RESEARCH

Cognition and Capacity to Consent for Elective Surgery

INTRODUCTION

Unrecognized cognitive disorders present ethical and logistical challenges for consenting older adults undergoing surgery. Twenty percent of adults aged 65 years or older have mild cognitive impairment or dementia, and the prevalence may be higher in perioperative patients.[1-4] There is little literature on the epidemiology of preoperative incapacity, although diminished cognition correlates with impaired capacity for medical decision-making.[5-7] As the population ages, it is imperative to recognize and manage patients with incapacity to consent for their upcoming surgeries.

Studies suggest that physicians often overlook incapacity.[8] In a cohort of 123 older adults presenting to a surgical ward, 111 (90.25%) had consented themselves for surgery, yet 33 (39.7%) had cognitive impairment, and 18 patients (16.2%) were unable to state the reason for admission to the hospital.[9] Often, patients with profound impairment remain able to express a choice, without possessing an in-depth understanding of the attendant risks and benefits.[6] Although performing formal capacity assessment on all patients in busy preoperative clinics is infeasible, a brief cognitive screening tool may allow for rapid identification of patients at highest risk of incapacity.

The current pilot study had three aims: (1) determine feasibility of cognition and capacity assessment in a perioperative clinic; (2) describe the prevalence of incapacity in older adults presenting for surgery; and (3) examine the relationship between cognitive performance and capacity.

METHODS

This was a cross-sectional analysis performed at a single center, embedded in the Perioperative Optimization of Senior Health (POSH) quality improvement program. The POSH program is a collaborative care model between surgeons, geriatricians, and anesthesiologists, which has been described in detail elsewhere.[10] This study received an exemption from the Duke Institutional Review Board.

Patients aged 65 years or older and presenting for preoperative assessment with POSH in 2018 to 2019 were eligible for inclusion via convenience sampling. Exclusion criteria included: (1) non-English speaking; (2) hearing impairment that impeded communication; and (3) POSH appointment occurring less than 1 week before scheduled surgery. Participating surgical services included general, breast, gynecological, colorectal, hepatopancreaticobiliary, otolaryngology, cardiothoracic, orthopedics, and vascular.

Cognition was assessed with the Montreal Cognitive Assessment (MoCA) and the Health and Safety subtest of the Independent Living Scale (ILS).[11,12] A subset of the MoCA items was used as an indicator of executive function, denoted as MoCA-EF.[13] Patients with severe vision impairment were tested using the MoCA-BLIND.[14] The ILS Health and Safety subtest primarily assesses judgment and executive function via awareness of potential hazards and hypothetical management of emergencies; it is scored from 0 to 40, with higher scores indicating better performance. Capacity to consent for surgery was assessed with the MacArthur Competence Assessment Tool for Treatment (MacCAT-T), a validated tool with excellent inter-rater reliability.[15] The MacCAT-T evaluates patients' ability to (1) understand, (2) appreciate, (3) reason, and (4) express a choice, and generates scores for each of the four domains. There is no absolute cutoff determining incapacity; however, it provides a standardized approach for assessing capacity. A single assessor (K.E.Z.) performed all capacity assessments and was blinded to cognitive testing scores. If a participant was found to lack capacity, the participant, next of kin, POSH providers,

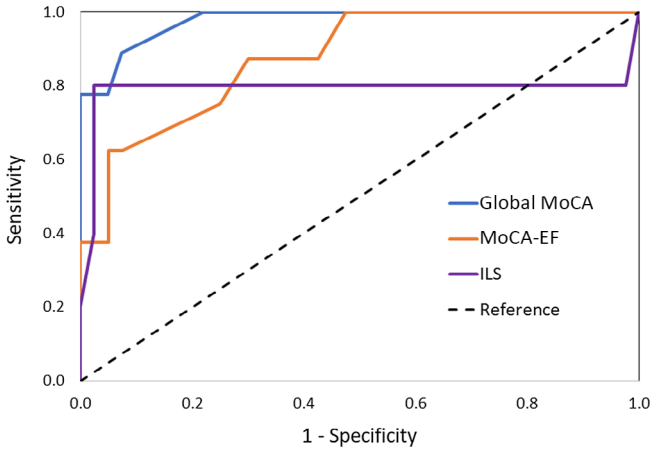

Figure 1. Receiver operator characteristic curves of the Montreal Cognitive Assessment (MoCA), executive function component of the MoCA (MoCA-EF), and Health and Safety subtest of the Independent Living Scale (ILS), for predicting incapacity to consent for upcoming elective surgery. Area under the curve is 0.97 for MoCA, 0.88 for MoCA-EF, and 0.79 for ILS.

This work was accepted for presentation at the American College of Surgeons Clinical Congress, San Francisco, CA, 2019; and the American Geriatrics Society Annual Scientific Meeting in Long Beach, CA, 2020.

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and surgeon were notified. Statistical analysis was performed using RStudio (RStudio Inc).

