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Dutch Venous Ulcer guideline update

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Abstract

The revised guideline of 2013 is an update of the 2005 guideline "venous leg ulcer". In this special project four separate guidelines (venous leg ulcer, varicose veins, compression therapy and deep venous disorders) were revised and developed simultaneously. A meeting was held including representatives of any organisation involved in venous disease management including patient organizations and health insurance companies. Eighteen clinical questions where defined, and a new strategy was used to accelerate the process. This resulted in two new and two revised guidelines within one year. The guideline committee advises use of the C of the CEAP classification as well as the Venous Clinical Severity Score (VCSS) and a Quality of life (QoL) score in the assessment of clinical signs. These can provide insight into the burden of disease and the effects of treatment as experienced by the patient. A duplex ultrasound should be performed in every patient to establish the underlying aetiology and to evaluate the need for treatment (which is discussed in a separate guideline).

The use of the TIME model for describing venous ulcers is recommended. There is no evidence for antiseptic or antibiotic wound care products except for a Cochrane review in which some evidence is presented for cadexomer iodine. Signs of infection are the main reason for the use of oral antibiotics. When the ulcer fails to heal the use of oral aspirin and pentoxifylline can be considered as an adjunct. For the individual patient, the following aspects should be considered: the appearance of the ulcer (amount of exudate) according to the TIME model, the influence of wound care products on moisturising the wound, frequency of changing compression bandages, pain and allergies. The cost of the dressings should also be considered. Education and training of patients t improves compliance with compression therapy but does not influence wound healing rates.

Keywords

Venous leg ulcer, wound dressings

Introduction

The development of guidelines is often both painstaking and time consuming. A new approach was used to revise the 2005 guideline "*ulcus cruris venosum (venous leg ulcer)*". It was decided to revise or develop guidelines with venous disorders or venous treatment as one entity: "*guideline of varicosis and deep venous insufficiency*". The guidelines of '*varicosis veins'* and '*venous leg ulcer'* were revised and two new guidelines were simultaneously developed: '*deep venous insufficiency'* and '*compression therapy'*. There were several reasons for this approach. Firstly, this approach reduces the risk of contradictory statements and offers a chance to avoid duplication. Secondly it enables to have a comparable approach and vision on venous diseases by a large group of health professionals. A meeting was held inviting a large number of people and organisations, involved in venous disease management. Among the participants were a dermatologist, general and vascular surgeons, general practitioners. Also representatives of several Dutch organizations were invited such as: Federation of University Medical Centers, *Huisartsengenootschap* (Dutch society of general practitioners), Organisation of nurses, Organisation of nurses for wound care, several health insurance companies, the Ministry of Health care, branch organisations and of course patient representatives. During this meeting it was agreed to investigate eighteen clinical questions. Furthermore a new strategy was used to improve and accelerate the development of these guidelines.

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This resulted in a complete revision the guideline on venous leg ulcers and the guideline on varicose veins. The major modifications of these guidelines are discussed in this article.

Diagnosis

The precise prevalence of venous leg ulcers is difficult to establish, since different methodologies have been used in published epidemiological studies. Deficiencies influencing the accuracy of reporting include the range of methods and inconsistent definitions of ulcers of venous aetiology. Some studies report increasing prevalence, while other studies report more stable prevalence. If the latter case is correct, this would indicate a decreasing incidence, since the average age of the Western population is increasing. Normally one would expect a higher prevalence of venous leg ulcers in a more elderly population.[1,2]

It is important to use uniform criteria for defining venous disorders n order to collect follow up data for the individual patients and to provide comparable information on varicose veins and venous leg ulcers.

The guideline committee advises use of both the CEAP classification and the Venous Clinical Severity Score (VCSS) as well as a Quality of life (QoL) score in the assessment of clinical signs.[3,4] These can provide insight into the burden of disease and the effects of treatment as experienced by the patient. In the Netherlands it is mandatory to record the C of the CEAP classification. However, this provides limited information and may be misleading. It definitely does not provide a complete description of the venous disorder for each individual patient at any given moment.

After clinical assessment, duplex ultrasound should be performed in every patient to investigate the underlying venous disease and to evaluate the need for interventions.

The guideline committee advises measurement of the ankle-brachial pressure index in every patient with a leg ulcer. The advice concerning additional investigations has not changed since the 2005 guideline. Routine laboratory investigations including bacterial swabs, histopathology and allergy investigation are not necessary in the assessment of venous leg ulcer, but should be considered, when signs of infection are present, or when treatment fails.

Treatment

Underlying venous insufficiency

Treatment of varicose veins has changed considerably during the past ten years. The basic treatment of venous leg ulcers remains the same: eradication of venous insufficiency. The latest guideline therefore recommends endovenous thermal ablation as treatment of choice for great saphenous vein incompetence.[5] First choice treatments of the small saphenous vein are endovenous thermal ablation or ultrasound-guided foam sclerotherapy. The lowest puncture site when treating the small saphenous vein with endovenous thermal ablation should be mid-calf to minimise the risk of nerve injury.[6] Treatment of venous insufficiency does not always increase wound healing rates, but it proves to be important in preventing recurrence.[7]

When peripheral occlusive arterial disease is excluded and the diagnosis of venous leg ulcer is made, compression therapy should be started. Compression therapy remains the cornerstone in the treatment of venous ulcers. High pressure is more effective than low-pressure compression therapy. Important concepts such as interface pressure and bandage stiffness should be considered when choosing the compression material as well as different compression devices. This is discussed extensively in the guideline on compression therapy.

