Unmet Medical Need: Non-healing Skin Ulcers

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Unmet clinical need:

Chronic, non-healing ulcers of the feet are common complications of adults with diabetes, occurring in about 15-20% of diabetics, and often leading to amputation, generating significant patient morbidity and millions of dollars of health care expenditures. Even with the best standard of care, which is debridement of non-viable tissue, off-loading of weight-bearing and treatment of infection, only 30% of diabetic foot ulcers can be expected to heal within a 20 week treatment period.[1] Other types of chronic wounds, such as venous stasis or pressure ulcers, have similar lack of effective therapeutic options. There is clearly an unmet need for more effective treatments to improve healing of these ulcers.

More than 3 million people in the US have diabetic foot ulcer (DFU). The numbers exceed 55-91 million worldwide. DFU occurs in 15-20% of all diabetics, and results in limb loss in 25% of all DFU.[2,3] Current treatments can heal only 50% of DFU. Similar unmet needs exist in other chronic wounds.

Impact:

Improved healing in DFU could prevent up to 80,000 limb amputations yearly and save $1.1 billion (amputation costs), in addition to markedly improving the lives of patients with DFU. Since the median survival of diabetic patients after amputation is only six months, this could be a life-saving device. Our goal is to take our focused translational research in the area of SDR device development forward into a commercially available stem cell-based product in the future.

Current approach:

We are working on developing different types of “biological bandages” with scaffolds for cell retention combined with stem cells for improved healing.[4]

References

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4. Fierro F, Zhang Z, Nolta J, et al. In vitro assessment of human bone marrow derived mesenchymal stromal cell activity seeded in scaffolds for dermal regeneration. Submitted June 15. 2010.