From the evaluation of the individual patient to the evaluation of the ICU
De l’évaluation du patient à l’évaluation du service de réanimation

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General outcome prediction models were introduced in the critical care arena more than 20 years ago. Developed initially for the prediction of the outcome of individual patients, these kind of instruments soon became to be used mainly for the evaluation of the performance of the Intensive Care Unit (ICU). This change in focus introduced a paradox in the field of intensive care evaluation: we evaluate the outcome of individual patients, using a set of variables that we know are related to individual patient outcome and then use the results to evaluate the performance of the ICU (that we know also depends on other variables, aggregated at ICU level [1]). This paradox has already been discussed by us in a recent editorial on Intensive Care Medicine [2].

This confusion between individual patient evaluation and ICU evaluation has been omnipresent in our field, and reflects, at least in part, the predominant behavior of the majority of clinicians. Until recently, clinicians were almost exclusively concerned with the clinical outcome of their patients. The aim was survival and non-clinical factors and outcomes were viewed as secondary and non-important. Aspects such as the allocation of the resources that are used in providing intensive care, the quality of life after ICU discharge, the quality of dead in those who die while in the ICU, and the amount and or the appropriateness of our practices were generally not considered. Now, times have changed. The idea that the resources we use are finite and should be allocated to those who can benefit more from them (the rationalization of our practices) is nowadays a major object of research and concern.

The challenge now is to dissociate conceptually the evaluation of the individual patient from the evaluation of the ICU. This means that for individual patient assessment, the models should depend on repetitive patient evaluation, taking into account the physiological status of the patient, the intensity of provided therapy and the changes in physiological status that result from the application of the therapy [3,4]. These conclusions were recently supported by the results of Metnitz et al. [5] applying the logistic organ dysfunction (LOD) system to a cohort of patients from Austria. The challenge now is to link this repetitive evaluation of the degree of physiological derangement with the repetitive evaluation of the intensity and adequateness provided therapy. Also, if we want to have an accurate overtime measurement of the prognosis it is necessary to update daily the severity measure used [4].

For ICU assessment, the models should analyze the ICU as a complex non-linear system, that admits patients with a certain degree of physiological derangement (inputs), provides a certain amount of care (using resources) and delivers patients with a certain degree of residual physiological disability (outputs). This implies that the models should incorporate also ICU-related variables in modeling the outcome and be able to generate clinical and non-clinical outputs (e.g. morbidity and/or use of resources). Given the multidimensionality of the ICU assessment process, the models to be used in the evaluation of performance should provide the user, either the clinician or the manager, with multiple outputs, both related to the clinical results of the ICU and to the economic results of the ICU, what Giovanni Apolone denominated in a recent editorial on Intensive Care Medicine iso-outcome models and iso-resource models [6]. They should allow the user to know not only that something is wrong but also what is wrong.

To accomplish this complex task, we need to conceptualize the approach and develop and validate new instruments, both for ICU evaluation and for patient evaluation. A multicenter collaborative effort was started by the SAPS III Outcome Research Group (SORG). Data collection has just
finished in March 2003 and it is too soon to have even preliminary results. However, the will to make it to be a reality is there.

References


