Current Anaesthesia & Critical Care 21 (2010) 114–120

Contents lists available at ScienceDirect

Current Anaesthesia & Critical Care

journal homepage: www.elsevier.com/locate/cacc

FOCUS ON: ENHANCED RECOVERY

An orthopaedic enhanced recovery pathway

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Keywords:
Enhanced recovery
Fast-track
Rapid recovery
Hip replacement
Knee replacement

S U M M A R Y

The use of enhanced recovery pathways within elective surgery has increased in recent years but uptake outside of specialist centres is still slow, despite the growing evidence base to support their introduction. This article will briefly outline what is meant by an enhanced recovery pathway (ERP) and outline the central characteristics and features which make up an ERP. The procedural details and results of an orthopaedic ERP which has been used in 2391 consecutive hip and knee joint replacement patients at a NHS district general hospital within the United Kingdom will then be outlined.

The results of this unit illustrate that when a standardised, multi-disciplinary pathway is implemented and managed correctly, dramatic reductions to length of stay can be achieved. In combination, high levels of both staff and patient satisfaction are achieved along with good clinical outcomes. It is proposed that if such ways of working are implemented in other hospitals major economic and capacity savings could be realised at the same time as improving patient care.

1. Introduction

The introduction of enhanced recovery pathways within elective surgery has gained momentum over recent years since the concept of "enhanced recovery" was first described and promoted by Henrik Kehlet.[1] The technique was originally described as a method for treating patients following colonic surgery[1,2] with its principles centred on a multimodal rehabilitation program to reduce post-operative pain and accelerate rehabilitation. Whilst the principles of the pathway were originally developed and integrated into colorectal surgical pathways, they have also been utilised in numerous operative procedures such as general, visceral, vascular and thoracic surgery, as well as orthopaedic, urological and gynaecological operations.[3]

This article will briefly outline what is meant by an enhanced recovery pathway (ERP), discuss the use of enhanced recovery pathways within orthopaedic settings, and briefly outline the potential benefits and effect to the National Health Service (NHS) that adopting an ERP approach to hip and knee replacement patients may provide.

An example of an orthopaedic ERP will then be described. The setting for this pathway is a typical NHS district general hospital and the purpose of its explanation is to demonstrate that the introduction of an ERP is both possible and extremely beneficial for patient outcomes within an NHS orthopaedic setting. Results of the pathway and details of how it was implemented will be made throughout its description.

1.1. What is enhanced recovery?

At its core an ERP is about improving patient outcomes and speeding up patient recovery following surgery. An ERP focuses on optimising every aspect of a patient's journey and promoting the patient as an active participant in their recovery process and rehabilitation. Successful pathways are delivered by multidisciplinary teams and are multimodal in their nature with the aim to optimise every step of a patients' pathway in order to accelerate post-operative recovery, and reduce complications, adverse events and general morbidity.

There is no formal definition of an ERP within the literature and pathways with the same characteristics as enhanced recovery have been described under various headings that include terms such as "Fast-track", "Rapid Recovery" and "Accelerated Rehabilitation".[4–6] Whilst there is an absence of a formal definition, when the literature is reviewed and the clinical practice at exemplar units is examined, there are a number of core aspects that appear to

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doi:10.1016/j.cacc.2010.01.003

characterise an ERP. Depending on the surgical discipline some aspects of the pathway will be favoured more heavily, but in general the following steps characterise an ERP.

1.2. Generic principles of enhanced recovery pathways

1.2.1. Pre-operative

- Thorough pre-operative intervention to optimise health and medical condition
- Management of patient expectation through pre-operative education and counselling
- Organisation of discharge arrangements

1.2.2. Intra-operative

- Atraumatic and minimally invasive surgical techniques
- Shortened surgical times
- Optimised anaesthesia – usually regional anaesthetic techniques with light sedation
- Promotion of normovolemia, normothermia and prevention of hypoxia

1.2.3. Post-operative

- Early physiotherapy intervention and promotion of ambulation
- Regular and effective analgesia with avoidance of opiates where possible
- Rapid introduction of normal hydration and feeding
- Promotion of a "wellness" model of care – catheter, drains and drips are removed as soon as possible, and independence with washing, dressing and socialisation is promoted.

