Scottish Executive Health Department Chief Scientist Office

FOCUS ON RESEARCH

RISK FACTORS FOR CHRONIC ULCERATION IN PATIENTS WITH VARICOSE VEINS: CASE CONTROL STUDY

Researchers
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Aim
To determine, in subjects with varicose veins (varices), the characteristics of the venous disease and associated risk factors which may increase the risk of ulceration.

Project Outline/Methodology
The project was a case control study of 240 patients with varicose veins. Cases comprised 120 men or women of any age with varices and an open or healed ulcer. The control group was made up of 120 patients with varices but no history of leg ulcer.

Study participants were recruited systematically from a register of patients who had undergone venous scanning at the Royal Infirmary of Edinburgh and through general practitioners via the Lothian Primary Care Research Network.

Subjects underwent clinical examination including: assessment of severity of venous disease, blood pressure checks in the arm and both ankles, ultrasound scanning of the superficial, deep and perforating systems of the leg, measures of the effectiveness of the venous pump located in the calf muscle, and range of ankle movement (ankle dorsiflexion). A questionnaire was also administered covering topics such as exercise, daily activity, smoking and medical history.

Key Results
120 cases and 120 controls were successfully recruited and underwent clinical examination. Of the 120 cases, 39 had active ulcers and 89 had healed ulcers.

Our study showed that clinical signs of severe venous disease, smoking, obesity, reduced ankle dorsiflexion and decreased effectiveness of the calf muscle pump were significant risk factors for venous ulceration.

Specific combinations of risk factors that might be used to identify those at increased risk of ulceration include: obesity, poor ankle dorsiflexion, severe venous disease, decreased effectiveness of the calf mucle pump and incompetency in the politeal vein located in the deep venous system of the leg.

Conclusions
This study has succeeded in meeting its aims and objectives. We successfully identified risk factors which can, in isolation, increase the risk of venous ulceration. Furthemore, we determined the risk factors which, in combination, might be used clinically to identify those at increased risk of developing ulceration.

What does this study add to the field?
Previous clinical and case series studies have provided limited evidence of the risk of leg ulceration. Our study is the first proper case control study to investigate risk factors associated with venous ulceration in patients with varicose veins.

Implications for Practice or Policy
Our study has shown that several risk factors might prove useful in identifying those at high risk of developing leg ulceration. These could be easily measured in vascular units and clinical judgements based on these factors may well lead to more cost effective use of scarce surgical resources.

Where to next?
Further research is required to investigate the specific factors that determine which patients with varicose veins will progress, if untreated, to worse varicosities and complications including venous ulceration. This will enable us to understand more about the progression of venous disease and development of leg ulceration.

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