World J Surg (2007) 31:1909–1911
DOI 10.1007/s00268-007-9145-9

EDITORIAL

Surgeon's Intuition: Is It Enough to Assess Patients' Surgical Risk?

Pierre-Alain Clavien · Daniel Dindo

Published online: 29 July 2007

A daily task of the modern surgeon is to assess the risk/benefit ratio of a procedure for a specific patient. The three key ingredients are the experience of the clinician in evaluating the available therapies for the specific medical problems, his or her competence in performing the chosen procedure, and knowledge about the risk factors. Patients, administrators, society, and health care policymakers expect data regarding the outcome of respective procedures as well as the "quality" of doctors or hospitals. This is a challenging task, as we still lack standardized or widely accepted tools to perform such quality assessment convincingly in many areas [1–4]. Another key task when assessing the quality of surgery is to take into account the population studied (i.e., risk adjustment). For example, we may not expect the same results of cholecystectomy performed electively in healthy as we would in elderly diabetic patients operated on urgently for acute cholecystitis. The results may also vary widely depending on perspective. The identification of risk factors must take into account the case mix as well as meaningful endpoints [5, 6]. The last item is still often poorly reported in the current literature owing to the lack of accepted objective and reproducible outcome measures [1, 2, 7].

Risk scores in surgery estimate the risk of one individual patient or a patient population to develop complications after surgical interventions. These scores may be classified into three types [8]: First, there are general systems for assessing the operative risk, such as the Physiological and Operative Severity Score for the enumeration of Mortality and Morbidity (POSSUM) [9]. Second, there are those specific for the type of morbidity to be evaluated, such as the Goldman and Detsky indices for cardiac complications [10, 11]. Finally, risk-scoring systems can be related to a specific condition or disease, such as the Acute Physiology and Chronic Health Evaluation II (APACHE II) score [12] or the Ranson criteria to assess the severity of acute pancreatitis [13]. The integration of several predictors of risk into a score ensures an accurate and comprehensive method for risk assessment. Despite their availability and often established utility, surgical performance is still commonly evaluated without assistance of such systems because they are seen as too complex or too specific for a given patient population, hindering their use in daily clinical practice.

In the prospective observational study by Woodfield and his colleagues (elsewhere in this issue) [14], risk assessment was conducted using a 100-mm visual analog scale (VAS) performed by the surgeons before and after surgery. Surgeons use this scale to indicate the estimated risk for major complications as a number between 0 and 100. Although such a prediction of surgical risk by the surgeon is obviously subjective, the authors identified strong correlation with the incidence of postoperative complications. Interestingly, the surgeons' risk assessment improved the predictive ability of a multivariate model of objective criteria in predicting postoperative complications.

The value of subjective prediction of postoperative complications has been established since the introduction of American Society of Anesthesiology (ASA) grading. The ASA classification, still widely used today, has played an important role in preoperative risk evaluation for decades [15]. One shortcoming of the ASA classification is that it does not take into account the invasiveness or intrinsic risk of an operative procedure. We found that in a

P.-A. Clavien (✉) · D. Dindo
Department of Visceral and Transplantation Surgery, University Hospital Zurich, 100 Ramistrasse, Ch-8091 Zurich, Switzerland
e-mail: clavien@chir.unizh.ch

population of more than 6000 patients, morbidity and mortality rates greatly varied within the same ASA grade depending on the type of surgery and the underlying disease (unpublished observation).

The present surgeons' risk assessment using a VAS corrects this limitation of the ASA grading system, as the type of surgery and the underlying disease strongly influences the surgeons' evaluation. It would have been interesting to compare the accuracy of the surgeons' risk assessment by VAS and the risk stratification using the ASA grading system.

Although the approach of Woodfield et al. is appealing mainly owing to its "easy use" and to the fact that it is based exclusively on surgeons' intuition, obviating the need for sophisticated grading systems, a few aspects must be challenged. First, intuitive risk assessment is subjective and thereby strongly depends on the experience of the surgeon. The question about the experience level of the assessing surgeons remains unanswered in the current study. Younger surgeons might not be able to assess patients' preoperative risk sufficiently. Second, evaluation of the patients' risk performed exclusively by surgeons might lead to an inflated assessment. This might be difficult to prevent as the higher the estimated risk the better the risk-adjusted outcome will look. Hence, more objective preoperative criteria must be considered for a reliable risk adjustment calculation. Another limitation of the study is the lack of a standardized way of reporting complications. Although some definitions are given for major and minor complications, clear designations of minor and major complications are missing, hampering the interpretation and reproducibility of the results. Terms such as minor and major are imprecise and should be abandoned [, 2]. A standardized and validated complication grading system, as s1uggested recently by our group [7], would have enhanced the strength of the present study. With this classification, which includes medical and patient perspectives, complications are stratified according to the medical or surgical therapy required to treat the complication. It enables objective, precise documentation of postoperative complications and is currently in use by us [16–18] and a number of other centers [19–23].

The authors also calculated a postoperative VAS score showing higher predictive values for poor outcome than the preoperative assessment. A postoperative increase in the VAS score was associated with a significantly higher mortality rate (6.3% vs. 2.4%), major complication rate (20.1% vs. 11.0%), and overall complication rate (48.3% vs. 34.3%). This finding suggests that the preoperative VAS assessment is lacking some important predictive value. The postoperative VAS score is not contributing from a practical point of view, as risk assessment should be based on preoperative evaluation only. This ensures that the estimation of the patient's risk is not influenced by the surgery itself. Additionally, identification of the patient's risk at the preoperative stage is crucial for the informed consent of the patient and to consider alternative treatment modalities.

The article by Woodfield et al. importantly highlights the value of the surgeon's intuition in assessing the risk of surgery in individual patients. However, more objective data must be considered for a reliable risk and quality assessment. To ensure objectivity, quality assessment in surgery should cover four basic requirements: (1) outcome data should be adjusted for the patient population of a given institution; (2) risk-adjustment systems should be objective and easy to use; (3) risk-adjustment should be solely based on preoperative data to avoid bias related to the surgery itself; and (4) outcome should be reported using a uniform complication definition and stratification. As a result, objective and comparable data suitable for quality control in surgery may be attained, and the quality of our work would be convincingly established.

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