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EDITORIAL

Way forward: Geriatric frailty assessment as risk predictor in gastric cancer surgery

Juul JW Tegels, Jan HMB Stoot

Juul JW Tegels, Jan HMB Stoot, Department of Surgery, Atrium-Orbis Medical Centre, 6130 MB Sittard, The Netherlands

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Correspondence to: Jan HMB Stoot, MD, PhD, Department of Surgery, Atrium-Orbis Medical Centre, PO Box 5500, 6130 MB Sittard, The Netherlands. j.stoot@orbisconcern.nl
Telephone: +31-88-4597777
Fax: +31-88-4597975

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Abstract

In gastric cancer patients chronological and biological age might vary greatly between patients. Age as well as American Society of Anaesthesiologists-physical status classifications are very non-specific and do not adequately predict adverse outcome. Improvements have been made such as the introduction of Charlson Comorbidity Index. Geriatric frailty is probably a better measure for patients resistance to stressors and physiological reserves. An increasing amount of evidence shows that geriatric frailty is a better predictor for adverse outcome after surgery, including gastric cancer surgery. Geriatric frailty can be assessed in a number of ways. Questionnaires such as the Groningen Frailty Indicator provide an ease and low cost method for gauging the presence of frailty in gastric cancer patients. This can then be used to provide a better preoperative risk assessment in these patients and improve decision making.

Key words: Gastric cancer; Surgery; Geriatric frailty

Core tip: Geriatric frailty assessment is an important way forward in order to provide a better preoperative risk assessment in gastric cancer surgical patients.

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FRAILTY ASSESSMENT AS RISK PREDICTOR

Gastric cancer constitutes a major health problem and in Western countries is predominantly a disease of the elderly with a mean age of 70 years in Western populations[1]. The ageing problem in gastric cancer is not reserved for Western countries. The proportion people over 65 years old in South Korea was 9.9% in 2007, and the proportion of ageing patients is also expected to increase[2]. Elderly patients are at an increased risk for increased complications and mortality

likely due to higher incidence comorbidities[3,4].

The American Society of Anaesthesiologists (ASA) - Physical status has been introduced in the former century and gained widespread acceptance as a scoring system for determining a patient's physical status. It has long been used to assess risks from surgery. But surgical risk assessment is complex and ASA classification is only a component of overall assessment. A major problem with ASA classification is the degree of interobserver variability, *i.e.*, different scores are ascribed to the same patient by different assessors[5]. Moreover, it is also limited as a predictive measure for adverse postoperative events; it performed moderately for prediction of postoperative mortality in a recent meta-analysis[6]. Also, it performed better in populations with lower rather than higher mortality rates[6].

The Charlson Comibidity Index (CCI) is another method for classifying comorbid conditions that determine risk of mortality[7]. This method has a much more clearly defined scoring system than the ASA classification. A study in octo- and nonogenarians who underwent surgery for gastric cancer showed that higher morbidity and mortality rates were associated with higher CCI (CCI $\geqslant$ 5)[8]. In contrast, a German study, which included 139 patients, did not find this association between CCI and adverse postoperative events. Age was an independent predictor for post-operative course[9]. So age and comorbidities are not universally found to be predictors for adverse outcome.

The fact that age is not sufficient to exclude patients from treatment is fairly widely accepted[10-12].

It is almost redundant to say that a patient's chronological age does not necessarily correspond with their biological age. Biological age is mainly determined by frailty, a state of vulnerability to stressors in older individuals, which leads to an increased risk of developing adverse health outcomes[13]. Frailty, as a predictor for adverse outcome after surgery, has gained attention in recent years[14,15]. Frailty, in this case increased scores > 7 on Edmonton frail scale, have been shown to predict increased complications after non-cardiac surgery (OR = 5.1, 95%CI: 1.55-16.25)[16]. In a larger study included patients undergoing various types of elective surgery frailty was predictive for increased postoperative complications and length-of-stay[17].

Geriatric frailty assessment is a very useful tool for preoperative risk assessment in gastric cancer patients, because gastric cancer is a disease predominantly in the elderly in Western countries and in an ageing population worldwide.

A thorough assessment of frailty can be performed with a comprehensive geriatric assessment (CGA). This employs the use of multiple questionnaires and physical tests and is usually conducted by trained professionals in an outpatient setting. In a CGA, all areas of geriatric frailty are assessed, *e.g.,* cognitive functions, mobility, Activities of Daily Living functioning, mood and nutrition. This is performed by clinical history taking as well as use of multiple questionnaires and tests (*e.g.*, timed get up and to test). Performing is a time and resource consuming effort. Therefore, questionnaires have been developed to assess or screen for presence of frailty in elderly individuals. Questionnaires offer a low-cost, low-effort, low-resource consuming way to gauge levels of frailty in patients. Examples of short questionnaires that have been used in this way in surgical populations include Hopkins Frailty score, Edmonton Frail Scale and Groningen Frailty Indicator (GFI)[14,16,18]. In gastric cancer surgery GFI $\geqslant$ 3 has been shown to be associated with increased in-hospital mortality, increased serious complications and increased length of stay[18]. In this study GFI was independently associated with in-hospital mortality.

Improved risk assessment which includes geriatric frailty assessment can be used to provide a better assessment of operative risks. This can aid the physician to better inform individual patients of their risks and improve shared decision making and informed consent. Geriatric frailty assessment does not aim to exclude patients from treatments rather improve decision making.

In conclusion age and physical status (*i.e.,* ASA classification) do not provide adequate risk assessments especially in elderly patients with gastric cancer. Frailty can provide better estimates of perioperative risks. Evidence seems to suggest that frailty questionnaires provide clinically applicable solutions for frailty assessment.

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