



Systematic review

Effectiveness of land-based physiotherapy exercise following hospital discharge following hip arthroplasty for osteoarthritis: an updated systematic review

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Abstract

Background Existing review required updating.

Objective To evaluate the effectiveness of physiotherapy exercise after discharge from hospital on function, walking, range of motion, quality of life and muscle strength, for patients following elective primary total hip arthroplasty for osteoarthritis.

Design Systematic review from January 2007 to November 2013.

Data sources AMED, CINAHL, EMBASE, MEDLINE, Kingsfund Database, and PEDro. Cochrane CENTRAL, BioMed Central (BMC), The Department of Health National Research Register and Clinical Trials.gov register. Searches were overseen by a librarian. Authors were contacted for missing information. No language restrictions were applied.

Eligibility criteria Trials comparing physiotherapy exercise vs usual/standard care, or comparing two types of relevant exercise physiotherapy, following discharge from hospital after elective primary total hip replacement for osteoarthritis were reviewed.

Outcomes Functional activities of daily living, walking, quality of life, muscle strength and joint range of motion.

Study appraisal Quality and risk of bias for studies were evaluated. Data were extracted and meta-analyses considered.

Results 11 trials are included in the review. Trial quality was mixed. Newly included studies were assessed as having lower risk of bias than previous studies. Narrative review indicates that physiotherapy exercise after discharge following total hip replacement may potentially benefit patients in terms of function, walking and muscle strengthening.

Limitations The overall quality and quantity of trials, and their diversity, prevented meta-analyses.

Conclusions Disappointingly, insufficient evidence still prevents the effectiveness of physiotherapy exercise following discharge to be determined for this patient group. High quality, adequately powered, trials with long term follow up are required.

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Keywords: Physiotherapy; Exercise; Hip arthroplasty; Systematic review

Introduction

Osteoarthritis is a leading cause of pain and disability in the UK and worldwide: estimates of age-standardised incidence rates of hip osteoarthritis amongst women and men in Europe are approximately 53.2 and 38.1 per 100,000 respectively, with prevalence and incidence increasing with age [1].

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NICE guidelines state that joint arthroplasty should be considered for people with osteoarthritis whose joint symptoms substantially impact upon their quality of life and are refractory to conservative treatment [2]. These guidelines also state that referral for arthroplasty should be made before patients experience prolonged and established pain and functional limitation.

The number of hip arthroplasties taking place in the UK each year is substantial. Latest figures indicate that 76,448 primary total hip arthroplasties were carried out in England, Wales and Northern Ireland in 2012 (92% of which were due to osteoarthritis) [3] and 6956 primary hip arthroplasties were undertaken in Scotland in 2011 [4]. The National Joint Registry for England, Wales and Northern Ireland also reported 10,040 revisions performed in 2012, a revision burden now reaching 12% [3]. A similar hip arthroplasty revision rate of 11% was reported for 2011 in Scotland [4]. Traditionally, physiotherapy has been a routine component of patient rehabilitation following hip joint replacement. The length of stay following joint arthroplasty continues to decrease [5], with the duration period for post operative in-patient physiotherapy being reduced. It is known that impairments in muscle strength and postural stability and functional limitations remain a year after surgery [6] and the effectiveness of post discharge physiotherapy upon functional ability after hip replacement is therefore a valid question. Current uncertainty regarding effectiveness makes it difficult for patients making decisions about their own health, for health care providers to advise patients and for service providers to determine whether to provide a post discharge physiotherapy service to patients. It is also unclear what should be included in any service provision.

In 2009 we published a systematic review evaluating the effectiveness of physiotherapy exercise after discharge from hospital on function, walking, range of motion, quality of life and muscle strength, for osteoarthritic patients following elective primary total hip arthroplasty [7]. The review concluded that existing trials were generally poor in quality and that insufficient evidence existed to establish the effectiveness of physiotherapy exercise following primary hip replacement for osteoarthritis. The need for further high quality trials was emphasised. The last trial included in our original review was from 2004 and it therefore seemed timely to consider the value of repeating the review for 2014. There have been recent systematic reviews assessing the efficacy of resistance training following hip arthroplasty [8], pre operative physiotherapy and post operative hip movement restrictions [9] and a review of predominantly early (inpatient) land-based and aquatic-based exercise therapy [10]. There has also been a systematic review of five outpatient or home setting physiotherapist-directed rehabilitation exercise studies [11]. But there has been no published update similar yet to our review. We therefore considered that it would be useful to update our original review of post discharge land-based physiotherapy exercise and place it in this wider context of rehabilitation evidence now provided by these

additional reviews which have asked different, but related, questions.

This review therefore aimed to provide an update of our original review and to explore to what extent is post discharge physiotherapy exercise effective, in terms of improving function, quality of life, mobility, range of hip joint motion and muscle strength, for osteoarthritic patients following elective primary unilateral total hip arthroplasty? We also aimed to see if additional outcomes, such as pain or performance measures, could now be included in the review.

Methods

Searching

8 trials were identified from the previous review (up to April 2007); please see Minns Lowe *et al.* [7] for search and exclusion details. The following databases were searched from 1st January 2007 until 14th November 2013 (by LD) for randomised controlled trials relating to land-based exercise post hip arthroplasty: AMED, CINAHL, EMBASE, MEDLINE, Kingsfund Database, and PEDro. Cochrane CENTRAL, BioMed Central (BMC), the Department of Health National Research Register and ClinicalTrials.gov register were also searched. The search strategy was formulated by a health librarian. No language restrictions were applied.

Selection

We sought prospective, comparative clinical trials of patients undergoing total hip replacement for osteoarthritis who received a physiotherapy exercise rehabilitation intervention following discharge from hospital post operatively. We used broad definitions of ‘physiotherapy’ and ‘exercise’ to include exercises/exercise programmes advised or provided by physiotherapists/physical therapists during the rehabilitative period following discharge from hospital after surgery occurring in the out patient, community or home setting. In the light of the early rehabilitation review by Di Monaco and Castiglioni [10] we did not include recent trials commencing during in-patient stay. Trials were included if they compared a physiotherapy intervention *vs* usual or standard care or compared two different types of relevant physiotherapy intervention. We excluded trials in which the intervention consisted of an electrical adjunct to physiotherapy. Effectiveness outcomes included in trials were measures of functional activities of daily living, walking, self-report measures of quality of life, muscle strength and range of hip joint motion. It was not considered possible to include pain as a separate effectiveness outcome since most trials do not include specific measures for pain; most trials use functional measures, which include pain as one component which cannot be separated out from the score as a whole. Study

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