WOUND HEALING

THE NATURE OF INJURIES

Under normal circumstances any breach of the epithelium is quickly closed, blood clotting to form an immediate barrier and the epithelium then repairing so that potential pathogens are excluded. Any pathogens that have gained entry are subjected to control by internal defence mechanisms. The epithelium may break down due to mechanical trauma, maceration, burn, chemical damage, disease process, lack of blood supply, or unremitting pressure.

THE FOOT AND ITS ENVIRONMENT

The tissues of the foot are particularly vulnerable to wounding and the effects of wounding, being reliant upon the condition of the cellular support systems of the lower limb. Important to this is a sustained circulatory path for blood flow, carrying as blood does the necessary materials for nutrition, growth and repair of cells. Lymphatic flow for removal of intracellular debris and metabolic waste products is also important. Arterial, venous and mixed aetiology ulcers may occur where these systems are compromised.

Physically, by contact with the ground, the foot is exposed to sharp edges and prominences that may puncture or cut. Stubbing or separation injuries of the toes are common. The ingrowing toenail can puncture the nail sulcus. And shoes can pinch or rub causing breakdown of skin. Continuing irritation of a wound can lead to the production of hypergranulation tissue, rapidly produced in order to smother a wound that cannot close so that pathogens can be excluded and fluid loss minimised.

Feet work either upon or close to the dusty ground surface - an intrinsically bacteria-rich environment. Because feet perspire and desquamate, the interior of footwear is equally bacteria/yeast/fungus-laden.

REQUISITES FOR WOUND HEALING

In order for a wound to heal, it must have an adequate blood supply, blood of good quality, adequate lymphatic drainage, and no direct pressure or irritation. Small wounds in patients who are not suffering from the micro-vascular effects of diabetes heal best if the wound surface is free of loose fragments, thoroughly clean and under no pressure. Small, clean wounds where there is little or no tissue loss are best kept dry to 'seal and heal'. When closed, normal hygiene regimes can be re-instated.

Dirty wounds, or wounds in which infection is potential, require application of an antiseptic. Broad spectrum antiseptics should be chosen according to the 'opposites' rule 'if it's dry - wet it…if it's wet - dry it'. Cream preparations should be kept away from moist wounds, since they will cause further maceration/wetness. Wet wounds require dry powder or alcohol carried medications. Remember that Friar's balsam/Compound Tincture of Benzoin should not be applied to wound surfaces that have just been debrided of infection since any sub-surface residual contamination could be sealed in by occlusive medical varnishes; these wounds need to drain/dry/breathe. Dressings/padding should be designed to defend a wound from external forces whilst healing takes place.

Dry, clean, simple wounds normally heal rapidly, without incident. Deeper, complex, infected wounds will take longer and may need follow-up and/or redressing at early and frequent intervals. Healing will also be slow in poorly controlled diabetics, vascular compromised patients, or the very elderly. Again, early review/frequent monitoring/redressing must be implemented.

In summary, nutrition, excretion, respiration and blood supply are all essential factors in wound healing. Blood supply delivers the nutrition and the oxygen to the tissues. The colon, kidneys, skin and lungs remove the toxins that would stop a wound healing. A wound cannot heal if the tissue is soaked in toxins.

Infection adds to the toxic burden that prevents healing
- establish the right conditions and the wound will heal.

THE ALLIANCE PROFESSIONAL DEVELOPMENT PROGRAMME

ON WOUND HEALING

The questions on this sheet are based upon the above-named paper. Answers should be submitted on A4 paper and should be of sufficient length to demonstrate full understanding of the topic. Single word answers are not permissible. Try to answer in one or two short paragraphs, not more than a ¼ page per answer.

Q1. Name as many reasons as you can for the breakdown of the epithelium of the foot.

Q2. What may occur if the circulation of the blood and lymphatic circulation is compromised?

Q3. What are the requisites for wound healing?

Q4. What are the factors that slow wound healing?

Q5. Toxins may prevent a wound healing...what are the origins of those toxins?

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