

The history of diabetic wounds nursing essay

[Health & Medicine](#), [Nursing](#)



IntroductionThe number of diabetes cases is increasing globally. Due to a lack of feeling, the foot wounds of patients with diabetes often go unnoticed and escalate to ulcers, infections and amputations. Oestrogen cream has been shown to aid healing of chronic wounds, in the elderly and in animal diabetes models. The proposed trial will explore the possibility of oestrogen cream aiding the healing process of diabetic ulcers which currently have no effective treatment.

AimsThe aim of the study is to evaluate the effect of oestrogen cream on wound healing in patients with type 2 diabetes. The overall aim is to improve ulcer prognosis and prevent amputations.

MethodWe will conduct a randomised controlled trial using ulcer area as a measure. Patients will be recruited from three Manchester university hospitals. Research will be conducted by The University of Manchester.

Implications to public healthAfter ulcer formation, survival rates for more than 5 years and quality of life are low. The cost to the NHS of diabetic foot ulcers and consequent amputations is vast. If oestrogen cream improves ulcer healing the benefits to the NHS and the individual patients would be huge.

Introduction

Diabetes

Globally an increase in diabetic cases is expected; in 2011 there were 366 million cases, which is predicted to reach 552 million in 2030.(1) In 2005 there were an estimated 2. 26 million patients with diabetes in England alone. In 2025 this number is estimated to rise by 1. 4 million making the total number of cases 3. 6 million, with type 2 diabetes accounting for around 85% of diabetic patients. (2, 3) In every country the number of type 2

diabetics is growing.(1) Diabetes costs the National Health Service (NHS) £14 billion per year which is set to increase with the number of cases.(4) Poorly managed diabetes can lead to serious complications such as chronic heart disease and diabetic neuropathy.(5) Per patient each year complications cost the NHS £1, 800 to £2, 500.(4)

Diabetic wounds

Wounds on diabetics' feet are often not noticed due to loss of feeling (diabetic neuropathy); this can lead to ulceration, infections and amputation. (5) Cross sectional community surveys undertaken in 1994 showed type 2 diabetes ulcer prevalence in the UK to be 5. 3%. (6, 7) Survival of more than 5 years for diabetics who have had an ulcer is 56%.(8) Diabetic risk for amputation of lower extremities is twenty times that of non-diabetics, which carries a perioperative mortality rate of 10-15%.(6, 8) Six-hundred-and-thirty-eight million pounds to 662 million is the estimated cost of diabetic foot ulceration and amputation by the NHS in 2010-2011.(8) This shows diabetic wounds to be a substantial drain on NHS funds. Patients who are subjected to ulcers and amputations have a reduced quality of life; mainly due to reduced mobility and the consequence of having to change their lifestyle.(8, 9) Routine tasks such as bathing are affected with patients finding these greatly affected by their loss in mobility. Around 50% of patients with ulcers are unable to work due to their ulcer. Sleep disturbance, suffering from antibiotic side effects, social isolation and depression are also reported.(9) Other suggestions for the reduced quality of life includes extreme pain, visits to the clinic, hospitalisation and frequent dressing changes.(8) Randomised controlled trials have suggested patients with

chronic obstructive pulmonary disease, osteoarthritis and those who have dialysis have a higher quality of life than patients with foot ulcers. (8) It is imperative that treatment and prevention of diabetic foot ulcers improves to reduce the time mobility is restricted, the psychological effects and carer dependency.(9)

Ulcer pathology

Nerve damage occurs in diabetes resulting in sensation loss (neuropathy). This leads to patients not recognising ulcers/injury.(6, 8) Normal foot movement is controlled by muscles which are affected by motor neuropathy in patients with diabetes.(6) Thickening of the skin (callus) puts pressure on the soft tissue.(10) Consequently, breakdown of the subcutaneous tissue and skin occurs due to ischaemic necrosis. This results in a neuropathic ulcer. (6)Neuroischaemic feet lose protective sweating, have nail dystrophy, thin dry skin and red localised pressure damage, which causes ulcers.(7) Ischaemia in the diabetic foot can result from microvascular complications including; basement membrane thickening, thrombosis and fragile capillary walls. Atherosclerosis (a macrovascular complication) can also result in ischaemia particularly in the foot and calf.(6)Foot ulceration can result in infection which can delay healing and cause deterioration of the wound. There are three stages of infectionSuperficial and localCellulitis (soft tissue and spreading)Osteomyelitis (Infection of the bone). (6, 11)Development of osteomyelitis occurs in 30-40% of foot puncture injuries in diabetics.(11)

Impaired healing

The healing process in diabetic patients' chronic wounds is impaired. (12)

Many factors add to this. Recovery is impaired by neuropathy as due to lack of sensation the foot is more likely to be used, with continual trauma being applied and possibly an abnormal walking pattern. As the foot is insensitive a chronic ulcer can form from minor trauma and prevent healing. (6, 13)

Additionally, ischemia delays healing. Infection can delay healing and cause deterioration of the ulcer.(6) Amputation is commonly a result of the infection. (8)The prolonged inflammatory phase diabetic wounds have, leads to an increase protease response. Common proteases involved include matrix metalloproteinases (MMP) and elastases. Their role is crucial to angiogenesis, epithelialization, debridement and scar remodelling. MMP expression is usually timed and controlled. The balance between proteases and their inhibitors is essential for wound healing.(14)