

The Eastbourne Trauma Assisted Discharge Scheme (TADS) Reduces Length of Stay in Hip Fracture Patients

Eastbournské „Trauma Assisted Discharge Scheme“ (TADS) zkracuje délku hospitalizace pacientů se zlomeninou kyčle

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ABSTRACT

PURPOSE OF THE STUDY

The aim of this prospective study; The Trauma Assisted Discharge Scheme (TADS), was to set up a new model of post-operative care for patients following a fractured hip, addressing the need for efficiency, cost effectiveness and meeting local demand.

MATERIAL AND METHODS

All patients with hip fractures between December 2010 and December 2011, meeting the TADS inclusion criteria were enrolled in the study. Innovative use of staff within existing budgets helped create a TAD team who with the use of defined patient goals and a link nurse provided a seamless transition from acute to community services.

RESULTS

One hundred and sixteen patients followed the TADS pathway; the majority aged 80–89 years and independent prior to falling. A total of 35 patients underwent dynamic hip screw fixation; 55 hemiarthroplasty, 11 total hip replacement and 11 cannulated screw fixation. The average length of in-hospital stay was 8.6 nights. The TADS reduced the average length of stay by 4.78 days.

CONCLUSION

TADS has the potential to be used as a model of care in other specialities and is easily transferable to the wider NHS.

Key words: continuous quality improvement, quality improvement, surgery, cost-effectiveness, ambulatory care.

INTRODUCTION

Currently there is a wide variation in acute stay for hip fracture patients, reflecting the differences in local service provision. Hip fractures present a significant morbidity and mortality to patients; the 30-day mortality is 10% and 1-year mortality is 30% (10). Hip fractures also place a significant strain on health care resources; due to the direct financial cost but also indirect costs such as prolonged hospital stay preventing other emergency/elective work. The annual UK healthcare cost is £7,000 – £12,000 per patient fracture. The estimated cost during 2007 was £2 billion for medical and social care, treating 70,000 patients with hip fractures and the numbers rise annually with a projected incidence of 91,500 fractures in 2015 and 101,000 in 2020 (3).

Despite targeted prevention strategies (1) the estimated rise in the elderly population predicts a continued increase in the number of hip fractures and consequently the burden on healthcare resources in the future.

The Trauma Assisted Discharge Scheme (TADS) was set up in Eastbourne District General Hospital as a new model of post-operative care for patients following a

fractured hip, in addition to the current inpatient care pathway, addressing the increasing need for an efficient and cost effective service to meet the local population demand. The aim of TADS was to provide a 7-day streamlined service for patients from A&E, back to their own homes. Early discharge has been shown (3) to prevent post-operative complications, and reduce the average hospital stay. This in turn led to financial savings, increased patient satisfaction and an increased throughput of orthopaedic patients.

MATERIAL AND METHODS

All inpatient episodes following a hip fracture between December 2010 and December 2011 at Eastbourne District General Hospital were prospectively collected. Inclusion criteria for TADS consisted of: 1) patients who had suffered a fractured neck of femur requiring surgical management, 2) a discussion of complex medical patients suitability for the scheme at the multidisciplinary meeting (MDT), 3) patients who were able to transfer

with minimal assistance and toilet independently in the night prior to the injury, 4) patients who are motivated to join the scheme, 5) patients acceptance that the service is time limited and 6) patients having a weight bearing status post operatively.

Patients were excluded if they were 1) medically unstable, 2) their GP (community service) was not in the local area (Eastbourne/Hailsham/Seaford) or 3) if they were to be discharged back to a Nursing Home.

Length of stay (LoS) from hospital records and a patient satisfaction questionnaire were also used.

Strategy for change

Innovative use of staff within existing budgets helped create a TAD team, using a link nurse to provide a seamless transition from acute to community services. This was achieved by: 1) educating staff 2) creating rehabilitation support worker posts on the ward 3) introducing a defined inpatient pathway from A&E to the ward 4) post-operative goals and 5) a defined community pathway immediately post discharge. Early discharge planning involved patients, families and staff, which created a cultural change. Additionally monthly MDT meetings, with checklists and predefined goals, were conducted both on the ward and in the community. These established robust communication pathways and prompt identification of concerns in order to facilitate safe and timely discharges. Following inpatient discharge a 4-week discharge target from TADS within the community was also implemented.

RESULTS

A total of 378 patients suffered a fractured neck of femur between December 2010 and December 2011. A total of 116 patients satisfied the inclusion criteria and followed the TADS pathway, the majority aged 80–89 years (Fig. 1).

Almost half lived alone at home and the majority (83%) were independent prior to their fall. A total of 35 patients underwent dynamic hip screw fixation; 55 hemiarthroplasty, 11 total hip replacement and 11 cannulated screw fixation.

