Journal of Traditional Medicine & Clinical Naturopathy

Review Article Open Access

Accelerating Recovery: Immediate Physical Therapy after Total Joint Arthroplasty Barriers, Challenges and Short-Term Outcomes

Palomaki Ville*

Department of Physiological Sciences, USA

Abstract

Total knee arthroplasty (TKA) is a commonly implemented elective surgical treatment for end-stage osteoarthritis of the knee, demonstrating high success rates when assessed by objective medical outcomes. However, a considerable proportion of TKA patients report significant dissatisfaction postoperatively, related to enduring pain, functional limitations, and diminished quality of life. In this conceptual analysis, we highlight the importance of assessing patient-centered outcomes routinely in clinical practice, as these measures provide important information regarding whether surgery and postoperative rehabilitation interventions have effectively remediated patients' real-world quality of life experiences. Uniquely, this model will be developed using an interdisciplinary methodology involving non-linear analysis of the unique contributions of a range of preoperative risk and resilience factors to patient-centered TKA outcomes. Of particular importance to the model's predictive power is the inclusion of a comprehensive assessment of modifiable psychological risk and resilience factors that have demonstrated relationships with TKA and other conditions in some studies. Despite the potential for patient psychological factors to limit recovery, they are typically not routinely assessed preoperatively in this patient group, and thus can be overlooked in rehabilitative referral and intervention decision-making.

Introduction

Several studies have demonstrated benefits of earlier postoperative PT after TJA, including decreased length of stay (LOS), reductions in cost, and clinical improvements in pain, range of motion, quadriceps and hamstring strength, gait, and balance [1]. However, several recent systematic reviews have questioned the quality of evidence supporting these benefits. Moreover, many of these studies examined enhanced perioperative pathways in general without investigating individual components such as early postoperative PT. Thus, it is important to examine the isolated effects of early PT on short-term postoperative outcomes. Osteoarthritis is a common chronic musculoskeletal condition affecting approximately 9% of Australians and an estimated 250 million people globally [2]. Due to the confluence of the increasing prevalence of risk factors such as obesity, aging, and joint injuries, the incidence and prevalence of osteoarthritis are also rising. Symptoms may include severe pain, stiffness, and instability in the affected joints. Because there is no known cure and symptoms tend to worsen in severity over time, osteoarthritis can have a progressively debilitating impact on an individual's health and functioning, particularly when conservative management interventions are unsuccessful in restricting disease progression. Patients with end-stage osteoarthritis experience considerable pain, as well as functional limitations in relation to mobility, activities of daily living, independence, and occupational and social participation. Symptoms can lead to disrupted sleep and fatigue and reliance on a caregiver. These difficulties affect mood, psychological wellbeing and health-related quality of life [3].

Referral pathways and rehabilitation intervention

The restoration of patients' quality of life and physical and psychological functioning in relation to disability or illness are core goals of Rehabilitation Medicine [4]. Rehabilitation Medicine traditionally adopts a bio psychosocial multidisciplinary and multimodal approach to assessment and treatment. Currently, medical rehabilitation is both a key facilitator of postoperative functional recovery following TKA and an established component of a patient's postoperative treatment plan. This places Rehabilitation Medicine in an important position to improve prognoses for patients at risk of poor postoperative outcomes. However, restoring patients to functional everyday life following surgery is challenging, and many factors can disrupt or impede the rehabilitation process. This retrospective study was performed at a single academic medical center from July 2015 to December 2017 [5]. All primary total hip and knee arthroplasty procedures performed at the center during this period were analyzed following appropriate Institutional Review Board approval.

Interdisciplinary precision medicine and the prediction of patient recovery trajectories

In order for our proposed model to have optimum predictive power, we argue that it must draw on research and expertise from a broad range of relevant disciplines, including but not limited to orthopedic surgery, rehabilitation medicine, psychology, physiotherapy, and exercise physiology. Furthermore, the development and validation of powerful predictive algorithms requires interdisciplinary collaboration with experts in fields like engineering and data science [6]. While the development of such a tool is a complex and time-intensive process, we believe that a thorough and intensive investment at the research and evaluation level will simplify and enhance The development of the type of multivariate outcome prediction tool we are proposing requires statistical evaluation models that can accurately predict recovery based on an individual patient's status across a broad range of factors [7]. In order to facilitate rehabilitative interventions that precisely target an individual patient's specific combinations of modifiable risk factors,

***Corresponding author:** Palomaki Ville, Department of Physiological Sciences, USA, E-mail: Pville557@gmail.com

Received: 1-May-2023, Manuscript No: jham-23-99126, **Editor assigned:** 3-May-2023, Pre QC No: jham-23-99126 (PQ), **Reviewed:** 17-May-2023, QC No: jham-23-99126, **Revised:** 23-May-2023, Manuscript No: jham-23-99126 (R), **Published:** 29-May-2023, DOI: 10.4172/2573-4555.1000380

Citation: Ville P (2023) Accelerating Recovery: Immediate Physical Therapy after Total Joint Arthroplasty Barriers, Challenges and Short-Term Outcomes. J Tradit Med Clin Natur, 12: 380.

a method of modeling that is better suited to this goal is required. This can be achieved using more sophisticated, non-linear, machine-learning models and temporal validation. Temporal validation involves the development of a model based on data collected from an initial TKA patient sample, and subsequent validation on a second sample recruited at a later time point, where the same data has been collected. To date, only one of the existing TKA prediction models has been externally validated.

