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Improving outcomes following reconstruction of pressure sores in spinal injury patients: A multidisciplinary approach☆,☆☆

S. Tadiparthi [a,*], A. Hartley [a], L. Alzweri [a], M. Mecci [b], H. Siddiqui [a]

[a] *Department of Plastic and Reconstructive Surgery, James Cook University Hospital, Marton Road, Middlesbrough, TS4 3BW, UK*
[b] *The Golden Jubilee North East Regional Spinal Injuries Centre, James Cook University Hospital, Marton Road, Middlesbrough, TS4 3BW, UK*

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Paraplegia

Summary *Background and aim:* Pressure sore treatment in spinal injury patients is challenging. A multidisciplinary approach with joint management by the plastic surgery and spinal injury teams was initiated at our institution in 2005 to improve patient care and surgical outcomes following reconstruction. This study assessed the surgical outcomes following reconstruction using the team approach and to compare inpatient stay and readmissions for complications before and after the multidisciplinary protocol was introduced.
Methods: A retrospective review of consecutive patients in the multidisciplinary pressure sore clinic was performed. Data were collected on patient demographics, reconstructive techniques, surgical outcomes and readmission for any complications.
Results: In total, 45 patients with 60 pressure sores (grade 3 or 4) were reviewed in the joint clinic between 2005 and 2011. The majority of patients were paraplegic (78%), while the remaining 22% were tetraplegic. Ischial sores were the most common (45%) followed by trochanteric (23%) and sacral (20%) sores. Multiple sores were noted in 44% of patients.

Flap reconstruction was required in 32 patients (71%); after a mean follow-up time of 33 months (range 25—72 months), there were three (9%) major complications (two recurrences of pressure sores and one sinus) and seven (22%) minor complications.

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* Corresponding author. Department of Plastic and Reconstructive Surgery, James Cook University Hospital, Marton Road, Middlesbrough, TS4 3BW, UK. Tel.: +44 1642 854303.
E-mail address: stadiparthi@hotmail.com (S. Tadiparthi).

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After introduction of patient care pathways through the multidisciplinary approach, the rate of readmission for complications decreased from 14% to 5.5% and inpatient stay upon readmission reduced from 65 to 45 days.
Conclusions: Implementation of a multidisciplinary approach was key to optimising surgical outcomes, achieving a low recurrence rate (6%) and reducing readmissions.

Introduction

Pressure sores pose a significant problem in spinal injury patients with an estimated lifetime risk of >70% and a prevalence of up to 33% in the community.[1–3] Pressure sores not only have a considerable negative impact on patients' quality of life but lead to increased healthcare costs. Preventing the development of new pressure sores and recurrence of sores after reconstruction are key to reducing patient morbidity and minimising costs. The presence of multiple risk factors including insensate skin, incontinence, immobility, joint contractures, muscle spasms and multiple co-morbidities pose challenges to the management and prevention of pressure sores in spinal injury patients. Furthermore, these risk factors increase patients' susceptibility to developing multiple pressure sores, sometimes at unusual sites, and also increase the likelihood of recurrence after reconstruction. Although recurrence rates of 40–60% have been reported following reconstruction in spinal injury patients, there is a paucity of literature on improving the management of patients or the surgical outcomes.[4,5]

The Golden Jubilee North East Regional Spinal Injuries Centre based at Middlesbrough, UK, purpose-built in 2003 with 30 specialised beds, serves a population of 3.6 million and currently has a little more than 1200 spinal injury patients in its care. A multidisciplinary team (MDT) approach adopted at the centre in 2005 is now routine practice. The protocol detailed in Table 1 encompasses a holistic approach with regular multidisciplinary pressure sore clinics, close monitoring of patients with regular pressure mapping to identify areas at risk, optimisation of risk factors and co-morbidities, enhanced community care, close communication between community care and the spinal unit and patient and carer education and support. The overarching aim of the MDT approach is to streamline patient care, thereby minimising inpatient stay and allowing patients to be treated in their home environment, but still achieving optimal surgical outcomes.

Aims of the study

This study has two main aims: firstly to assess surgical outcomes following pressure sore reconstruction with the multidisciplinary approach, and secondly to compare the length of stay and readmissions for complications before and after the multidisciplinary protocol was introduced.

Materials and methods

For assessing the management of pressure sore patients and the outcomes of reconstruction, the medical records of consecutive patients reviewed in the joint pressure sore clinics between 2005 and 2011 were analysed. Data were collected retrospectively on patient demographics, risk factors, pressure sore grade and location, treatment methods, type of reconstruction, length of admission, complications and any readmissions for complications. Complications were classified as 'major' and 'minor' events, with any event that required readmission or further surgery to aid healing grouped as a 'major' complication, while any event that was dealt with on an outpatient basis was classed as a 'minor' complication. 'Recurrence' was defined as the development of a pressure sore over a previously healed reconstructed site.

The spinal injury admission database was analysed to determine the effect of the multidisciplinary protocol on patient readmissions following reconstruction for complications. The number of readmissions and the length of hospital stay upon readmission for the period before (2003–2004) and after implementation of the MDT approach (2005–2010) were compared.

Multidisciplinary team protocols (Table 1)

All patients under consideration for reconstruction follow a defined care regime (Table 1). Preoperatively, patients are managed in the community with the support of the community nursing team and with regular review in the joint clinic. There is close communication between the community nurses and the spinal unit so that any deterioration of the wounds or the patient's general state is noted promptly. Patients' nutrition and co-morbidities are optimised and both patients and carers are educated on skin care, pressure relief methods and the need for close monitoring. A dedicated team with a named plastic surgeon with a specialist interest in the treatment of pressure sores in spinal injury patients works closely with the consultant in spinal cord injuries and other specialist team members. A stoma is considered in patients with sacral, ischial or multiple pressure sores where the pressure sore is extensive, there is significant undermining of the cavity, or located close to the anal verge and likely to impact on flap care or wound healing.

Once the patient is optimised and deemed suitable to proceed with reconstruction, the patient's home circumstances are assessed and a discharge package is arranged upon liaison with the general practitioner, social and