The majority of patients ($n = 38$) were ASA (American Society of Anaesthesiologists) grade 3. Twenty-five patients had an ASA grade = 2 and three had an ASA grade = 1. One patient had an ASA grade = 5.

Unfortunately incomplete anaesthetic charts meant ASA grade was unknown for the rest ($n = 49$). The average length of in-hospital stay was 8.6 nights.

On discharge, the majority (90%) of patients were seen the following day, 6% within 2 days and 3% within 3 days. One per cent of patients were seen the same day. A total of 88% and 9% of patients were fully and

partially weight bearing respectively; only 3% were non-weight bearing. The majority (84%) of patients required no further package of care, compared to only 50% prior to the implementation of the TADS scheme. Five patients were re-admitted during the TADS scheme for cardiac investigations, pulmonary embolus, urinary tract infection, diabetic complications and deep vein thrombosis.

Half ($n = 58$) of patients were discharged from TADS within the 4-week community target, the majority ($n = 98$) being discharge by 6-weeks (Fig. 3). Variance from the this target included progression to full weight bearing status, awaiting home rails to be fitted, additional goals being identified or more time required to achieve set goals.

A minimal ($n = 8$) follow up referrals were made for TADS patients. These were for further district nurse support, intermediate care groups, physiotherapy or on-going rehabilitation follow up.

A total of 262 patients did not continue on the TADS pathway. This predominantly consisted of patients being 1) out of area (28%), 2) from a nursing home (28%) and 3) not medically fit (13%). Other reasons included limited service or staff provision at the time, dementia and mental health issues. Only 7% were not continued on the scheme due to slow progression.

DISCUSSION

It is assumed that an inpatient multidisciplinary care pathway can improve the outcome and reduce length of stay for fracture neck of femur patients, and much of the literature (5, 7, 8, 9) is focused upon the predictive markers and specific interventions, such as time to surgery, and outcome. However, there a paucity of literature focused solely upon the post-operative care.

The Nottingham Hip Fracture Score (NHFS) has been used as a predictor of 30-day mortality and length of stay (9). Patients with a score ≥ 3 have only a 57% chance of returning home and only 32% within 15 days. An age >66 years scores 3, and ≥ 86 years score 4. Whilst not specifically calculated, the majority of the Eastbourne population enrolled in TADS would score at

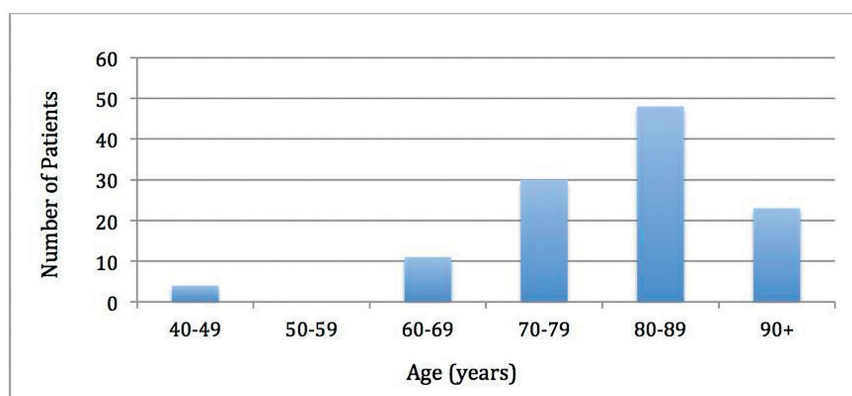


Fig. 1. Age range of patients enrolled onto the TADS.

