

LETTER TO THE EDITOR

Comment on “An observational pilot study using a purified reconstituted bilayer matrix to treat non-healing diabetic foot ulcers”

Dear Editors,

We thank the commentators for their time to review and comment on our article “An observational pilot study using a purified reconstituted bilayer matrix to treat non-healing diabetic foot ulcers” in the August 2020 issue of the *International Wound Journal*.¹ They raise thoughtful considerations and valuable suggestions for future evaluations of this new biologic material.

We recognise that our pilot study of 10 cases, while encouraging, does not support a conclusion that the purified bilayer porcine matrix (PRBM) used in this series performs better than other biologic grafts for treatment of diabetic foot ulcers. We also acknowledge, as the commentators point out, that meta-analyses of existing studies of biologic grafts reported in the literature suggest that the use of certain acellular matrices may be advantageous when treating chronic diabetic foot ulcers.^{2,3} The data also suggest that these matrices may help to fundamentally modulate behaviour in chronic wounds.⁴

Since this publication, we have undertaken further scientific evaluations of the PRBM to further elucidate how this particular matrix interacts with the wound environment and to better understand the basis for its clinical performance. These additional experimental studies have evaluated the hypothesis that the bilayer architecture of the graft, which mimics the basement membrane and dermis of natural human skin, can interact with physiologic processes active in the wound environment and shifting them towards healing. Our *in vitro* analyses of the biochemical and structural characteristics of PRBM indicate that this matrix may modulate metalloproteinase activity, may bind and preserve active growth factors, and may facilitate migration and proliferation of essential cells. A manuscript with detailed results from these scientific studies is currently under peer review. We believe that pairing this with a companion diagnostic for inflammation might prove even more beneficial in the future to

assist in clinical decision making about when to start and stop therapy.⁵⁻⁷

We concur with the commentators that economic and quality of life data are important to consider when evaluating wound healing therapies. Non-healing diabetic foot ulcers and other lower-extremity complications of diabetes are associated with significant morbidity and mortality, directly impacting our patient's quality of life.^{8,9} We believe our goal as wound care specialists is to maximise ulcer-free days for our patients who suffer with diabetic foot ulcers. We encourage development and utilisation of therapies that can accelerate healing, offering these patients a longer remission period with fewer clinic and hospital visits, avoidance of serious complications, and ultimately, a prompt return to routine activities at a lower economic burden.^{10,11}

The short timeframe for complete wound healing observed in our pilot study group was promising, and we postulated that similar results would be replicated in a larger cohort. In 2019, a group of investigators initiated a prospective multi-centre randomised controlled clinical trial comparing wound healing outcomes using PRBM with those of standard of care in hard-to-heal diabetic foot ulcers. In addition to quantifying the rate of successful healing and assessing overall safety of use, this larger prospective study protocol was designed to evaluate PRBM treatment using patient-centric measures, including collection of data for patient-reported pain and quality of life as well as recording of associated treatment costs. Patient enrolment and follow-up for this broader study is now complete, and data analyses and preparation of a manuscript for peer review are in process. We look forward to sharing the outcome of this larger trial in the near future and whether it confirms or refutes these initial findings.

DATA AVAILABILITY STATEMENT

Data available on request from the authors.

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