Rene Robert
Leif Saager

Tell me where the patient comes from

Received: 18 August 2014
Accepted: 20 August 2014
Published online: 3 September 2014
© Springer-Verlag Berlin Heidelberg and ESICM 2014

R. Robert
Medical Intensive Care, University Hospital Jean Bernard,
University of Poitiers, Poitiers, France
e-mail: r.robert@chu-poitiers.fr

L. Saager (✉)
Department of Outcomes Research, Anesthesiology Institute,
Cleveland Clinic, Cleveland, OH, USA
e-mail: saagerl@ccf.org

A meticulous communication strategy on end-of-life (EOL) practices in the intensive care unit (ICU) should be a major concern for ICU teams, involving both practitioners and nurses. As such, attention has been given to improve emotional support, coordination of care, and communication with the aim of increasing family satisfaction [1]. Particularly, it is important to identify at an earlier stage patients who are likely to later have withholding or withdrawal of treatment [2]. Therefore, formalized strategies have been developed in EOL care to help practitioners and nurses to assist in the decision-making process [3].

In this issue of the journal, a new signal has been pointed out by Long et al. [15] showing differences in communication with families of patients at end-of-life according to patient source: emergency department (ED) or hospital ward. They showed that admission from the hospital ward was associated with lower family ratings on quality of dying and satisfaction. Patients from hospital wards were less likely to have family conferences in the first 72 h after ICU admission, but were more likely to have life support

withdrawn. Policies for EOL care in this unit did not seem to vary according to the origin of the patient, and from the nurses' point of view the quality of dying was similar. However, the differences in communication practices following ICU admission according to the origin of the patient are surprising, and it would be interesting to know if this was because families less frequently asked for such a conference or if because physicians were less likely to propose these conferences for individuals arriving from the acute care floor.

The finding that life support is more frequently withdrawn in patients admitted from the ward compared with the ED is probably explained at least partially by more frequent malignancies in patients admitted from the ward. However, an analysis that adjusted for individual comorbidities, including malignancy, did not explain the lower ratings of quality of dying and satisfaction. Two main plausible explanations are discussed: First, one can speculate that, in their relationships, healthcare providers and patients from the hospital ward and their families have established treatment plans that did not include the possibility of an ICU transfer. Thus, when clinical deterioration occurs, the sudden changes in trajectory of illness cannot be perceived simply as a continuation of care, and unmet expectations may explain family dissatisfaction, especially for patients who die following an ICU transfer. Indeed, conflicting information about prognosis can be interpreted as contradictory information, which increases distress and decreases satisfaction of families [4]. Secondly, it is a possibility that poor quality of communication about EOL care prior to ICU admission on the hospital ward may lead to persisting perceptions of lower quality of dying in the ICU and lower satisfaction with ICU care. Although we have no information on the content of information given to patients and/or families, inadequate communication with seriously ill, hospitalized adults about treatment preferences has been reported [5].

Table 1 Interventions susceptible to reduce patients’ and family members’ transfer anxiety during transfer from an intensive care setting to a general ward

	Reducing patients’ and family members’ transfer anxiety	Reducing only family members’ transfer anxiety
Liaison nurse	+	O
Individualized education	+	O
Individualized transfer method	O	+
Transfer letter	O	+
Care conference	O	+

+ indicates a positive association
O indicates no association

Long’s results draw attention to the potential necessity to increase the attentiveness of the ICU team to family information when a patient is transferred from the hospital ward. Additionally, this made us consider improvement of transfers from hospital wards to ICU teams. In a mirror point of view, it has been reported that only a small proportion of physicians performed verbal communication during patient transfers from the intensive care unit to other in-hospital wards [6]. This latter study highlights the potential link between poor communication and low patient/family satisfaction during ICU-to-ward patient transfers. This appeared to cause significant anxiety and stress in the patients and families, who felt uninformed. Thus, “relocation stress,” which is recognized as a phenomenon in patients discharged from ICUs [7, 8], might be applied to hospital ward–ICU transfers. Strategies to reduce transfer anxiety have been developed using a patient-centered approach including tailored written documentation, meetings with patients and family members, and use of liaison nurses working between intensive care and general ward settings (Table 1) [9]. Such strategies have not been studied for transfers between the hospital ward and ICU.

Gaining confidence in the results and conclusions of a study also requires an appreciation of the context and limitations of the investigation. Long et al. [15] elected to perform an exploratory data analysis. This concept, first introduced by Tukey [10], intends to suggest hypotheses for further testing on causes of an observed phenomenon.

It allows identification of underlying structures and improves insight. While this is a valid approach to explore innovative initial ideas and generate new hypotheses, results from such designs need to be interpreted carefully.

