Three-legged stools and wound healing

The concept of a three-legged stool can be applied to wound healing. A three-legged stool can only stand if all legs are present, missing just one leg, the stool tips over. Likewise, in wound healing, if all three items are not present, the wound will not heal. In wound healing the three legs are listed below in order of importance:

1. Control the cause of the wound
2. Provide nutrients needed to heal the wound
3. Facilitate tissue healing.

Controlling or eliminating the cause of a wound is first, because it is the most important aspect. This step is accomplished by removing pressure from a pressure ulcer (PU), reducing tissue load on neuropathic feet, promoting venous return in venous leg ulcers (VLUs) and restoring or improving arterial blood flow in arterial ulcers.

Providing nutrients is also essential because both proteins and calories are needed to fuel tissue reproduction, be it scar tissue, granulation tissue or epithelial cells. Nutritional status of patients is often overlooked.

Processes to facilitate tissue healing are last in this model, because if the cause is not controlled or nutrition is not adequate, the body cannot heal. However, it is my impression that wound care providers spend a lot of effort in deciding what to apply topically to the wound, when the body cannot heal when it is catabolic or the problem that caused the wound is still present.

Controlling the cause is indispensable. Consider the bedbound patient who is sitting in bed with their head elevated to 45 degrees. In that position, shear and pressure create sacral and gluteal pressure ulcers. When the pressure injury is present, the patient should not be placed in that same position except to eat. Orders to turn the patient side to side are needed. Expect resistance to a "turn side to side only" prescription, but the patient needs to understand that continuing to lie on a wound that's developing from being in the position will not heal the wound. Just to belabour the point, if a patient develops heel pressure ulcers, boots are used for continuous offloading. You would never order boots to be removed every two hours, yet that is what happens in the pelvic pressure ulcers. In a routine turning schedule that patient is on the right side for two hours, the back for two hours, then the left side for two hours etc. This schedule places the patient on their back and on the wound for 12 out of 24 hours.

Controlling pressure from walking in poorly fitted shoes is also vital to healing diabetic foot ulcers. Likewise using compression garments for VLUs is also common. And arterial wounds are not treated until arterial blood flow is restored. So, if treating the cause of these other wounds seems commonplace, why is the same concept not used for PU offloading?

Promoting healing with nutrition has some obstacles. Common clinical issues are anorexia with illness where "nothing tastes good". Elderly patients can taste sweetness better than sour or salt, so if needed use sugar on the meat or potatoes to help improve the initial taste. It can be a misconception that obese patients do not need supplements. Be certain that your staff understand that fat cannot be metabolised into protein. Protein must be consumed. Fat can be metabolised for energy. Some patients have "do not resuscitate" orders, which may or may not mean to use artificial feeding. That preference will need to be clarified. I have had many patients eat orally and also supplemented with tube feeding during the night to reach the caloric requirements. Once the patient was eating adequately to support healing, the tube was pulled.

Topical wound care centres on reducing the risk of infection in the wound and keeping the wound bed moist to promote cell migration. Topical wound care should include irrigation with antiseptics rather than saline because chronic wounds are colonised with bacteria. Debridement of slough and eschar is also important. However, if slough and eschar reappear within the week after sharp debridement, reconsider legs one and two.

It is beyond the scope of this writing to consider all the tissue substitutes that can be used on chronic non-healing wounds. They certainly have an important role in wound healing but need to be used at the right time on the right wound.

In clinical practice, I hear statements like "I got that wound to finally heal" and "Why isn't this wound healing with that expensive tissue graft?" First and foremost, we as practitioners don't heal any wound, the patient's body heals the wound. Our role is to put the body in the best position to heal. When expensive tissue replacements are used in patients with significant malnutrition or patients that have not had the underlying problem corrected, these materials, alone, cannot lead to healing.

Don't let the stool tip over, consider all three legs in every wounded patient.



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