Costs of compression therapy in venous leg ulcers in Germany and modelling of the economic effects of regional disparities in health care

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Background

Chronic leg ulcer (fig 1) is defined as a defect in the skin below the level of knee persisting for more than six weeks and shows no tendency to heal after three or more months.1 The condition affects 1% of the adult population and 3.6% of people older than 65 years.2 According to a study carried out in Germany, venous insufficiency was the dominating causative factor in 47.6% of leg ulcers, arterial insufficiency 14.5% and combined arterial and venous 17.6%.3

Medical compression therapy to the lower limb (fig 2-3) is the single most important factor in the conservative treatment of venous leg ulcers and combined etiology where the ulcer is more predominate venous.4 Due to the demographic change and the increasing number of vascular diseases with elderly people, an additional increase of chronic leg ulcers is to be expected. The long-term healing prognosis for leg ulcer patients is poor and worst for patients with venous ulcers especially without compression therapy.

Methodology I

A discrete event simulation model for conducting health economic evaluations in patients with chronic wounds from the perspective of German statutory health insurances has been developed (fig 5).

The following available data were included in the model:
• healing times of venous leg ulcers to consider the effectiveness of the treatment with vs. without compression therapy6
• regional proportions of venous leg ulcer patients treated with compression therapy (data of the Barmer GEK, fig 6)
• data on costs of illness based on the Hamburg wound study7
• mortality rates of the German Federal Statistical Office 20148

Methodology II

The average costs for compression therapy are 230 € per patient and year. Despite the costs, a pilot run of the model analyses indicates that the costs of n = 100 patients per group, who are treated without compression therapy, are 40,295 € per year than the costs of patients treated with compression therapy (fig 7). This difference of 403 € per patient and year is caused by the significant shorter healing times, which were implemented in the model.8

Results

The average costs for compression therapy are 230 € per patient and year. Despite the costs, a pilot run of the model analyses indicates that the costs of n = 100 patients per group, who are treated without compression therapy, are 40,295 € per year than the costs of patients treated with compression therapy (fig 7). This difference of 403 € per patient and year is caused by the significant shorter healing times, which were implemented in the model.8

Discussion and Conclusion

Another health economic evaluation, which dealt with a similar question in the USA, indicated with the help of a Markov model cost savings of 5,904 € per patient. Unlike the presented pilot run of the discrete event simulation model these costs refer to the lifetime costs of a venous leg ulcer and are not meant per year. Considering that the average duration of a venous leg ulcer is 8.9 years,9 also in Germany cost savings in the middle four-figure range per patient can be recorded.

References
4. O’Meara et al. (2012), Compression for venous leg ulcers (Review).
7. Augustin et al. (2012), Cost-effectiveness of leg ulcers in the community.

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