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To what extent do current total hip and knee replacement patient information resources adhere to enhanced recovery after surgery principles?

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Abstract

Objectives Total hip replacement (THR) and total knee replacement (TKR) are two of the most common orthopaedic surgeries that occur in the United Kingdom (UK) annually. Enhanced recovery after surgery (ERAS) programmes aim to decrease convalescence across procedures. It has been highlighted that post operative physiotherapy routines may not contain the correct ingredients for promoting acceleration of return to function. This research aims to analyse if current THR and TKR patient information resources adhere to ERAS principles, thus optimising post operative recovery.

Data sources Twenty hip and knee replacement patient information booklets were sourced using a UK Google search. A flowchart of exercise prescription components was formulated from a review of 5 trial booklets. A content analysis was utilised to assess the information included within the patient information booklets.

Results Forty percent of patient information booklets identified their pathways to be ERAS. Fifty five percent of the hospitals stated their patients would be mobilised on the day of surgery. Ninety percent of THR and 100% of TKR guidelines suggested the use of bed exercises for rehabilitation. Fifteen percent of THR and 35% of TKR booklets suggested functional exercise as a method of rehabilitation. Strength or resistance based exercises were proposed in 40% of THR and 55% of TKR booklets.

Conclusion Many patient information booklets do not follow ERAS principles for fast-track rehabilitation and the exercise prescription procedure is non-specific. This must be considered within post operative rehabilitation in order to enhance recovery and reduce length of stay following THR or TKR surgery.

Keywords: Hip replacement; Knee replacement; Physiotherapy; Rehabilitation; Patient information

Introduction

Total hip replacement (THR) and total knee replacement (TKR) are two of the most common orthopaedic surgeries that occur in the United Kingdom (UK) each year [1]. An increasing lifespan of the population has raised the number of THR and TKR surgery required [2] and is also increasing the rehabilitation requirement for patients wishing to return to work, social, sporting and leisure activities.

Enhanced recovery after surgery (ERAS) programmes aim to decrease convalescence across procedures, morbidity and length of stay [3]. ERAS, also termed fast-track, accelerated or rapid recovery, was first introduced by Kehlet [4] within colorectal surgery but has since been applied to a number of surgical sub-specialities. In the United Kingdom, the Enhanced Recovery Partnership Programme (ERPP) was introduced by the Department of Health and National Health Service (NHS) in 2009 to support the national implementation of ERAS for colorectal, orthopaedic, gynaecology and urology major elective surgical pathways [5].

The role of physiotherapy within ERAS programmes is important; rapid recovery of muscle function will improve

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patient recovery and reduce length of stay [6]. The post operative physiotherapy routine is broadly similar across orthopaedic hospitals, however the pathway has been criticised for not containing the correct ingredients for a fast-track recovery [7]. Physiotherapy treatment aims to promote the return to function following THR and TKR; however, recent studies have questioned the value of the exercises currently prescribed to patients [7–9].

The protocols for recovery are generally static, bed exercises, prescribed without consideration of progressive strength or functional rehabilitation. The efficacy of such exercises in comparison to early functional exercises has recently been queried [10]. Expert comments suggest that the timing of the intervention may also be important [7]. Commonly, the exercises prescribed to patients following THR or TKR are without a clear course of progression and appear to not follow basic physiological guidelines that are known to improve patients' muscle hypertrophy and subsequent return to daily activities. Post operative physiotherapy has been described as being of low intensity [11] despite research concluding that physiotherapy should be immediate and intensive following THR and TKR [7].

Members of the ERAS society, in collaboration with other medical societies, have published clinical guidelines to demonstrate exemplar practice. At present, there are no ERAS guidelines published for TKR and THR however related research offers guidance on key principles of post operative physiotherapy. Early mobilisation is central to ERAS and the acceleration of discharge criteria, proving to reduce mortality and morbidity [12–14]. In addition, progressive strength or resistance training [15,16] and high intensity functional exercise interventions have been recommended [17]. Exercise prescription should be informed by relative load and repetition maximum information [7]. In unselected groups, where consecutive patients are recruited without a selective referral process, patients can be discharged on the day of surgery or 1 to 2 days post surgery [18]. If the pathways aim to facilitate post operative recovery, patients must have clear instructions on how to progress their rehabilitation independently [19]. Accurate prescription of exercise training post surgery can ameliorate the strength loss that occurs immediately after an operation. Rehabilitation following THR and TKR requires change. This research aims to analyse if current THR and TKR patient information resources adhere to ERAS principles, thus optimising post operative recovery.

Method

The study was conducted by adopting a qualitative data collection methodology which informed a quantitative data analysis procedure [20]. A content analysis was used to collect the pertinent data from the hospital information booklets, a method informed by previous studies that have evaluated patient resources [21,22]. The data collected was organised into basic descriptive statistics in preparation for analysis and discussion. The multi stage data extraction pathway is shown in Fig. 1. All data from the study was collected from freely accessible content available on the internet. Ethical approval was not pursued as the study did not involve human participation.

Search strategy

A comprehensive search was undertaken in order to source UK NHS hospital patient information booklets. Due to its popularity, a UK Google Search was chosen as the generator for results. All searches were conducted from www.google.co.uk on a Windows Chrome (version 57.0.2987.133) browser. A search strategy was constructed by selecting appropriate keywords and terms. Each search term was tested individually; and then the three phrases which generated the most; relevant results were combined with Boolean operators to create a final search formula (Fig. 2).

Inclusion and exclusion criteria

The search results were assessed for the exclusion and inclusion criteria in chronological order. We took a convenience sample of twenty booklets to analyse. Although this sample size does not reflect the total number of trusts that offer THR and TKR, it does offer a strong indication of the practice that is occurring nationwide due to the geographical spread of the resources. The first twenty appropriate results were downloaded into a secure, password protected file. Patient information booklets were only included if they were from a UK NHS hospital, not an independent provider of healthcare or charity. Booklets for unicompartmental replacements or revision surgery were excluded. The booklets had to be in a portable document format (PDF) to avoid the inclusion of modified or edited versions of hospital resources. The information booklets sourced were from an UK NHS hospital website, designed to be downloaded by patients. The booklets were only involved in the study if they contained exercise prescription advice post surgery. If there were two versions of the file, the most recent was selected for analysis.

Pilot testing

A sample of five patient information booklets was sourced for pilot testing, whereby a flowchart of post operative physiotherapy care components was formed. Two members of the research team reviewed the flowchart individually and discussed any changes that needed to be made to the data extraction procedure. Minor additions were made to the flowchart, including more detail added to the queries on bed and sitting exercises and the progression of walking and stair climbing. The final version is shown in Fig. 3.

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