

Accelerating healing in diabetic foot ulcers: A rapid review on the role of platelet concentrates

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ABSTRACT

Introduction: Diabetic foot ulcers (DFUs) represent one of the most debilitating complications of diabetes globally, with a high risk of amputation and significant economic burden. A recent study has implied that the estimated treatment cost in Malaysia for DFUs can be as high as MYR 6000-8600 per patient annually, and around 18% of patients with DFUs undergo lower-limb amputation. Despite standard care being provided, healing outcomes are poor due to impaired vascularisation, chronic inflammation and neuropathy. Platelet concentrates (PCs) are an inexpensive autologous modality that utilises cytokines, growth factors and extracellular vesicles to accelerate healing. **Materials and Methods:** A narrative synthesis approach of peer-reviewed articles published from 2015 up to 2025 was adopted, and a rapid review was conducted in PubMed using the following terms: (“platelet-rich plasma” OR “platelet rich plasma” OR “PRP” OR “platelet concentrate” OR “autologous platelet concentrate”) AND (“diabetic foot” OR “diabetic foot ulcer” OR “diabetic wound”). Relevant studies were screened and selected based on inclusion criteria. **Results:** 15 studies were included. Systematic reviews and meta-analyses reported PRP significantly improved the complete healing time of ulcers and has been shown to reduce healing time by 3 weeks. Mechanistic studies reported that PRP-derived exosomes can stimulate fibroblast functions and promote angiogenesis. PRP-exosomes have also been shown to suppress activity of neutrophil extracellular traps (NETs) and promote wound healing. RCTs have demonstrated that PRP dressings or injections are associated with reduced pain, decreased infection rates and faster granulation tissue formation. **Conclusion:** Evidence supports that PRP and PRP-derived exosomes may lessen the financial burden of DFUs and accelerate their healing while reducing risks of complications. Due to the variability in the methods of preparation of PRP, comparability across studies is limited, and this highlights a need for a standardised preparation for future treatment plans for DFUs.

Keyword: Platelet Concentrates, Platelet-rich Plasma, Platelet-rich Fibrin, Diabetic Foot Ulcers, Diabetic Wounds