RESULTS

Fifty participants were enrolled in the study, and nine (18%) lacked capacity to consent for surgery. Median age was similar in the two groups (75 vs 76 years). Two patients who lacked capacity (22.2%) were female, compared with 27 (65.9%) of patients with capacity (P = .02). Patients who lacked capacity had a mean of 8.3 years of formal education (standard deviation (SD) = 5.7 years), compared with 14.9 years (SD = 3.1 years) for patients with capacity (P = .01). Figure 1 illustrates the receiver operator characteristic curves for MoCA, MoCA-EF, and ILS for predicting incapacity. The area under the curve for each test was 0.97, 0.88, and 0.79, respectively. At a cutpoint of 19 or less, the MoCA had 89% sensitivity and 93% specificity for predicting incapacity. At a cutpoint of 8 or less, the MoCA-EF had 88% sensitivity and 70% specificity for predicting incapacity.

DISCUSSION

Deploying a brief cognitive screening test to older adults undergoing surgery may help identify those patients at highest risk of incapacity. All participants, including those with severe visual impairment, were able to complete the MoCA or MoCA-BLIND. At a cutpoint of 19, the MoCA had excellent sensitivity and specificity for predicting incapacity. The MoCA-EF also had excellent sensitivity and fair specificity. Screening with only the components of the MoCA-EF would potentially decrease the testing administration time. However, independently administering only the executive function components of the MoCA has not been validated, and is not possible for patients with severe visual impairment.

Performing preoperative cognitive screening on adults older than 65 years aligns with recommendations for best practice by the American Geriatrics Society and American College of Surgeons.[16] Patients scoring 19 or less on the MoCA merit further capacity evaluation. Identifying these high-risk patients allows surgeons to dedicate extra time to a complete capacity assessment, either with formalized tools appropriate for the clinical setting or through informal interviews to assess each domain of capacity.[15] If patients are found to lack capacity, obtaining consent from the appropriate next of kin or healthcare power of attorney is essential before proceeding with surgery.

Education was unbalanced between groups with and without capacity; however, the MacCAT-T emphasizes teach back and allows the interviewer to repeat or rephrase information appropriate to the patient's level of understanding. Patients with incapacity were much more likely to be male, but given the small sample size, the significance of this finding is unclear. This was a small study, performed at a single academic institution, and the POSH clinic is a specialized referral clinic, all of which may limit generalizability.

In this pilot study, 18% of older adults presenting for elective surgery lacked capacity to consent for their upcoming procedure. Patients who scored 19 or less on the MoCA were at highest risk for incapacity. This was a small, single-center study; however, our data suggest the MoCA can be useful to identify older adults undergoing surgery who are at the highest risk of incapacity. Because the MoCA requires a fee for use, similar cognitive screening tools should also be examined for their ability to identify incapacity in older adults.

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Asymptomatic Bacteriuria versus Symptom Underreporting in Older Emergency Department Patients with Suspected Urinary Tract Infection

National guidelines and quality measures use the presence of genitourinary (GU) symptoms to distinguish between acute urinary tract infection (UTI) and asymptomatic bacteriuria (ASB). As a result, understanding the accuracy of chart documentation is critical to ensuring validity of research studies and antimicrobial stewardship programs.[1-3] Most studies evaluating UTI in older emergency department (ED) patients relied on electronic medical record (EMR) documentation as the criterion standard for the presence of symptoms.[3-8]

Our goal was to investigate the accuracy of chart abstraction versus direct ED patient interview for the presence of GU symptoms. We used patient self-report as the criterion standard. This was a preplanned secondary analysis of patients in an observational study conducted at an urban tertiary care teaching hospital ED and an affiliated urban community hospital ED. Enrollment is ongoing for the parent study (National Institutes of Health R01AG050801), whose objective is to identify urinary immune system biomarkers to improve UTI diagnostic accuracy.[9] Subjects in this analysis were enrolled from October 30, 2016, to December 17, 2018.

ED adults aged 65 and older who had a urinalysis ordered for clinical care were the study population because knowing the presence or absence of GU symptoms is pivotal to the clinical decision to treat bacteriuria with antibiotics in this population. Exclusion criteria (designed for the parent study) included chronic or intermittent catheterization, recent UTI or positive urine culture (prior 30 days), GU procedure (prior 30 days), antibiotic use (prior 14 days), hemodialysis, immunosuppression (active cancer or taking immunosuppressants or steroids in the prior 30 days), homelessness, previous enrollment, current incarceration, non–English speaking, trauma team activation, and lack of patient or proxy ability to give consent or respond to the survey.

Each patient was asked, "In the past 24 hours have you had new or worsening [symptom]?" for each symptom. Symptoms were taken from national guidelines and included GU symptoms (dysuria, frequency, suprapubic pain, gross hematuria, flank pain, and incontinence), as well as nonspecific symptoms (fever, malaise/lethargy, and confusion/altered mental status).[10-13] As a control, we collected data on other symptoms: nausea, vomiting, and abdominal pain. Trained abstractors blinded to the study hypothesis used a standardized form and code book to record data from the EMR (Epic, Epic Systems, Inc, Verona, WI) including demographics, medical history, and presence or absence of symptoms.

We compared the presence of patient-reported and chart review–reported symptoms using McNemar's chi-square test. Holm's methods of adjustment was used to account for multiple outcomes. Agreement between patient

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