

Validity of Patient-Reported Comorbidities Before Total Knee and Hip Arthroplasty in Patients Older Than 65 years

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Abstract: Obtaining preoperative medical histories in elderly patients can be challenging, and tools have been developed to aid in history gathering. The purpose of this study is to determine the agreement between patient- and physician-reported histories before total knee or hip arthroplasty. Three hundred eighty-two patients older than 65 years completed a preoperative morbidity assessment form preoperatively. Sensitivity, specificity, κ , and agreement were calculated for each dichotomous response. Diabetes ($\kappa = 0.77$) and lung disease ($\kappa = 0.68$) had substantial agreement. Fourteen comorbidities ranged from slight to moderate agreement. Osteoarthritis and peripheral vascular disease had no agreement. These results highlight the incongruence between patient- and physician-reported comorbidities and emphasizes the need for detailed histories by health care professionals for medically complicated elderly patients preoperatively. **Keywords:** total hip arthroplasty, total knee arthroplasty, pre-operative assessment, comorbidities, screening, kappa. © 2012 Elsevier Inc. All rights reserved.

As America's population ages, patients requiring total joint arthroplasty are more likely to have comorbidities that could have significant effects on perioperative planning and, in certain situations, may preclude surgery to correct these ailments. For this reason, preoperative screening tools to aid in determining patient histories are becoming more important [1]. The primary role for preoperative screening is to reduce the risks associated with poor outcomes [2-5]. Ideally, preoperative screening should be performed with optimal communication efforts between primary care physicians, anesthesiologists, and surgeons [6]. Several barriers to effective communication exist, including a lack of medical record exchange, inaccurate transcription, and time constraints on the physicians and caregivers. In addition, current Medicare guidelines include preoperative assessment bundled as part of the global surgical reimbursement fee [7]. The change in repayment has not affected many larger practices and academic centers that routinely have

preoperative assessment centers that optimize patients for surgery. However, many smaller practices that rely on outsourcing of preoperative assessments will no longer be able to because the primary care practitioners who were previously paid for this service are not anymore. This becomes problematic as several of these patients have medical issues that fall outside of the scope and practice of an orthopedic surgeon. History taking in patients older than 65 years may be challenging as these patients have a higher number of complex comorbidities and may have difficulty communicating their conditions.

Patient reported health screening tools have been available for several years and used for a variety of purposes [8-11]. These tools are advantageous because they are convenient, are easy to use by patients, may save time in outpatient settings, may reduce costs, may improve patient confidentiality by minimizing carriers of information, and may improve inter-observer physician bias [12-14]. While many have found these tools effective and useful, there has been debate in the literature over the accuracy of patient-reported health screening methods when used to report medical comorbidities such as cancer, hypertension, and diabetes [15-21]. Existing comorbidities are important to consider preoperatively for patients undergoing total knee or total hip arthroplasty to identify and optimize health risks thus minimizing perioperative complications, particularly for patients older than 65 years who

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have a higher risk of experiencing adverse outcomes after these procedures [22-24].

Many patients undergoing total joint arthroplasty may have complicated medical conditions that need to be managed appropriately in the perioperative period [25]. In addition, according to an Alzheimer's Society survey, 1 in 14 patients older than 65 years and 1 in 6 patients older than 80 years has some form of dementia [26]. The fact that these patients, who may have cognitive impairment, are reporting their medical comorbidities without assistance is concerning as they may not be mentally capable of completing this task accurately.

The purpose of this study was to test whether patient-reported comorbidities before total knee or total hip arthroplasty are a valid source of information for preoperative risk stratification and management in patients older than 65 years. This study measured agreement of patient self-reported medical comorbidities using health screening tools as paper forms to histories recorded by physicians using the patient's medical records. The authors hypothesized that these forms would be poor assessment tools for including and excluding patient conditions and that there would be substantial disagreement between patient-reported comorbidities and physician-reported comorbidities in this age group.

Materials and Methods

This study was approved by the institutional review board and was sponsored by the American Geriatrics Society. A consecutive cohort of patients older than 65 years that underwent a primary total knee or total hip arthroplasty within a regional health system during 2008 was identified. As part of the routine preparation and optimization for surgery, all the patients underwent a preoperative evaluation by an internist and an anesthesiologist during which all comorbidities were documented in detail in the study hospital's electronic medical record (EMR). The patients underwent further evaluation and were optimized as needed based on their internal medicine physician's recommendations using previously established preoperative protocols at this regional health system. To document all the physician-reported comorbidities from the medical history, a meticulous retrospective review was performed by an independent researcher who was blinded to responses from the patient-reported data, using information documented in the EMR including past outpatient visits, preoperative outpatient visits, prior admission notes, inpatient notes, consult notes, operative notes, discharge summaries, rehabilitation facilities admission notes, emergency department notes, emergency department visits, physical therapy visits, and other hospitalization notes. If a comorbidity was listed in any of these records once, regardless of how often it was mentioned in other notes, the comorbidity was marked as present by the

independent researcher. However, only medications that were taken at the time of the preoperative encounter were considered as present.

A patient assessment form routinely administered as part of a reference outcomes tool for all orthopedic patients at each outpatient visit was used to collect patient-reported comorbidities in the preoperative period. Fifty-five patients never received a preoperative assessment form due to the forms not being available at the satellite facilities in the health system at the time of the visit. Thirty-one patients received the assessment form but did not complete any part of it, and 34 patients partially completed the form. The patient assessment form was completed appropriately by the remaining 382 patients at some point in one of the preoperative visits (Fig. 1).

The patient assessment form had a list of 32 specific conditions of possible comorbidities (Fig. 2). Two fill-in-the-bubble options were adjacent to each comorbidity listed; the first indicated that the patient should fill if he/she had (currently or in his/her past) that particular condition, and the second, whether or not the patient was currently taking medications for that particular condition. Filling in the first bubble option was considered a positive response. Filling the second bubble option was considered as the patient taking medication for the comorbidity. These forms were collected, scanned using a computer-based optical scanner, and automatically uploaded into a database file.

From the initial 32 comorbidities included on the assessment form, 4 were excluded from the analysis. These included unwanted weight loss, amputations, neuromuscular disease, and paralysis, as none were reported in either the forms or the medical records for any patients in the cohort. Other comorbidities including visual problems, chronic skin conditions, heart attack, liver/gall bladder disease, sleep problems, previous fractures and thyroid problems were excluded from the final

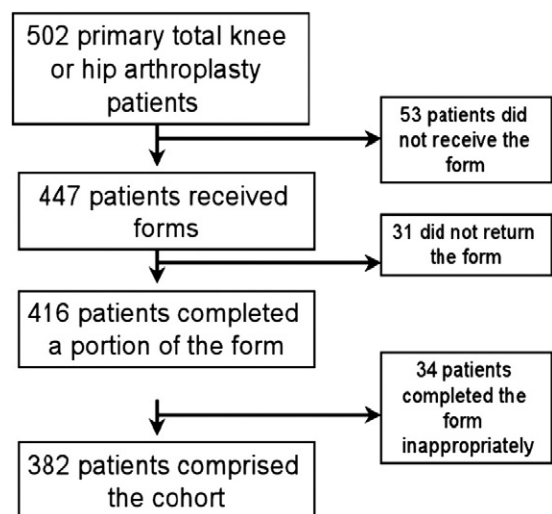


Fig. 1. Flow diagram of patients considered for the study.

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