) (Figure 1).

The ECS were not prescribed for nearly one-third of the patients in our study, and use was begun late in 25% of patients, in comparison to late initiation in 10% in the study carried out by Kahn et al.<sup>4</sup> These figures cannot be attributed to anything other than a lack of knowledge, lack of adequate training, and lack of updated in-house guidelines. Most of our study participants thought that the main reason for their ECS prescription was to relieve DVT symptoms, but none were aware on the role of the stockings in preventing PTS. This lack of awareness is mainly due to inadequate education on the importance of ECS as a preventive measure. These findings were somewhat expected given the report by AlGahtani et al<sup>5</sup> that 21% of physicians involved in the management of DVT patients in our institution never prescribe ECS, and 10% do not believe that ECS are of any benefit in DVT patients. Furthermore, 16% of our studied patients were advised not to use already prescribed ECS, again reflecting inadequate knowledge among some care providers. The ECS were considered expensive by most of those who bought them



**Figure 1** - Patients perception on the overall effect of elastic compression stocking use according to patients' adherence (regular users versus non-regular users).

(83%), however, cost is not a real barrier in using ECS as they are offered free to most patients by the hospital. Regarding compliance, only 30% of the study patients were regular users, compared with 90% reported by Kahn et al.<sup>4</sup> The main factor leading to poor compliance was discomfort, the second most common factor was difficulty in putting on ECS. The latter was underestimated by the treating physicians in the survey carried out AlGahtani et al.<sup>5</sup> However, these reasons could have been minimized by informing patients of expected benefits and prescribing proper sizes and classes of ECS.

In conclusion, the failure of care providers to provide adequate instruction on the proper use of ECS in DVT patients seems to be the main cause of poor utilization of this important preventive measure against PTS.

National and institutional awareness programs and updated guidelines would increase proper use of ECS. Adequate communication with patients and availability of understandable educational materials will improve ECS use by patients. The need for comprehensive care provided by a specialized team cannot be overstated. It is hoped that future studies will reveal the criteria required to initiate ECS use, and promote adequate duration of use.

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