Psychological risk and resilience factors

Psychological characteristics relate to an individual's cognitive, emotional, and behavioral responses to their experiences. These factors play an important role in one's capacity to cope with and adjust to acute and chronic stressors In the case of TKA, adjustment and recovery depend on a patient's ability to restore function and reduce disability following surgery. Certain psychological factors can function as vulnerabilities that hinder postoperative recovery and rehabilitation progress. Others can function protectively, leading to higher levels of adjustment and resilience [8].

The limited attention given to modifiable psychological factors in post-TKA rehabilitative referral and intervention practices, relative to the prominence and importance of these factors reported in the literature, represents a problematic research-to-practice gap which may contribute to adverse patient outcomes [9]. Multivariate machine-learning prediction models provide a potential mechanism through which to link modifiable psychological variables and TKA outcomes to practical rehabilitation practices. Such models could facilitate the expansion of rehabilitative interventions beyond biologic models and toward the bio psychosocial model, which explains models of human behavior and recovery from illness more accurately than biologic models alone [10].

Conclusion

This study is subject to the limitations of retrospective analysis. The clinical information collected is dependent on accurate and complete documentation. Also, there are multiple factors that can affect 30-day readmission following TJAA. We attempted to control for commonly reported factors, including age, sex, BMI, overall health status, insurance type, anesthesia type, operative time, length of stay, and discharge location; however, inclusion of other factors such as specific comorbidities and postoperative complications, which were not available for our study, would have strengthened our analysis. Along the same lines, some institutions schedule patients with higher medical comorbidity or surgical complexity near the end of the day, which could confound our results; however, the protocol at our institution is to schedule more comorbid and complex primary TJA patients at the beginning of the day, which makes this potential issue less likely. Finally, our study was performed using data from a single academic center, and results may not be generalizable to other regions, institutions, or practice settings. However, we propose that the range of modifiable psychological risk and resilience predictors that are prominent in these models are too limited, and currently are not routinely assessed in clinical practice. We have outlined the role of depression, anxiety, and pain catastrophising as risk factors for poor pain, function, and other quality of life outcomes among a proportion of patients following TKA. Furthermore, we have provided an argument for the potential importance of resilience-related patient characteristics, including committed action, in buffering patients from adverse postoperative outcomes. We propose that the assessment of a range of cognitive, emotional, and behavioral vulnerabilities and protective factors will facilitate a better understanding of the unique ways these psychological variables may interact to affect individual recovery trajectories. This will allow rehabilitation interventions to fully capitalize on the power of precision medicine techniques by focusing on modifiable cognitive, emotional, and behavioral factors relevant to individual patients. This could be key to resolving the significant rates of patient dissatisfaction observed following TKA.

References

1. Lindberg J, Padyukov L, Lundberg K, Engstrom A, Venables PJ, et al. (2000) Multiple antibody reactivities to citrullinated antigens in sera from patients with rheumatoid arthritis: Association with HLA-DRB1 alleles. Ann Rheum Dis 68:736-743.
2. Alamanos Y, Drosos AA (2005) Epidemiology of adult rheumatoid arthritis. Autoimmun Rev 4:130-136.
3. Helmick CG, Felson DT, Lawrence RC, Gabriel S, Hirsch R, Kwoh CK, et al. (2008) Estimates of the prevalence of arthritis and other rheumatic conditions in the United States. Arthritis Rheumatol 58:15-25.
4. El-Beshlawy A, Hamdy M, Ghamrawy M (2009) Fetal globin induction in β-thalassemia. Hemoglobin 33:197–203.
5. Makrygiannakis D, Hermansson M, Ulfgren AK, Nicholas AP, Zendman AJ, et al. (2008) Catrina AI Smoking increases peptidylarginine deiminase 2 enzyme expression in human lungs and increases citrullination in BAL cells. Ann Rheum Dis 67:1488-1492.
6. Bhatia M, Walters MC (2008) Hematopoietic cell transplantation for thalassemia and sickle cell disease: Past, present and future. BMT 41:109–117.
7. Glader BE, Look KA (1996) Hematologic disorders in children from Southeast Asia. Pediatr Clin N Am 43: 665-681.
8. El-Beshlawy A, Hamdy M, Ghamrawy M (2009) Fetal globin induction in β-thalassemia. Hemoglobin 33:197–203.
9. Crowson CS, Matteson EL, Myasoedova E, Michet CJ, Ernste FC, et al. (2000) The lifetime risk of adult-onset rheumatoid arthritis and other inflammatory autoimmune rheumatic diseases. Arthritis Rheumatol 63:633-639.
10. Hootman JM, Helmick CG, Barbour KE, Theis KA, Boring MA, et al. (2016) Updated projected prevalence of self-reported doctor-diagnosed arthritis and arthritis-attributable activity limitation among US adults, 2015-2040. Arthritis Rheumatol 68:1582–1587.