Opinion

iMedPub Journals
www.imedpub.com

Nano Research & Applications
ISSN 2471-9838

2021
Vol.7 No.6:28

Nanotechnology in Chronic Wound Healing

Divya Borra*

Aurora's PG College, Osmania University, Hyderabad, Telangana, India

Received: June 20, 2020; **Accepted:** June 25, 2021; **Published:** 30 June, 2021

***Corresponding author:** Divya B

Arora PG College, Osmania University, Hyderabad, Telangana, India.

Citation: Divya B (2021) Nanotechnology in Chronic Wound Healing. Nano Res Appl Vol.7 No.6:28

Opinion

This review focuses on innovative nanoplatforms designed to treat chronic wounds, particularly diabetic wounds. We briefly review chronic wound healing and the drugs/biomolecules that have been employed, with a focus on the use of nanoparticles (NPs), nanofibers, and liposomes in the treatment of diabetic wounds and their mechanisms of action. Chronic wounds have a disrupted healing mechanism, causing wounds to take longer than three months to heal. 1 The most prevalent are nonhealing pressure ulcers (NHPUs), venous ulcers (VUs), and diabetic foot ulcers (DFUs). VUs are caused by blocked veins or malfunctioning blood valves in the legs. Diabetic neuropathy diminishes cutaneous sensitivity and is caused by nerve damage induced by uncontrolled glucose blood levels. Keratosis and callus form as a result of foot deformation, leading to wound aggravation and even gangrene. Diabetic individuals' capillary systems are also affected.

Changes in glucose levels cause vasoconstriction and plasma hypercoagulability, which leads to occlusive vascular disease, ischemia, and ulcer formation over time. Ulcers that do not heal have a significant impact on patients and their families. These wounds result in functional loss, morbidity, extreme pain, infections, hospitalisation, and, in some cases, amputation.

Chronic wounds are most commonly linked to population ageing, obesity, and diabetes, all of which raise health-care expenses. 2 Because it is not believed to be life-threatening, this disease is frequently overlooked in comparison to other illnesses. 3 Chronic wounds are a secret epidemic that affects the health of nearly 40 million individuals worldwide.

The current treatment for chronic wounds is determined by the aetiology of the wound. In all situations, wound cleansing and debridement are required, as is infection management and the use of wound dressings. Dressings that speed wound healing and reduce tissue pressure are included in NHPU therapies. Compression leg bandages are specifically utilised in VUs to promote vein circulation. Gauze or gauze-woven cotton composite dressings, for example, prevent wounds from bacterial contamination while allowing gaseous/fluid exchange. They're used to cover complex dressings or treat superficial, non-infected wounds as secondary dressings.

These materials are known for their inexpensive cost and ease of usage. However, drawbacks such as the necessity for frequent changes, difficulty of control over moisture levels, and wound bed adhesion have limited their use in wound treatment. New synthetic dressings are now available that can provide a proper moist environment.