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Total Joint Replacement Prehabilitation: A Feasibility Study

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BACKGROUND

Pre-operative physical therapy has been shown to reduce post-acute care service utilization. Shifting rehabilitation to the presurgical period, referred to as prehabilitation, could result in reduced recovery time and cost. Barriers to physical therapy, such as time, distance, and cost may prevent patients from achieving the benefits of exercises appropriate to their condition, and a standard set of independent exercises may be an alternative.

OBJECTIVES

We aimed to assess the feasibility of an independent exercise program at our institution as a pre-surgical intervention for total hip and knee arthroplasty as “bundle” reimbursements were starting for these surgeries.

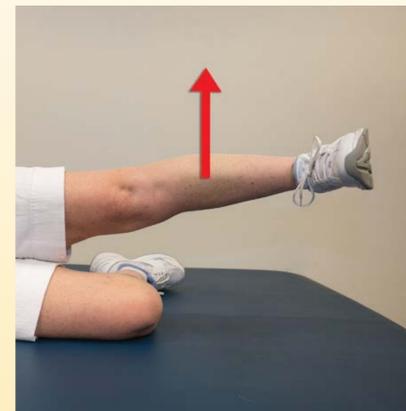
METHODS

All patients presenting to the participating surgeons were eligible for recruitment. Prospective observational design without randomization was utilized so that no subject would be denied these exercises.

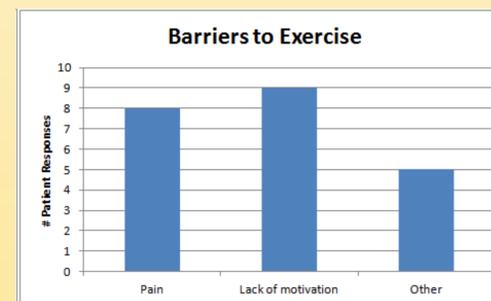
Participants were taught two exercises for hip or knee arthritis at their outpatient evaluation at least one week prior to surgery and instructed to perform them daily independently at home (see figures). Subjects were contacted three days to one month post-operatively and surveyed about discharge, frequency of exercise, and living status of alone or with others. Additional information was collected from the subject’s chart including age, BMI, and sex. Discharge outcomes were compared with pre-existing independent factors using univariate and multivariate analyses



Two knee exercises: straight leg raise and knee extensions



Two hip exercises: straight leg raise and hip abductor. Modification: Could be performed lying or standing.



Subjects cited the above barriers to performing home exercises.

References

- Lun, V., Marsh, A., Bray, R., Lindsay, D. and Wiley, P., 2015. Efficacy of hip strengthening exercises compared with leg strengthening exercises on knee pain, function, and quality of life in patients with knee osteoarthritis. *Clinical Journal of Sport Medicine*, 25(6), pp.509-517
- Snow, R., Granata, J., Ruhil, A.V., Vogel, K., McShane, M. and Wasielewski, R., 2014. Associations between preoperative physical therapy and post-acute care utilization patterns and cost in total joint replacement. *J Bone Joint Surg Am*, 96(19), p.e165.

RESULTS

A total of 80 subjects were followed with a home discharge rate of 78.75%.

- ❖ No significant adverse effects of exercise were observed
- ❖ Univariate analysis showed that the presence of other people in the home showed a slight, but not significant, association with differences of discharge destination.
- ❖ 82.7% of subjects who live with others were discharged home versus 57% of subjects living alone. (LR chi-square: 3.84, p=0.15)
- ❖ Multivariate analysis showed a slight, but not significant, association between frequency of prehabilitation and discharge destination (OR= 1.212; 95% CI, 0.960-1.530)
- ❖ BMI showed no associated difference in discharge destination.

DISCUSSION

Increased frequency of prehabilitation and presence of others at home showed slight associations with increased discharge to home, but were not significant. Increased exposure to prehabilitation (duration X frequency) trends toward more frequent home discharge.

CONCLUSIONS

Independently performed prehabilitation may be offered as an alternative intervention with likely no significant adverse effect.

Larger numbers and a randomized controlled design are needed to determine likelihood of discharge home.