

Canadian Practice Patterns of Venous Thromboembolism Prophylaxis for Adults with Spinal Cord Injury

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|-----------------------------|----------|----------------------------|--|------------------------|
| Pharmacological Prophylaxis | | LMWH or UH (Grade 2C) | LMWH more effective than UH (Level 1a) | LMWH or UH (Level II) |
| | Duration | 3 months | Unspecified | 8-12 Weeks |
| Mechanical Prophylaxis | | Preferably IPCD (Grade 2C) | IPCD or TEDS (Level 4) | IPCD or TEDS (Level I) |
| | Duration | Unspecified | Unspecified | 2 Weeks |

Table 1: Summary of recommendations from the three sets of recommendations for VTE prophylaxis in adults with SCI. Each journal used a different grading system for the level of evidence. In the recommendations from the American College of Chest Physicians, Grade 2C corresponds to weak recommendations based on low-quality evidence. In the recommendations from SCIRE, Level 1a evidence corresponds to data from 2 randomized control trials and Level 4 corresponds to data from pre-post study and case series. In the recommendations from PVA, Level I correspond to data from large randomized trials with definitive results, and Level II corresponds to data from small randomized trials with uncertain results.

Methods

The question, “What are you using for VTE and PE prophylaxis at your center?” was posted on a private online forum called “SCI Hallways” whose members consist exclusively of Canadian physiatrists engaging in SCI rehabilitation. Over the course of two weeks, various Canadian physiatrists posted their responses on the forum. The majority of the responses consisted of the specific name of the pharmacological and mechanical prophylaxis, but given the nature of using an online forum, five participants gave vague responses. These participants posted that they used an unspecified LMWH, an unspecified mechanical form of prophylaxis and or just posted “same as above”. These five participants were contacted directly via email for clarifications.

Given that there are only a handful of physiatrists involved in inpatient SCI rehabilitation, it can be difficult to organize a face-to-face meeting to discuss local practice patterns. The “SCI Hallways” is an online forum used to bridge geographical distance, allowing Canadian clinicians who treat people with SCI to engage in discussion in a convenient way. In addition to aiding in facilitating a national consensus, it has also been used regularly to assist physicians in clinical decision making and with research. Most academic Canadian physiatrists engaging in SCI rehabilitation have access to, and have previously participated on this forum. Responses can be accessed by members at any time.

Results

There are a total of thirteen academic centers across Canada with physicians engaging in SCI rehabilitation [6]. Some centers have dedicated SCI rehabilitation wards, while others admit patients needing SCI rehabilitation into a general rehabilitation ward. Ten physicians from eight

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|----|--------------------------|------------|------------------------------|-----------------------------------|
| 5 | Dalteparin | 8-12 weeks | IPCD + TEDS for 2 weeks | TED Stocking for duration of LMWH |
| 6 | Dalteparin | 8-12 weeks | IPCD + TEDS for 2 weeks | TED Stocking for duration of LMWH |
| 7 | Dalteparin | 8-12 weeks | IPCD + TEDS for 2 weeks | TED Stocking for duration of LMWH |
| 8 | Unspecified LMWH | 8-12 weeks | IPCD + TEDS for 2 weeks | TED Stocking for duration of LMWH |
| 9 | Enoxaparin or Dalteparin | 8-12 weeks | IPCD only until LMWH started | TED Stocking for duration of LMWH |
| 10 | Unspecified LMWH | 8-12 weeks | Unspecified | Unspecified |

Table 2 Tabulated results from respondents with names substituted with identification numbers. LMWH stands for low molecular weight heparin. IPCD stands for intermittent pneumatic compression devices. TEDS stands for T rombo-Embolic Deterrent Stockings also known as T rombo-Embolic Deterrent Hose.

Discussion

Relevance of guidelines

The practice patterns of Canadian SCI rehabilitation physicians reflect recommendations that state that there is evidence, although inconsistent, for both mechanical and pharmacological prophylaxis for patients with SCI [3-5]. The inconsistency may be because of the difference between the inclusion and exclusion criteria used by the authors to generate their conclusions. (See Figures 2 and 3 for comparison of patient population for pharmacologic and mechanical prophylaxis used in the three papers).

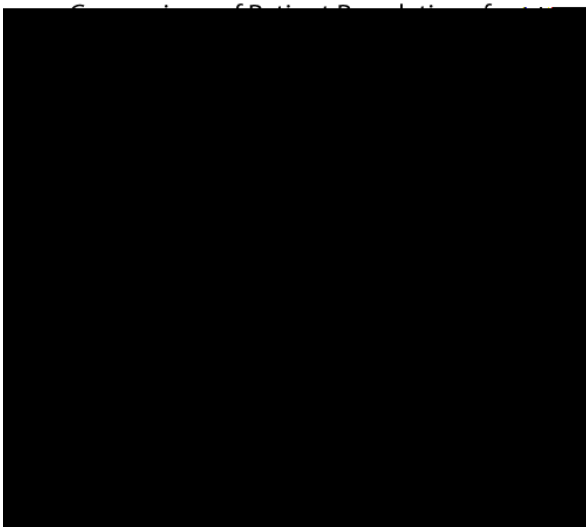


Figure 2 Graph of number of publications versus source comparing patient population for pharmacological prophylaxis. This graph shows that SCIRE derived their recommendations exclusively from

- 4 Teasell RW, Hsieh JT, Aubut JA, Eng JJ, Krassioukov A, et al. (2009) Venous thromboembolism after spinal cord injury. *Arch Phys Med Rehabil* 90: 232-245
- 5 Gould MK, Garcia DA, Wren SM, Karanicolas PJ, Arcelus JJ, et al. (2012) Prevention of VTE in nonorthopedic surgical patients: antithrombotic therapy and prevention of thrombosis: American College of Chest Physicians evidence-based clinical practice guidelines. *Chest Journal* 141: e227S-e277S.
- 6 Program descriptions. CaRMS.
- 7 Frisbie JH, Sasahara AA (1981) Low dose heparin prophylaxis for deep venous thrombosis in acute spinal cord injury patients: a controlled study. *Paraplegia* 19: 343-346
- 8 Green D, Lee MY, Ito VY, Cohn T, Press J, et al. (1988) Fixed- vs adjusted-dose heparin in the prophylaxis of thromboembolism in spinal cord injury. *JAMA* 260: 1255-1258
- 9 Green D, Lee MY, Lim AC, Chmiel JS, Vetter M, et al. (1990) Prevention of thromboembolism after