Approaches to Delivery of Care at Home Following Elective Hip and Knee Joint Replacement Surgery

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Abstract

Arthritis has a worldwide increasing prevalence with increased demands on healthcare systems to provide arthroplasty surgery. There is growing evidence that early discharge and rehabilitation at home following hip and knee replacement provide similar or better results in function, complication rates and patient satisfaction. We suggest that this method of rehabilitation is a cost-effective viable option in fitter patients whose medical demands will be low postoperatively.

Keywords

Rehabilitation, Arthroplasty, Arthritis

1. Introduction

Arthritis of the hip and knee remains a leading cause of disability among patients and the number of patients diagnosed with arthritis continues to grow. This increasing prevalence places overwhelming demand on global healthcare systems for joint arthroplasty surgery [1]. In addition to this, the contribution of other factors including increasing life expectancy, obesity and patient desires to maintain a pain free active lifestyle further increases this pressure [2]-[4].

In their analysis of the incidence of total hip replacement for primary osteoarthritis in Iceland, Ingvarsson et al. (1999) have shown that the annual requirement for this procedure is expected to increase by one-third over a period of twenty years [5]. Mallinson et al. (2011) have shown even higher prevalence for hip and knee replacement surgery in the United States [6]. The factors above have resulted in methods of cost saving strategies whilst maintaining high quality patient care. The development of clinical pathways is an attempt to standardize management and to better economize with available resources [7].
Clinical pathways have been used since the 1980’s, and over the last 3 decades there has been increasing de-
bate regarding their effect on patients’ outcomes and care. In their meta-analysis of clinical pathways in joint re-
placement surgery, Barbieri et al. (2009) have found that clinical pathways can improve perioperative care qual-
ity and significantly decrease the incidence of postoperative complications [1].

Most joint arthroplasty patients will require some form of rehabilitation whether in hospital, at home or in a
specialist rehabilitation centre. This review will look in the evidence for delivering rehabilitation at home.

2. Rehabilitation at Home Following Surgery

An important part in the setup of any perioperative clinical pathway is to decide whether patients’ should have
their care and rehabilitation delivered at home, in outpatient facilities or in hospital. Historically, patient who
underwent joint replacement surgery have been managed routinely in hospitals. Over the last three decades,
there has been an increasing drive to manage those patients at home and is no longer compulsory to rehabilitate
those patients in hospital [8]. The incentives behind this drive include clinical, financial, resource availability
and evidence in the literature.

There are many studies showing that functional capacity and patient satisfaction are good following home
therapy, with similar or better outcome and complication rates when compared to hospital rehabilitation pro-
grammes [9]-[12]. In a comparative study of functional outcome following joint replacement in patients who
received rehabilitation at home, outpatients or hospital, home rehabilitation was found to be the optimal setting
for healthy, less dependent patients and offered a significant advantage in recovery of functional status [6].
Many authors also show an enhanced patient satisfaction mainly due to shorter inpatient stays resulting in an
increased ability to cope following arthroplasty [13]-[15]. Functionally, a randomized study by Siggeirsッドottir
(2005) has shown statistically significant better Oxford hip scores in patients who had perioperative education
and home rehabilitation [16].

2.1. Education

Perioperative education has shown to play an important role in the ability of patients to manage at home follo-
wing surgery, in addition to improved function and quality of life, when associated with post-operative home re-
habilitation programmes (GENET 2007) [8]. Wang (2002) have found that the introduction of an education pro-
gramme resulted in improved quality of gait and endurance at 6 months [17]. There was also reduction in hospi-
tal length of stay when combined with rehearsal of postoperative exercises resulting in cost savings, which has
been supported by other studies in current literature [16]-[18]. Furthermore, the assessment of patient’s home
and family environment by nurses and physiotherapists before surgery increased patient satisfaction and light-
ened postoperative management [10]. A qualitative study by Delmar (2009) has shown that describing rehabili-
tation to patients in a personal way, especially for the elderly, as a process linked to being at home and achieving
harmony with one’s self was more valid rather than simply providing standardized information irrelevant to pa-
tients’ personal needs [19].

Conversely, there is evidence to support inpatient, and to some extent specialised outpatient, rehabilitation
following joint replacement surgery. DeJong (2009) have found better outcomes in patients receiving inpatient
rehabilitation when compared to those who had outpatient rehabilitation in skilled-nursing facilities [20]. They
showed that for sicker patients undergoing arthroplasty, the availability of 24-hour medical and nursing care was
needed when compared to healthy patients. Genet (2007) have found that some physiotherapy techniques will
require the presence of specialist physiotherapists, particularly in managing cardiorespiratory deconditioning
and suggested for this element to be added to rehabilitation programmes [8].

2.2. Cost

Reducing cost has been, and will always be, an important drive in early discharge. Moller (1992) has found that
it was feasible to transfer patients’ rehabilitation home following arthroplasty [21]. Most authors agree that the
main contributor to cost reduction is reduced length of stay [14] [16] [22]. Sigurdsson (2008) achieved a cost
reduction of 28% in their randomised trial comparing early discharge following total hip replacement when
compared to discharge to a rehabilitation centre [7]. They concluded that shorter length of stay is cost-efficient
requiring fewer resources and potentially results in shorter waiting times to have surgery. The introduction of
clinical pathways has also contributed to the reduced length of stay due to standardization of management and better organization [1]. Kim (2003) has also shown that clinical pathways reduced length of stay by 31% achieving a cost reduction of 11% for total hip replacements [23].

There is increasing evidence that early discharge to home physiotherapy may have the intention of reducing cost and readmission rates but in reality this is not the case. Coyte (2000) demonstrated that patients discharged with home care had longer acute care stays than other patients [24]. The provision of home care services increased health system costs, and acute care readmission rates were greatest among patients discharged with home care. Mitchell (2005) carried out a randomised control trial of home versus hospital rehabilitation after unilateral TKR [25]. They showed that home rehabilitation resulted no difference in outcome but there were significantly more physiotherapy sessions for the home group resulting in an excess mean cost of £136.5 per patient.

Genet (2007) have described the evidence in the literature as heterogeneous when it comes to assessing outcome measures and home therapy regimes, with lack of consensus on rehabilitation strategies [8]. Barbieri (2009) could not conclude that clinical pathways in general were cost-effective due to the lack of studies analysing the cost of development of those pathways [1]. Other studies have also shown no significant difference between hospital and outpatient rehabilitation programmes following hip and knee arthroplasty thus showing the controversy in current literature [6] [9] [26].

3. Conclusions

Current literature shows that there is no real consensus regarding the outcomes from delivery of rehabilitation in alternative settings. There is growing evidence that early discharge and rehabilitation at home following hip and knee replacement provide similar or better results in function, complication rates and patient satisfaction. We suggest that this method of rehabilitation is a cost-effective viable option in fitter patients whose medical demands will be low postoperatively.

There is a lack of good randomised control trials comparing home and hospital rehabilitation in the literature. A well constructed trial looking at functional outcome and patient satisfaction following THR and TKR would be beneficial.

References

placement: Randomized Study of 50 Patients with 6 Months of Follow-Up. Augmented with Education and Home-Based Rehabilitation Improves Function and Quality of Life after Hip Replacement.