When compression treatment with bandages or stockings fails to reduce oedema additional techniques such as pneumatic compression therapy or the use of oral medication may be considered. There is no scientific proof for the use of manual lymph drainage, but this may be considered in individual cases.

Wound care

In order to record reliable follow up data about the healing rate of the venous leg ulcers, describing the wound is important. In this new guideline, the committee advices to use the TIME (Tissue, Infection and Inflammation, Moisture and Edge) model instead of the red, yellow, black schedule of the WCS (Woundcare Consultants Society) (Figure 1). Digital cameras have become very affordable so the guideline advises frequent photography to monitor the progress of wound healing.

Dressings are applied to an ulcer in order to promote an optimal healing environment. Ulcer healing is based on the principles of moist wound healing and wound bed preparation. When the wound bed is covered with non-viable or devitalised tissue, debridement should be the first step. Debridement is performed in order to create an optimal environment in which granulation is stimulated. Surgical debridement seems to be the most effective, but can be painful. Enzymatic or mechanical debridement seems to be an alternative, while the use of laval therapy is not useful in treatment of venous leg ulcers.

Many studies have been performed to demonstrate the effect of dressings on wound healing rates in venous

T	Tissue granulation, hyper granulation, sclerosis.
I	Signs of Infection or inflammation in and around the ulcer.
M	Moisture of the ulcer, amount of exudate
E	Condition of ulcer Edges, including keratosis and re-epithelisation.

Figure 1. TIME system of describing the wound appearance.

The choice of dressing should be based on

- amount of exudate
- ease of application and removal
- effect on moisture of wound
- cost
- presence of pain
- patient tolerance
- wound appearance according to TIME
- frequency of changing compression bandages
- possibility of allergy
- possibility of bacterial infection

Figure 2. Principles of wound dressings.

leg ulcers. There is no evidence to suggest that one particular dressing is to be preferred or will promote healing in venous leg ulcers.[8] The choice of a dressing should be made after consideration of several factors in which the amount of exudate and patient tolerance are important (Figure 2).

Skill and knowledge of the health professional is also an important aspect of the treatment of leg ulcers. Combinations of several kinds of dressing are usually not effective. In general non-adherent dressings are suitable initially. There is little or no evidence for the initial use of more expensive products.

The use of topical antibiotics has contributed to the development of resistant bacteria and allergies and should not be applied routinely. Antibiotics and are not indicated in the absence of clinical signs of infection. When there is an increased risk for bacterial infection, the use of cadexomer iodine should be considered.[9]

The last decade the use of topical silver has increased enormously. Silver may have an antimicrobial effect, a Cochrane review showed no additional effect in improving wound healing in patients with venous leg ulcers.[10] Honey containing dressings are not recommended in the treatment of venous leg ulcers.

When the ulcer remains unhealed despite these treatments, negative pressure therapy or skin grafts may be considered. Skin grafting can be derived from the patient's own skin (autograft), preserved animal skin (xenograft) or bioengineered skin substitutes (allograft). Artificial grafts are not currently regarded as standard treatment. The use of autografts can be considered to promote healing in venous leg ulcers, especially in slow healing ulcers. Negative skin pressure can be useful in the preparation stage, but might also be considered in specific situations as treatment for the venous ulcer.

Systemic treatment

The aim of systemic treatment is to promote the healing of venous leg ulcers. In the treatment of venous leg ulcer medication can be divided into three separate groups: oral antibiotics, pain reducing medication and medication with a positive effect on the wound healing

process. Medication for pain management is not discussed in the guideline.

It has been found that both local antibiotic and systemic antibiotic treatment can cause bacterial resistance, therefore, overuse should be avoided. The use of systemic antibiotics should not be part of the standard care of venous leg ulcers when there are no clinical signs of infection, but might be considered under some circumstances.

Pentoxifylline increases the efficiency of blood flow through an effect in decreasing blood viscosity, platelet aggregation and fibrinogen levels, leading to increased tissue oxygenation. It can therefore be used as an additional therapy for venous leg ulcers. When compression is contraindicated, it might be considered as a single treatment. The use of systemic aspirin may also have an additional effect, but is not recommended in standard care. Flavonoids have a possible positive effect on healing-rates, but further studies are necessary in order to establish the extent of the additional effect.

Life style and education of patients

It is thought that ulcer healing is facilitated in patients with good general health and nutrition. Motivation of patients to participate in their care is also thought to be useful. Several studies into the effect of counselling patients with venous leg ulcers, and tailoring advice on physical activity. No significant effect on ulcer healing rates were observed although there was increased adherence to the compression regime.[11] In addition, intensive training programs in patients' own social environment, focused on improvement of the calf muscle pump function, leg elevation, and healthy diet showed disappointing results.

The committee advises that it is important to provide patients with information concerning their conditions and its management, including the importance of exercise, good nutrition, and avoiding obesity and smoking.

Conflict of interest

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