LETTER TO THE EDITOR

Time for reflection on patient's safety in healthcare

In a recent article in *The Lancet*,[1] the authors reported postsurgical mortality in 28 European countries during a 7-day period (April 4, 2011 – April 11, 2011). All patients older than 16 years admitted to the participating centers for elective or nonelective inpatient surgery were eligible for inclusion. Patients undergoing planned day surgery, cardiac surgery, neurosurgery, radiological, or obstetric procedures were excluded because these patients usually received care according to separate care paths. Importantly, participating hospitals were not a representative sample of hospitals for a given country but a voluntary convenience sample identified through personal contacts of the members of the European Society of Intensive Care Medicine and the European Society of Anaesthesiology.

The authors of the study observed a number of differences among the participating countries, including differences in mortality. To start with, the overall mortality across Europe was 4%, about twice as high as expected on the basis of recent studies conducted mostly in academic institutions.[2] Second, in 4 countries (Poland, Ireland, Romania, and Latvia), the observed mortality rate was significantly above this average, reaching 21.5% in Latvia and in 2 other countries exceeding 10%, namely, in Poland (17.9%) and Slovakia (11.2%). How alarmed about these findings should be Polish authorities, Polish physicians, and, most importantly, Polish patients?

The answer to this question is not entirely clear. When I described the method of this study to non-physicians and asked where they would expect the highest mortality, the answer was "where the patients are the sickest". In other words, it may be that patients operated in some countries are systematically older, smoke or drink excess alcohol more often, and have higher prevalence of prognostically important conditions such as heart failure or diabetes. The authors of this observational prospective cohort study realized the danger of different characteristics of the examined national populations and performed adjustment in their analysis – a process taking into account differences in prognostic factor distributions. In this particular example, the authors adjusted for factors such as age, timing of surgery (elective, urgent, emergency), type of surgery (abdominal, thoracic, biliary, orthopedic, renal, etc.), extent of surgery (minor, moderate, large), American Society of Anesthesiologist score (which takes into account the presence of major cardiopulmonary morbidities), and presence of metastatic disease or cirrhosis. After taking all those factors into account, the mortality risk in participating Polish hospitals was still unexpectedly high. It is thus unlikely that patients' characteristics provide full explanation of the findings. The other issue which may question the validity or at least the generalizability of those observations is the degree to which participating Polish hospitals represent Polish health care system in general and, similarly, the degree to which participating hospitals from other countries are representative. Some of those idiosyncrasies may be accounted for by the above process of adjustment, but we may never be sure whether all prognostic factors were accounted for, and we are not able to correct for the fact that surgical sites were selected as a voluntary convenience sample. To conclude, the data from Poland are based only on 397 patients operated in 6 hospitals (including 1 university-affiliated), spending on average 5 days in the hospital and with a 2% rate of intensive care unit (ICU) admissions. How should we compare this to patients in Finland (1071 patients), France (2278), or Germany (5284), spending 2, 3, or 4 days in the hospital with ICU admission rates of 4%, 6.8%, and 11.6%, respectively, and with over 50% of all hospitals in France and Germany classified as university-affiliated? Why are Polish patients, in the participating hospitals, spending more days in less intensive monitoring setting and dying more often? The answers are not clear and the nature of the observational studies is such that the quality of data coming from them is usually low,[3] and that consequently we cannot be too confident about the inferences drawn on their basis.

Could we thus rest assured and believe that those data do not represent reality? Not quite, I think. The magnitude of the risk encountered by the Polish patients asks at least for re-examination of the situation. Should we know and make available to the public (potential patients) the mortality rates in particular institutions (as it is in

Ontario, where I work, for hospital mortality or rates of several complications including central-line infections, ventilator-associated pneumonias, *Clostridium difficile* infections)?[4] Should we look at such details as the rates of hand hygiene compliance among hospital staff (also available through the above website). Should we monitor the rates of cardiac and respiratory arrests in institutions, as is done by the Ministry of Health of Ontario for most hospitals in the province? The extent of this scrutiny may be debatable, but it clearly provides enhanced level of transparency and accountability.

From the organizational point of view, should we look at the extent to which patients' flow is coordinated among medical specialties, surgeons, and anesthetist? Should we look at the extent to which different parts of the hospital and different services act in isolation? Should we spend less energy at clarifying hepatitis status prior to each procedure and more energy and resources into training of multidisciplinary teams of nurses and physicians with emphasis on recognizing signs of patient's deterioration and acting upon them? There are plenty of questions without clear answers, but the European study results may call for at least the examination and clarification of the current situation. In an ideal world, when faced with such problems on an institutional level (say, drawing on my own Canadian experience, after publication of markedly different mortality rates among patients with myocardial infarction admitted to different hospitals) the stated goal, admittedly difficult to achieve, would be to do such examination without emotions and criticisms yet with the overriding goal of improving patients' safety. Such process may be difficult but it also may be worthwhile.

Correspondence to: Prof. Roman Jaeschke, MD, Department of Clinical Epidemiology and Biostatics, McMaster University, 301 James Street South, Hamilton, ON L8P 3B6, Canada, phone: +1-905-522-1155, fax: +1-905-521-6068, e-mail: jaeschke@mcmaster.ca.

REFERENCES

1 Pearse RM, Moreno RP, Bauer P, et al.; European Surgical Outcomes Study (EuSOS) group for the Trials groups of the European Society of Intensive Care Medicine and the European Society of Anaesthesiology. Mortality after surgery in Europe: a 7 day cohort study. Lancet. 2012; 380: 1059-1065.

2 Szczeklik W, Devereaux PJ. Troponin T level and mortality risk after noncardiac surgery: practical implications of the VISION study. Pol Arch Med Wewn. 2012; 122: 499-503.

3 Guyatt GH, Oxman AD, Gunn EV, et al for the GRADE working Group. GRADE: an emerging consensus on rating the quality of evidence and strength of recommendations. BMJ. 2008; 336: 924-926.

4 Patient Safety. Hospital Standardized Mortality Ratio (HSMR). Ontario Ministry of Health and Long-term Care. http://www.health.gov.on.ca/en/public/programs/patient_safety/hsmr/default.aspx.