1.2.4. Discharge

- Patients are discharged home
- Criteria-based discharge protocol managed by the multi-disciplinary team
- Patients have clear instructions on how to progress rehabilitation independently

1.3. Enhanced recovery in orthopaedics

Whilst the term enhanced recovery has originated from colorectal surgery, the use of multi-disciplinary clinical pathways (which have many similar aspects to an ERP) in orthopaedics is not new. Clinical pathways have been used to co-ordinate the care of hip and knee replacement patients across many units in the world and examples have been published in the literature for over 10 years.[7] The effect of introducing such pathways has been considered by systematic reviews and there is a consensus that the introduction of clinical pathways can significantly improve the quality of care for patients.[8,9]

The improvements to quality of care by using these pathways are largely thought to be due to the increased organisation of the care that is delivered. It has been noted that if the patient pathway is highly structured and standardised, and if the multi-disciplinary team are involved in the development and production of the pathway, then improvements to patient care are likely to be realised.[9]

As well as improvements to patient satisfaction and good clinical outcomes, ERP and fast-track approaches report reductions in length of hospital stay. The values reported are considerably lower than the national averages within the United Kingdom (UK) (Figs. 1 and 2)

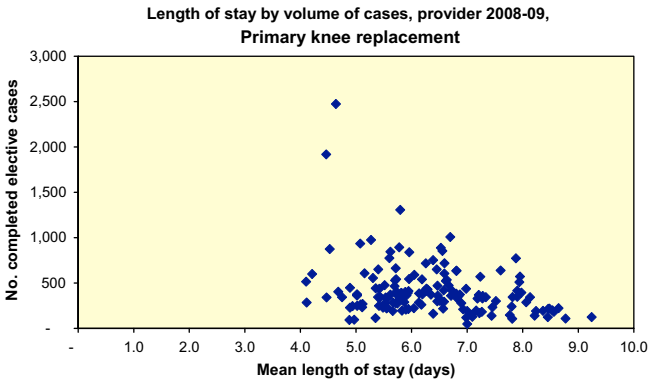

Fig. 1. Length of stay by volume of cases for primary knee replacement by NHS hospital, 2008–09. HES data.

and so the approach appears to be "win-win". An ERP can deliver high quality and also provide efficiency gains. This is obviously desirable and the UK Department of Health is currently running an enhanced recovery programme to help support units wishing to introduce an ERP.

This is welcome because the widespread adoption of the principles of ERP amongst orthopaedic departments in the United Kingdom has not occurred. Reasons for this slow spread may be due to a lack of knowledge or a reluctance to introduce evidence-based pathways, but this seems unlikely given that most staff aspire to give their patients optimal care and are comfortable utilising best evidence.[10] The more likely reason is that units have difficulty organising and co-ordinating such pathways[11,12] and this is maybe why the pathways reported to date are often for selected populations and/or for series of single surgical teams.

In units where ERP has been administered successfully for colorectal patients, ERP nurses have led the co-ordination of care and have been instrumental in making these complex pathways work.[19] The implementation of ERP for colorectal patients may also have been more widespread comparatively to orthopaedics due to the relatively small numbers of patients undergoing these procedures (119,603 primary total hip and knee replacements were completed within the UK in 2008–09 compared to 19,753 colectomy and excision of rectum procedures).[14]

The largest colorectal units may perform around 300 procedures a year compared to 2000 procedures in the high volume joint replacement units. The organisation required in large orthopaedic units to implement ERP is, therefore, significant and is perhaps the principle reason why adoption of ERP principles has to-date been slow in orthopaedics.

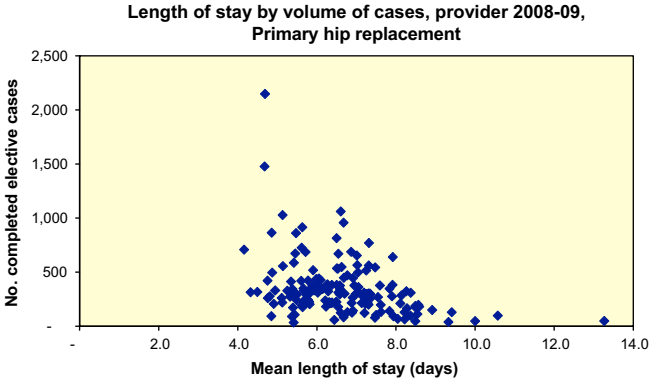

Fig. 2. Length of stay by volume of cases for primary hip replacement by NHS hospital, 2008–09. HES data.