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Preoperative quantification of perceptions of surgical frailty

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ARTICLE INFO

Article history:
Received 23 June 2014
Received in revised form
22 July 2014
Accepted 31 July 2014
Available online 6 August 2014

Keywords:
Frailty
Outcomes
Surgery
Patient expectations
Patient attitudes

ABSTRACT

Background: Frailty has gained recognition as an objective measure of a patient's physiologic reserve that ideally can replace the subjective biases of surgeons. In this study, we sought to examine the concordance between patient and attending surgeon perceptions of the patient's "fitness" before surgery. We then correlated these ratings with the patient's objective frailty scores.

Methods: Patients were prospectively enrolled from urology, general surgery, and surgical oncology clinics. Patients were asked to rate their ability to withstand the physical stress of the scheduled surgery on a visual analog scale. The operating surgeon then independently rated his assessment of the patient's ability to withstand surgery blinded to the patient's self assessment.

Results: A total of 203 patients were included. Median patient age and body mass index were 62 (range = 21–87) years and 28.1 kg/m^2 (18.0–53.1), respectively. The majority of patients were white (67%) and male (60.6%). A patients' self-assessment showed no correlation with their age; however, surgeons' ratings showed a positive correlation with patients' age. Patients' self-rated scores showed a positive correlation with their frailty score, although surgeons' ratings showed a stronger correlation. However, when stratified by age group, the positive correlation and predictive ability were lost (P value = 0.198).

Conclusions: Although age is an established risk factor, our data demonstrate surgeons may place an overreliance on a patient's age in place of an objective measure of physiologic reserve. Conversely, patients tended to overestimate their ability to withstand the stress of surgery, possibly leading to unrealistic expectations of their recovery and outcomes.

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0022-4804/$ – see front matter
http://dx.doi.org/10.1016/j.jss.2014.07.069

1. Introduction

The process of deeming a patient "fit for surgery" often is overly subjective and traditional risk assessment tools fail to account for physiologic reserve [1]. As a consequence, investigators have developed a multitude of risk scores aimed at more accurately estimating a patient's likelihood of experiencing surgical morbidity or mortality [2]. Recently, frailty has gained interest as a well-characterized and validated method of objectively assessing a patient's fitness for surgery [3–10]. This objective measure of a patient's physiologic reserve provides an opportunity to explore physician and patient presurgical expectations and biases.

Patients may have unrealistic or misinformed perceptions about their medical care, particularly surgical procedures. Schroeck *et al.* [11,12] demonstrated that secondary to overly optimistic expectations about the reduced need for a blood transfusion, earlier return to physical activity, less erectile function, and urinary continence side effects, robotic radical prostatectomy patients were less satisfied than their open radical prostatectomy counterparts. Furthermore, investigators have demonstrated that patient satisfaction is unrelated to hospital adherence to quality care measures [13], and not surprisingly, is negatively impacted by the occurrence of any complication [14]. Pretreatment expectations of patients have also been shown to influence outcomes and patient experience, particularly in the realm of chemotherapy-related toxicities [15,16].

The converse is also true, due to the subjective nature of traditional surgical risk assessments and inherent bias, physicians may inappropriately judge a patient to be unfit for surgery, denying them a life-saving or life-improving procedure, many times solely on the basis of age. Finally, physicians may inappropriately offer a younger patient an operation when physiologically they are unsafe, or unfit, for surgery. Poor concordance among physicians estimating 10-y life expectancies highlights this fact [17].

As there is often significant discordance between clinician and patient expectations [18,19], in this prospective study we sought to investigate and characterize the subjective judgments of fitness for surgery made by surgeons and patients scheduled for major intra-abdominal operations, while also comparing these judgments to an objective frailty assessment score [20]. Improved communication, particularly counseling grounded in a reliable and evidence-based preoperative risk assessment tool, is an opportunity to alleviate patient anxieties as well as improve satisfaction, clinical outcomes, and limit decisional regret.

We were interested in answering the following questions: how well do the surgeon and patient ratings correlate with each other? Is there a correlation between patient age and the patient rating and/or age and the surgeon rating? What is the correlation between the patient and surgeon ratings and the objective frailty score?

2. Methods and materials

2.1. Study design and participants

The Emory University Institutional Review Board approved this prospective study of patients undergoing major surgical intervention for a urologic, general surgical, or surgical oncology illness, not including endoscopic procedures. Inclusion criteria were age ≥18 y and being evaluated for a surgical procedure requiring hospital admission. Exclusion criteria consisted of an inability to ambulate, poor manual dexterity and/or inability to grip, and inability to read or verbally understand the questionnaires. A total of 203 patients were enrolled consecutively after surgical consultation and consent to proceed with surgery.

We elected to use the Fried Frailty Criteria [20] (Appendix 1), composed of weight loss, grip strength, gait speed, exhaustion, and low activity, as this well-studied test is accepted as an objective measure of physiologic reserve, as well as a reliable prognostic marker in a surgical population [6,7]. The frailty assessment was performed after the clinic visit with the surgeon. For quantification of the subjective judgments of fitness for surgery of patients and physicians, we used a visual analog scale of a 100 mm line with notation only at the extremes (frail *versus* not frail) of the line (Fig. 1). This is a rigorously investigated and validated method for measuring patient reported pain and symptoms, as well as attitudes and opinions of patients and physicians [21,22]. Patients were asked the question: "How well do you believe your body can withstand the physical stress of the surgery and recovery after surgery? Please place a single line anywhere between 'fully able' and 'not able'". Blinded to the results of the objective frailty score and the patient's rating, attending surgeons were asked to place a mark on a separate piece of paper with their judgment of the patient's frailty status, irrespective of the specific planned surgery, indicating their judgment with a mark anywhere between "not frail" and "frail". The distance in millimeters from "fully able" or "not frail" was used as the rating given by the patients and surgeons. The higher the numerical rating the more closely the patient and/or surgeon subjectively rated the patient closer to being frail. Univariate association of each predictor, except for objective frailty score with covariates was examined with analysis of variance, Wilcoxon rank-sum test or Kruskal–Wallis test for categorical covariates and Pearson correlation coefficient or Spearman correlation coefficient for numerical covariates.

A multivariable analysis of each predictor variable, except for objective frailty score, was conducted by including significant covariates with P value <0.1 from the univariate analysis in a general linear model. A general linear model was further used to identify a best predictive model with a backward

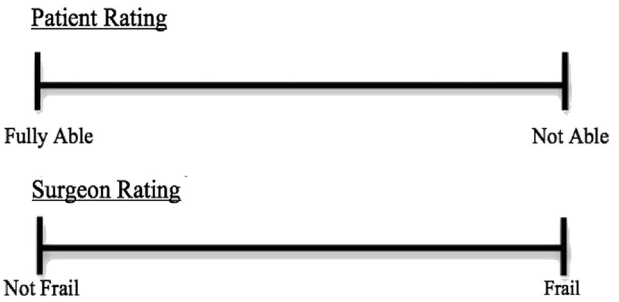

Fig. 1 – Visual analog scale completed by patients and surgeons.