

## CIRUGÍA ESPAÑOLA

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## Editorial

## Interest in morbidity scores and classification in general surgery

## Interés de las escalas de morbilidad en cirugía general

Quality assessment in surgery has gained increasing attention during recent years. By collecting, reporting and comparing surgical outcome, deficiencies in surgical care might be perceived and corrected to improve surgical performance. In the United States, large databases such as the National Surgical Quality Improvement Program (NSQIP) have been established to record surgical outcome, to rate hospital quality and to benchmark surgical performance. By tracking the hospitals' performances, surgical morbidity and mortality could be decreased.<sup>1</sup> Moreover, outcome data are starting to be publicly reported in different countries such as the USA and the UK what is believed to constitute a powerful market force towards a higher standard of care. This development is driven by patients who are very well informed today about their diseases seeking the best possible treatment and by health policy makers as well as health care providers trying to lower the exaggerating medical costs.

Outcome research is a demanding task. The assessment of crude morbidity and mortality rates as done in most of the surgical studies do not reflect a surgical performance as the population treated may differ widely in terms of its preoperative risk.<sup>2</sup> Therefore, an appropriate adjustment for the case mix is required for valid comparisons. But risk-adjusted outcome data alone are of little relevance unless there is a consensus on how to report surgical outcome. Additionally, the severity of postoperative complications must be taken into account for quality control since the severity of a complication has been shown to correlate with prolonged hospital stay,<sup>3</sup> higher costs,<sup>4</sup> and patient dissatisfaction.<sup>5</sup>

The risk of a patient to develop postoperative complications may be assessed on an intuitive basis (eg, expressed by grades as proposed by the American Society of Anaesthesiologists [ASA] or with assistance of a Visual Analogue Scale [VAS]) or by

objective scoring systems. The value of subjective prediction of postoperative complications has been recognized since the introduction of the ASA grading system. This subjective interpretation of the patients' health and risk status has gained wide acceptance despite the lack of objective evaluation criteria. The drawback of this classification is that the intrinsic risk of the planned surgical intervention is not taken into account since the risk profile of a patient is highly dependent on the procedure. It is quite obvious that we may not expect the same risk to develop postoperative complications for a patient after haemorrhoidectomy and after oesophagectomy. Recently, Woodfield et al<sup>6</sup> presented a risk scoring system based on a VAS. Using such an approach, the planned procedure of a patient is intuitively taken into account, hence correcting the limitation of the ASA scoring system. However, such an approach has different drawbacks. First, intuitive risk assessment relies on experience limiting intuition as a good risk predictor for younger surgeons. Secondly, there is the danger of an inflated risk assessment since the higher the estimated risk the better the risk-adjusted outcome will look. Taking these issues into account, a more objective way of risk-prediction is advisable.

Risk scores in surgery are used to estimate the risk of one individual patient or a selected patient population to develop complications after surgery in a standardized way. Several risk scores have been defined for surgery over the past years. These scores may be classed into 3 categories<sup>7</sup>: firstly, 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).<sup>8</sup> Secondly, there are scores specific for a kind of morbidity such as the Goldman and Detsky indices (for cardiac complications).<sup>9,10</sup> Finally, there are scoring systems that can be related to a specific condition or disease such as

the Acute Physiology And Chronic Health Evaluation II score (APACHE II score)<sup>11</sup> or the Ranson criteria for acute pancreatitis.<sup>12</sup> Despite of these different score systems, surgical performance is commonly evaluated without assistance of such classifications. The reason for this lies in the complexity of such scores or in its specificity for a given patient population.

Only few risk-scoring systems have gained wide acceptance in surgery. The POSSUM<sup>7</sup> has probably reached the widest recognition. Though the POSSUM has been validated in different surgical subspecialties and showed to be a valuable tool for surgical quality control, pre-operative investigations such as chest radiograph, electrocardiogram, or blood sample are required to evaluate the risk for surgery in all patients. However, such preoperative examinations are not routinely required for all procedures. Moreover, POSSUM is not based on preoperative parameters only. This is problematical since the patients' risk might be influenced by the quality of surgery itself. Further, the identification of the patient's risk at the preoperative stage is important for the informed consent of the patient and to consider alternative treatment modalities. Third, POSSUM has been used successfully as audit tool in particular for the prediction of operative mortality. However, mortality is low following most surgical procedures and is therefore a questionable tool for quality assessment in a general surgical population.<sup>13</sup>

Any evaluation of surgical performances remains elusive unless there is common method for reporting surgical complications. The lack of standardization greatly contributes to the difficulty in analysing surgical literature. As an example, a wide range in complication rates (18%-54%) but a small range of re-operations (4%-9%) has been reported in a recent meta-analysis of trials on pancreas resection for cancer.<sup>14</sup> This result underlines the need for a standardized definition and classification of complications, since the comparable re-operation rates suggest that different definitions of postoperative complications are accountable for the discrepancy in these reported outcomes rather than actual differences in surgical performance.

In 2004, we have introduced a complication classification<sup>15</sup> based on a former attempt to grade postoperative morbidity.<sup>16</sup> The basic principle remained the same; ie, it was based on the therapy needed to correct the complication. Such an approach narrows the room for subjective interpretation of the severity of a given complication and any tendency to down-rate a complication. In addition, this classification is particularly helpful in retrospective analyses, in which complications may not be described in detail, but documentation of diagnostic tests and treatment is generally available. Another reason to include therapeutic procedures in a complication classification is the fact that they may further induce morbidity and hence, contribute to the severity of a complication. The reliability of this classification may be demonstrated by its correlation to prolongation of hospital stay and to preoperative risk in our cohort.<sup>15</sup> Additionally, this classification has been judged to be objective and was

shown to be reproducible by means of an international survey involving 144 surgeons.<sup>15</sup> This classification is now widely used in literature all over the world for outcome reporting in many fields of surgery.

In conclusion, classifications in surgery are mandatory to ease the assessment and interpretation of outcome data. However, to be valuable for clinical practice, such classifications must be objective and easy-to-use. They should impede subjective interpretations of either risk factors or severity of postoperative complications to ensure comparability. Only objective risk-adjusted and standardized outcome reporting will enable us to analyse our daily work and to evaluate common clinical practice. Without such an approach, quality assessment in surgery will not help to reach its goal: better surgical quality at lower costs.

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