Table 4 from the manuscript by Long et al. [15] lists a total of ten adjusted outcomes, with seven of them reaching the prespecified significance level of $p < 0.05$. By setting this threshold, we are restricting ourselves to a <5 % chance for a type I error to occur. When ten simultaneous tests are performed, and there are no differences in all of the outcomes between groups, the chance that we make a correct negative conclusion in all ten tests is $(0.95) (0.95) \dots (0.95) = 0.95^{10} = 0.60$. The chance that at least one of the tests gives a false-positive conclusion is $1 - 0.95^{10}$, or 0.40.

This problem, known as type I error inflation, occurs frequently, and several statistical safeguards exist to “protect the alpha.” Intentionally, the alpha value for a specific study is lowered, thereby accounting for the total number of statistical comparisons performed. A conservative, simple, and commonly used approach is the Bonferroni correction [11]. Performing this correction on a dataset of ten comparisons would set the new, corrected level of significance for each individual comparison at $p < 0.005$ ($0.05/10$). Less conservative procedures have been published by Holm, Holland, and others [12–14]. If we were to correct the presented results for type I error inflation, family satisfaction with care, family conferences, and providing spiritual care would remain significant; other variables would not reach the adjusted significance level. We need to keep in mind that conclusions drawn from results of multiple statistical tests without correction should always be considered of heuristic value.

Long et al. [15] shed light on an important question that offers an opportunity to identify patients and families at risk of unmet needs and better manage their expectations. While admission source by itself is an unmodifiable risk factor, it can serve as a surrogate marker to encourage caregivers to improve communication with family members during difficult times.

Conflicts of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

References

1. Stricker KH, Kimberger O, Schmidlin K, Zwahlen M, Mohr U, Rothen HU (2009) Family satisfaction in the intensive care unit: what makes the difference? *Intensive Care Med* 35:2051–2059

2. Quenot JP, Rigaud JP, Prin S, Barbar S, Pavon A, Hamet M, Jacquot N, Blettery B, Herve C, Charles PE, Moutel G (2012) Impact of an intensive communication strategy on end-of-life practices in the intensive care unit. *Intensive Care Med* 38:145–152

3. Levy CR, Ely EW, Payne K, Engelberg RA, Patrick DL, Curtis JR (2005) Quality of dying and death in two medical ICUs: perceptions of family and clinicians. *Chest* 127:1775–1783

4. Azoulay E, Pochard F, Chevret S, Lemaire F, Mokhtari M, Le Gall JR, Dhainaut JF, Schlemmer B, French FG (2001) Meeting the needs of intensive care unit patient families: a multicenter study. *Am J Respir Crit Care Med* 163:135–139
5. Heyland DK, Barwich D, Pichora D, Dodek P, Lamontagne F, You JJ, Tayler C, Porterfield P, Sinuff T, Simon J, Team AS, Canadian researchers at the End of Life Network (2013) Failure to engage hospitalized elderly patients and their families in advance care planning. *JAMA Intern Med* 173:778–787
6. Li P, Stelfox HT, Ghali WA (2011) A prospective observational study of physician handoff for intensive-care-unit-to-ward patient transfers. *Am J Med* 124:860–867
7. McKinney AA, Melby V (2002) Relocation stress in critical care: a review of the literature. *J Clin Nurs* 11:149–157
8. Mitchell ML, Courtney M (2004) Reducing family members' anxiety and uncertainty in illness around transfer from intensive care: an intervention study. *Intensive Crit Care Nurs* 20:223–231. Official Journal of the British Association of Critical Care Nurses
9. Brooke J, Hasan N, Slark J, Sharma P (2012) Efficacy of information interventions in reducing transfer anxiety from a critical care setting to a general ward: a systematic review and meta-analysis. *J Crit Care* 27:425–429
10. Tukey JW (1977) *Exploratory data analysis*. Addison-Wesley, Reading, MA
11. Bonferroni CE (1935) *Il calcolo delle assicurazioni su gruppi di teste*. Rome
12. Holland BS, Copenhaver MD (1988) Improved Bonferroni-type multiple testing procedures. *Psychol Bull* 104:145–149
13. Holm K (1979) A simple sequentially rejective multiple test procedure. *Scand J Stat* 6:65–70
14. Shaffer JP (1993) Modified sequentially rejective multiple test procedures. *J Am Stat Assoc* 81:826–831
15. Long AC, Kross EK, Engelberg RA, Downey L, Nielsen EL, Back AL, Curtis JR (2014) Quality of dying in the ICU: is it worse for patients admitted from the hospital ward compared to those admitted from the emergency department? *Intensive Care Med*. doi: [10.1007/s00134-014-3425-2](https://doi.org/10.1007/s00134-014-3425-2)