Participation in Physical Activity in Patients 1-4 Years Post Total Joint Replacement in the Dominican Republic

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Accessibility
PARTICIPATION IN PHYSICAL ACTIVITY IN PATIENTS 1-4 YEARS POST TOTAL JOINT REPLACEMENT IN THE DOMINICAN REPUBLIC

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ABSTRACT

Background: To address both the growing burden of joint disease and the gaps in medical access in developing nations, medical relief organizations have begun to launch programs to perform total joint replacement (TJR) on resident populations in developing countries. Operation Walk Boston has been providing TJRs to patients in the Dominican Republic and collecting data on clinical outcomes since 2008. One outcome of TJR of particular interest is physical activity (PA) since it is strongly linked to general health. This study evaluates the amount of postoperative participation in physical activity in low-income patients who received total joint replacement in the Dominican Republic and identifies preoperative predictors of postoperative PA level.

Methods: We used the Yale Physical Activity Survey (YPAS) to assess participation in postoperative PA 1-4 years following total knee or hip replacement. We compared the amount of aerobic PA reported by postoperative TJR patients with the levels of PA recommended by the CDC and WHO. We also analyzed preoperative determinants of postoperative participation in aerobic PA in bivariate and multivariate analyses.

Results: 64 patients out of 162 eligible subjects (81.3% TKR and 21.9% THR) who received TJR between 2009-2012 returned for follow-up, with a mean treatment-to-follow-up time of 2.1 years. 43.3% of respondents met CDC/WHO criteria for sufficient participation in aerobic PA. Multivariate analyses including data from 56 individuals identified that patients who were both younger than 65 and at least two years postoperative had an adjusted mean activity dimensions summary index (ADSI) 22.9 points higher than patients who were 65 or older and one year postoperative. Patients who lived with friends or family had adjusted mean ADSI 17.2 points higher than patients living alone. Patients who had the most optimistic preoperative expectations of outcome had adjusted mean ADSI scores that were 19.8 points higher than those who were less optimistic.

Conclusion: The TJR patients in the Dominican cohort participate in less PA than recommended by the CDC/WHO. Additionally, several associations were identified that potentially affect PA;
specifically, participants who are older than 65, recently postoperative, less optimistic about postoperative outcomes and who live alone participate in less PA.
Author Contribution: Design, Execution, Analysis and Writing

I met with Dr. Jeffrey Katz in October 2012, where we first discussed the outcomes research performed during the annual Operation Walk trip, during which total joint replacements are performed for those in need, and patients who received this surgery in years past are seen in follow up. During this meeting, we discussed prior research performed by medical students, and jointly came to the conclusion that there was a need to study how much patients were using their new joints. Over the coming months (before the April 2013 mission to the Dominican Republic), I worked with Dr. Katz and colleagues to design the research instruments that we would use to collect data. Many of the tools were utilized in prior years, which would give us the ability to compare data from years past. However, the Yale Physical Activity Survey (YPAS), which as the name suggests is used to study participation in physical activity, had not been used prior, nor had it been validated in Spanish. In the months prior to the trip, I worked with a group of colleagues in the US and the Dominican Republic to create a validated version of the questionnaire in Spanish, the results of which and instrument itself were published (link and citation below).

In April 2013, I traveled with the Operation Walk team to the Dominican Republic for four days, during which patients who had received total joint replacement 1-4 years prior were seen for follow-up. I helped administer the aforementioned surveys, with help from Dominican medical students who could help clarify any questions in Spanish.

Upon our return to the US, I spent the months of June, July, and part of August 2013 working with the data we had collected. Part of this project meant inputting the data into a database and double-checking the entries for accuracy. Afterwards, I worked closely with Dr. Yan Dong, a statistician who works in the Orthopedics and Arthritis Center for Outcomes Research (OrACORe). She generated the statistical reports, and I (in conjunction with Drs. Dong and Katz), worked to analyze the data. Our primary endpoint was what percentage of patients met CDC/WHO guidelines for adequate participation in physical activity, and secondary analyses were aimed at identifying patient characteristics that might be associated with more or less participation in physical activity.
During the statistical analysis, I started drafting a manuscript to publish our results. This required writing up the literature review that I had performed on physical activity guidelines as part of our introduction. It also meant summarizing our research and statistical methods, writing up our results, and coming up with conclusions and a discussion. Although I was primary author of these sections, I had editorial help from Drs. Dong and Katz, and the several other coauthors of the paper who each played a pivotal role in the project. After two attempts to find a journal that would accept the publication, we were successful in having our manuscript accepted to BMC Musculoskeletal Disorders. This process included me drafting a cover letter, a revise and resubmit letter, and ultimately, an edited manuscript to meet the needs of the editor and reviewers. The manuscript can be found using the second link and/or citation below.
