

## Commentary

### **Polyherbal formulation as a therapeutic option to improve wound healing in the diabetic foot**

Even though we have reached the 21<sup>st</sup> century, diabetic foot continues to be a major cause of morbidity and of non-traumatic lower extremity amputations worldwide<sup>1,2</sup>. Especially in India, the diabetic foot represents a considerable health problem, aggravated by the high frequency of infection and the ever-rising prevalence of diabetes<sup>2,3</sup>. Three major pathologies, neuropathy, ischaemia and infection, form a vicious cycle, leading to the notorious diabetic foot lesions, which may aggravate with unforeseeable rapidity and threaten limb survival<sup>4,5</sup>. These three aetiologic factors cause impaired wound healing, so that many foot ulcers are refractory to standard treatment<sup>4,5</sup>.

In an effort to improve healing rates, herbal formulations have been tried as well<sup>6,7</sup>. These have attempted to promote wound closure, especially the early phases of the healing cascade, by natural products, achieving variable results<sup>6,7</sup>. The most recent is ANGIPARS, a herbal drug to be used as intravenous infusion, which promotes neovascularisation and wound healing. It has been reported to achieve a 50 per cent wound reduction within 8 wk without causing side effects<sup>7</sup>.

In this issue, Viswanathan *et al*<sup>8</sup> report an open label, phase III study on the efficacy and safety of a new polyherbal cream in healing diabetic foot ulcers as compared to standard silver sulphadiazine cream in type 2 diabetes patients. The authors enrolled 40 consecutive patients (26 males, 14 females), who were randomized to the polyherbal formulation (group 1: 20 patients) or silver sulphadiazine cream (group 2: 20 patients). The two groups were matched for age, gender, diabetes duration and HbA<sub>1c</sub>, as well

as for ulcer characteristics at baseline (length, width, Wagner grade)<sup>8</sup>. All patients had grade Wagner I-III foot ulcers. Exclusion criteria were severe infection, exposed bone and reluctance to participate. All patients had neuropathy, as evidenced by vibration perception threshold >25 Volts at the hallux. Peripheral arterial disease was defined as ankle-brachial index <0.9 measured by a Doppler device. In each group, about a quarter of patients had PAD. The most frequent ulcer location was plantar forefoot (>60% in each group). Presence of osteomyelitis and ulcer duration were also comparable between the two groups. Patients were seen on a weekly basis. In case of infection, broad spectrum antibiotics were prescribed. Dressings were changed every day after irrigation with normal saline and polyherbal formulation or silver sulphadiazine cream were applied<sup>8</sup>. Follow up was for five months. Adverse events were not observed during the study. Wound size was significantly ( $P<0.001$ ) reduced in both groups, without any difference between them. Mean time to heal was 43 days in both groups. Ulcer recurrence was 47 per cent in group 1 and 42 per cent in group 2. The authors concluded that the new polyherbal formulation was not inferior to silver sulphadiazine cream<sup>8</sup>.

The new polyherbal formulation contains a number of beneficial natural ingredients which are considered to harbour substantial anti-inflammatory and antimicrobial action, promote synthesis of collagen fibres and increase supply of vital nutrients (amino acids, vitamins and fatty acids) to the wound site. Even though these actions are not definitely proven in the present study, the beneficial effect

observed favours further investigation of the new cream.

The implications of the present study are that the new cream could become widely available as a cheap medication for diabetic foot ulcers. Importantly, it is also practical to use, without requiring complicated dressing procedures. In view of the increasing diabetic foot morbidity in India and the huge financial burden incurred<sup>9,10</sup>, it is conceivable that the new polyherbal formulation could represent a cheap but efficacious solution and facilitate prompt management of diabetic foot ulcers on a large-scale basis.

Certainly, this study has its limitations. First, the patient series is rather small. Secondly, follow up was relatively short, and so results need to be confirmed in a longer follow up. Moreover, patients with severe infection and/or advanced Wagner grade were excluded. Thus, the efficacy of the new cream in more difficult-to-heal ulcers is not known. Finally, the study was not double blind.

In conclusion, Viswanathan *et al*<sup>8</sup> have shown that a new polyherbal cream is not inferior to silver sulphadiazine cream in healing rates of Wagner I-III diabetic foot ulcers. The new treatment was not associated with side effects. The significance of the study is that the cheaper new polyherbal formulation may ultimately ensure wider availability, especially in developing countries. Hence, it may be anticipated that the new cream could enrich our therapeutic armamentarium to heal diabetic foot ulcers. However, longer follow up data are needed, as well as more experience with difficult-to-heal foot ulcers.

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