Surgical patients’ adherence to the use of compression stockings

Key points
1 Graduated compression stockings are used as mechanical prophylaxis to prevent deep-vein thrombosis in at-risk patients
2 A systematic review revealed that patients preferred and were more likely to adhere to wearing knee-length, rather than thigh-length, stockings
3 The findings suggest that any difference in efficacy may be irrelevant due to patient preference for and likely better adherence to using knee-length stockings

Surgical patients are at increased risk of developing deep-vein thrombosis. Routine prophylaxis can be pharmacological and mechanical. Our systematic review of studies assessing patients’ preference for and/or adherence to wearing compression stockings found that adherence was generally better with knee-length hosiery, which patients also preferred. It demonstrated that any difference in efficacy between knee-length and thigh-length stockings may be rendered irrelevant by patient preference for and likely better adherence to use of knee-length stockings.

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Abstract Surgical patients are at increased risk of developing deep-vein thrombosis. Routine prophylaxis can be pharmacological and mechanical. Our systematic review of studies assessing patients’ preference for and/or adherence to wearing compression stockings found that adherence was generally better with knee-length hosiery, which patients also preferred. It demonstrated that any difference in efficacy between knee-length and thigh-length stockings may be rendered irrelevant by patient preference for and likely better adherence to use of knee-length stockings.

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In this article...
- The importance of adherence to graduated compression stockings for surgical patients
- Findings of a review investigating patient preference for, and adherence, to knee-length or thigh-length stockings

Wearing compression stockings reduces the risk of deep-vein thrombosis after surgery
that did not use rigorous research methods (Thompson et al, 2011; Winslow and Brosz, 2008; Brady et al, 2007; Williams and Owen, 2006; Parnaby, 2004; Hameed et al, 2002; Williams et al, 1996). The studies were published between 1985 and 2013, so it may be that the older studies do not reflect current practice.

Patient adherence

Patient adherence with the two stocking lengths was compared directly in two trials of orthopaedic surgery patients; more patients wearing thigh-length stockings removed them due to discomfort (23% versus 16% (Hui et al, 1996)) or reported more wrinkles and discomfort than with the knee-length (Benko et al, 2001) versions. In one trial, half the patients were unable to fit their stockings independently, with similar numbers for both lengths (Benko et al, 2001).

In three prospective observational studies nurses compared patients’ adherence to knee-length and thigh-length stockings. Non-adherence (not wearing them at all) was worse with thigh-length stockings (17% versus 3% (Hameed et al, 2002)), as was incorrect use – 64% versus 30% (Hameed et al, 2002), and 54% versus 20% (Winslow and Brosz, 2008). Only 13% of patients in one study wore thigh-length stockings satisfactorily compared with 50% of those using knee-length stockings (Williams et al, 1996).

In five trials where adherence to thigh-length stocking use was recorded but not compared with knee-length use, stockings were generally well tolerated, although a few patients stopped wearing them or wore them incorrectly (Camporese et al, 2008; Fredin et al, 1989; Turpie et al, 1989; Mellbring and Palmer 1986; Wille-Jørgensen et al, 1985). However, in the six observational studies, which probably better reflect real-life use, adherence was relatively poor. Reasons for not wearing them included discomfort, provision, removing stockings for bathing or no longer requiring them when patients became mobile.

Incorrect use was related to wearing incorrectly sized stockings, stockings rolling down, binding or wrinkling. In one study of knee-length stockings, 74% of patients were wearing the wrong size; the use of a standardised protocol reduced this proportion to 34% (Thompson et al, 2011).

All these studies reflect adherence in hospital settings; this is likely to be even lower after patients are discharged from hospital. This may have implications for discharge planning to ensure patients understand the importance of wearing stockings correctly.

Patient preference

Two trials and four observational studies reported on patients’ preference for knee-length or thigh-length stockings, in terms of comfort, ease of application and general satisfaction. The majority of participants in all six studies preferred knee-length stockings (Winslow and Brosz, 2008; Brady et al, 2007; Williams and Owen, 2006; Hameed et al, 2002; Benko et al, 2001, Porteous et al, 1989).

Conclusion

The results lack ‘real-life’ data on adherence in the community, as we found only hospital-based studies. However, the evidence on surgical patient adherence and preference suggests that patients prefer knee-length stockings. This suggests that, in many clinical settings, differences in efficacy may be rendered irrelevant by patient preference for knee-length stockings and their likely better adherence. Implications for practice are outlined in Box 1.

**Box 1. Practice implications**

- Patients prefer knee-length compression stockings, which they are more likely to wear correctly
- Efforts need to be made to improve patient adherence to the correct use of compression stockings, particularly those that are thigh length
- Nurses have a vital role in patient education to improve adherence
- The choice of stockings should take into account likely adherence, given individual patients’ needs as well as their circumstances

**References**


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