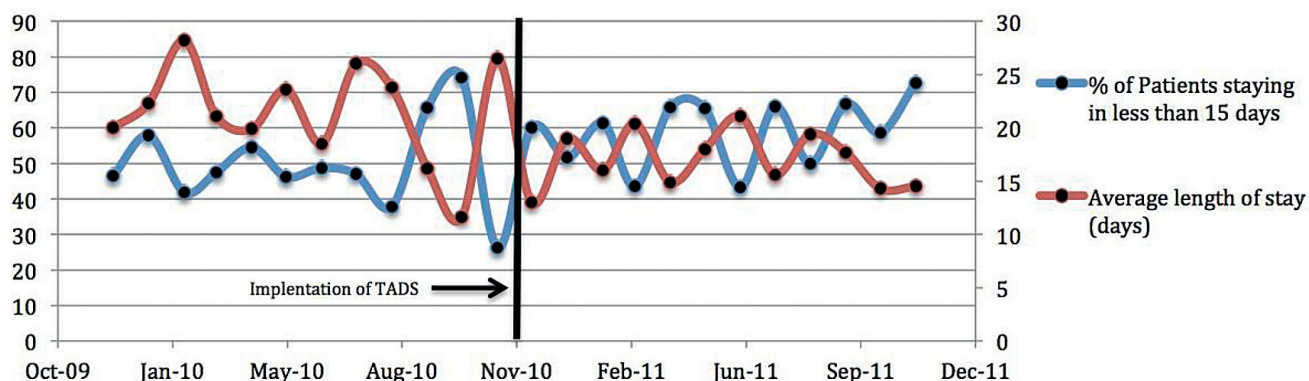


Fig. 2. Monthly comparison between average length of stay and % of patients staying less than 15 days prior and after implementation of TADS.

least NHFS $n = 3$, (majority aged 80–89 years) and the majority were ASA score $n = 3$. In contrast with the NHFS predictions (15-days) the average length of in-hospital stay was 8.6 nights, whilst the overall LoS for all hip fracture patients was 16.89 days.

Further studies have shown that time to surgery (8), peri-operative and anaesthetic technique (5), Orthogeriatrician input (7) and early implementation of multidisciplinary rehabilitation (2) all have positive effects on outcome. As such many healthcare trusts employ multidisciplinary inpatient care pathways, as per the NICE guidance (10).

At Eastbourne District General Hospital there is already a Fractured Neck of Femur pathway, identifying patients in the A&E department and providing a structured care plan with defined goals such as prompt anaesthetic assessment, surgical fixation, Orthogeriatrician review and post-operative rehabilitation. Despite such multidisciplinary care pathways the average length of stay and cost was still varied (Fig. 2), in-line with the literature (11) and the evidence is still inconclusive as to whether this should be in the inpatient or outpatient setting (6).

Recently Flikweert et al. (4) have shown that a more comprehensive care pathway from the A&E department to rehabilitation programs and discharge can significantly reduce length of stay (7 days vs. 11 days; $p < 0.001$),

with the majority of patients being transferred to nursing homes on discharge, and 63% being discharged back home after a median stay of 7-weeks. Despite similar patient characteristics, this contrasts with TADS where all patients were discharged home, 83% required no further package of care and the majority were discharged from the programme within 6 weeks.

Effects of change

The TAD scheme has reduced the average length of stay by 4.78 days. It has also significantly reduced the number of care packages required on discharge and indirectly improved the wider functioning of the inpatient orthopaedic service. Through collaborative working with a number of service providers, TADS has been able to provide high quality care using resources efficiently and effectively to deliver the right care, in the right place at the right time.

CONCLUSIONS

During the TADS process we have recognised the need for further community funding and commitment from the Orthopaedic management to increase TADS staffing, including weekend and sick-leave cover from inpatient physiotherapy and occupational health to allow 7-day service. A 'Walking Diary' exploring the outcome on length of stay (LoS) has been introduced, looking at correlations between the amount of walking and LoS. Additional ways to support complex patients i.e. Non-Weight bearing status and dementia needs to be explored.

Integration of community and primary care services into the hospital multi-disciplinary team is at the forefront of how and why TADS has achieved a streamlined service with a reduced inpatient stay. The TADS not only reduces inpatient stay but also reduces the health cost on a patients discharge, with 84% of patients requiring no package of care compared

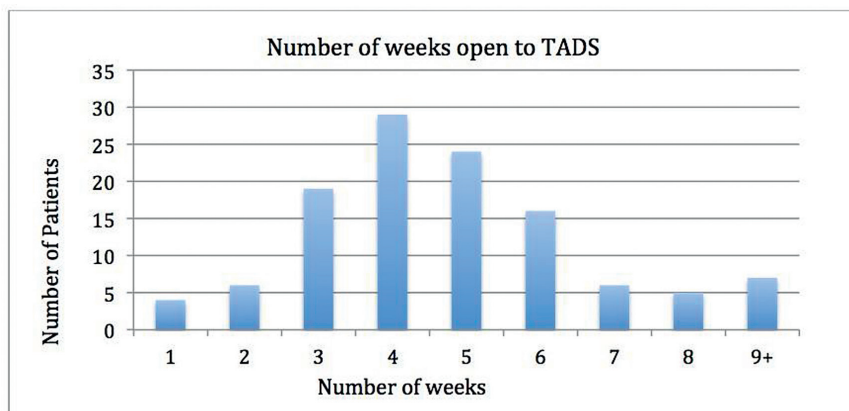


Fig. 3. Length of time in TADS post-discharge from hospital.

to ~50% prior to its implementation. TADS has the potential to be used as a model of care in other specialities and easily transferable to the wider NHS.

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