INVITED COMMENTARY

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The burden of suffering for those with chronic leg ulceration constitutes a major health care problem for patients, physicians, and heath care systems. Quality of life is reduced for these individuals, progress toward healing is frequently slow, recurrence rates are high, and treatment is costly. Thus, this clinical problem requires renewed research into pathophysiology and therapy.[1]

The pathophysiology of wound healing is complex and involves at least four major factors: local tissue hypoxia, bacterial colonization, repetitive ischemia-reperfusion injury, and altered cellular and systemic stress responses in the aged patient.[2] The molecular biology of wound healing is increasingly complex and involves inflammatory mediators, cellular elements, and a diverse array of matrix synthesis, angiogenesis, and wound contraction.[3]

Vacuum-assisted wound closure (VAC) has been studied for over 17 years, and many published reports have suggested its superiority to conventional dressings.[4] The occlusive dressing and the vacuum pressure remove tissue fluid, which increases capillary perfusion and wound oxygenation and decreases the content of gram-negative rods such as pseudomonas while levels of staphylococcus increase. Wounds develop granulation tissue more rapidly, and the entire process to complete healing is accelerated.

This randomized study provides fresh research and strongly advocates the use of VAC therapy in this mixed population of ulcers. The preparation of the wound bed is faster, time to complete healing with VAC therapy is a mean of 16 days shorter, and, not surprisingly, the costs are less. Rapid improvement in quality of life and pain are noted with VAC therapy, and this is critical for this patient population, who are generally demoralized by their inability to heal their wound.

Thus, VAC therapy alone is clearly beneficial for the healing of chronic leg ulcers. This reinforces the many nonrandomized publications and this author's anecdotal experience. However, this is not the final chapter in chronic ulcer wound healing, as recurrences rates were 52% with VAC therapy at 4 months. This rate and the conventional therapy recurrence rate of 42% at 2 months are still higher than everyone would like to see. The results of this study demonstrate that further investigation and study are required to refine the best algorithm and addition of other modalities to heal these chronic ulcers permanently. In the meantime, this study provides valuable level 1 evidence for VAC therapy at a lower cost to the health system. This is good news for clinicians, administrators, and, most importantly, patients.

REFERENCES

1. Bergan JJ, Schmid-Schonbein GW, Smith PD, Nicolaides AN, Boisseau MR, Eklof B. Chronic venous disease. N Engl J Med 2006;355:488-98.
2. Mustoe TA, O'Shaughnessy K, Kloeters O. Chronic wound pathogenesis and current treatment strategies: a unifying hypothesis. Plast Reconstr Surg 2006;117(7 Suppl):35S-41S.
3. Broughton G, Janis JE, Attinger CE. The basic science of wound healing. Plast Reconstr Surg 2006;117(7 Suppl):12S-34S.
4. Morykwas MJ, Simpson J, Punger K, Argenta A, Kremers L, Argenta J. Vacuum-assisted closure: state of basic research and physiologic foundation. Plast Reconstr Surg 2006;117(7 Suppl):121S-126S.