Brazilian Journal of Anesthesiology 2022;72(3): 434—436

Sociedade Brasileira de Anestesiologia

Brazilian Journal of ANESTHESIOLOGY

LETTER TO THE EDITOR

Futility of end-of-life and emergency surgery in extreme high-risk patients: anesthetists' versus surgeons' perspective

Dear Editor,

In Europe, one third of surgical admissions are for emergency procedures that carry a risk of mortality up to 75% in high-risk patients.[1,2] Surgical procedures are also performed at the end of life. In the US, 25% of Medicare beneficiaries were operated within the last 3 months of life[3] which may increase family and patients' emotional distress, while little benefit is expected. It raises the issue of surgical futility in these patients.[4] It is a particularly relevant topic in the current context of the SARS-CoV-2 pandemic crisis with many hospitals being saturated.

Several patient- and family-related factors seem to guide surgeons in their decision to operate on a patient in end-of-life or emergency situations but less is known about determinants of anesthetists' attitudes.[5] The perception of futility and the appropriateness to proceed to surgery may differ between the two professions and may lead to inter professional conflicts. We performed a cross-sectional study in a large University-affiliated hospital in Switzerland, exploring professional differences in the definition of futility and factors leading to the decision to proceed or not to surgery.

Following a waiver of the Cantonal Ethics Committee of Human Research, all anesthetists and surgeons of specialties involved in emergency care were invited to answer a 60-item web-based anonymous questionnaire between March and April 2019. The questionnaire was developed following a formal literature review and pretested among hospital clinical experts in palliative care and emergency medicine. It included a clinical vignette describing a trauma patient (cervical trauma and bleeding pelvic fracture) with cardiac arrest and a recent diagnosis of lung cancer with a first cycle of chemotherapy already planned. Participants had to decide whether they would proceed with surgery or not and give the reason for their choice. The other parts of the questionnaire focused on physicians, hospital-related factors and assessed agreement with various definitions of futility and physicians' perception of autonomy. Answers were rated on a 4-point scale ranging from fully agree to fully disagree. Up to a maximum of 3 reminders were sent to all participants.

For descriptive analysis we used frequencies, proportions, and means with standard deviation. To compare decisions to proceed, definition of futility, and perception of autonomy between surgeons and anesthetists, univariate analysis was performed. Answers were dichotomized and Chi-Squared or Fisher exact test were used. Relative risk with 95% Confidence Interval (95% CI) was calculated. A p-value < 0.05 was considered statistically significant. Analyses were performed using Stata 15 statistical software (StataCorp LLC, College Station, Texas, USA).

A total of 109 (42%) participants — 62 anesthetists and 47 surgeons — answered the questionnaire. Amongst non-respondents, we found that 14% were unavailable or had no access to their e-mail during the survey period (confirmed by automatic out-of-office replies), and 2% were non eligible (medical students included by error in departmental mailing lists).

Most participants (71%) agreed to proceed to surgery for the trauma patient described in the vignette, with no significant difference between professional groups ($p = 0.87$). Amongst the 29% who answered they would not proceed to surgery, patient having a cardiac arrest (80.5%) and poor expected quality of life (89.7%) were the two most common reasons advocated.

There were several differences between professions regarding criteria defining futility of surgery (Table 1A). Compared to anesthetists, surgeons were more likely to proceed to surgery (79% vs. 60%), despite uncertain postoperative benefit ($p = 0.035$). They were also less likely than anesthetists (40% vs. 61%) to consider that a surgical procedure unable to offer a good postoperative quality of life was futile ($p = 0.031$).

These differences may be related to the professional culture of surgeons. Not offering surgery may be perceived as "giving up" and surgeons may feel compelled to "do everything possible to save the patient".[5] In contrast, more anesthetists than surgeons (74% vs. 53%), would agree to proceed to surgery in a patient with a "do not resuscitate order" ($p = 0.023$). The reason most often mentioned in free text answers was the provision of pain relief procedures particularly if it could be done with the use of noninvasive anesthesia techniques.

The overall feeling of decisional autonomy was lower amongst anesthetists than surgeons (Table 1B). They felt less free than surgeons (69% vs. 79%, $p < 0.001$) to decide

https://doi.org/10.1016/j.bjane.2022.04.003

Table 1 Futility perception and feeling of autonomy.

A. Questions related to futility	Anesthetists (n = 62)		Surgeons (n = 47)		RR (95% CI) surgeons vs anesthetists	*p*-value
	Disagree (partly/ fully)	Agree (partly/ fully)	Disagree (partly/ fully)	Agree (partly/ fully)		
Have you at one stage or another considered that operating the patient described in the vignette could be futile	12 (20%)	50 (80%)	9 (19%)	88 (81%)	1.01 (0.38–2.65)	0.978
A surgery bringing no physiological benefit must be considered futile.	15 (24%)	47 (76%)	8 (17%)	39 (83%)	1.55 (0.59–4.05)	0.363
A surgery bringing uncertain benefit must not be considered futile.	25 (40%)	37 (60%)	10 (21%)	37 (79%)	2.50 (1.05–5.92)	0.035
A surgery unable to offer a good postoperative quality of life is futile.	24 (39%)	38 (61%)	28 (60%)	19 (40%)	0.42 (0.19–0.93)	0.031
A surgery is always futile when the patient is very old.	57 (92%)	5 (8%)	46 (98%)	1 (2%)	0.24 (0.02–2.19)	0.178
A surgery is always futile when the patient has severe dementia.	38 (61%)	24 (39%)	36 (77%)	11 (23%)	0.48 (0.20–1.12)	0.090
A surgery is futile if the patient has a life expectancy of one month (and the surgery doesn't affect the prognosis).	19 (31%)	43 (69%)	8 (17%)	39 (83%)	2.15 (0.84–5.47)	0.103
A futile surgery is acceptable if the patient asks for it.	48 (77%)	14 (23%)	41 (87%)	6 (13%)	0.50 (0.17–1.42)	0.190
A surgery is futile if the patient has a life expectancy of one week.	8 (13%)	54 (87%)	4 (9%)	43 (91%)	1.59 (0.44–5.64)	0.468
A surgery can be futile even for a young patient.	4 (6%)	58 (94%)	4 (9%)	43 (91%)	0.74 (0.17–3.13)	0.683
A futile surgery is acceptable if the family asks for it.	54 (87%)	8 (13%)	45 (96%)	2 (4%)	0.30 (0.06–1.48)	0.121
A surgery isn't futile only if it brings benefit to the patient.	18 (29%)	44 (71%)	13 (28%)	34 (72%)	1.07 (0.46–2.48)	0.875
B. Questions related to autonomy						
You agree to take care of a patient with a "DNR order" in the emergency OR.	16 (26%)	46 (74%)	22 (47%)	25 (53%)	0.39 (0.17–0.88)	0.023
Before taking care of a patient with a "DNR order", you discuss again the limits of the order with the patient and his family.	10 (16%)	52 (84%)	4 (9%)	43 (91%)	2.06 (0.60–7.05)	0.239
You explain all the implications and possible complications of the anesthetic/surgical care.	10 (16%)	52 (84%)	0	47 (100%)	1.90 (1.57–2.29)	0.004
You feel free to decide whether to take care of a patient in the OR or not.	43 (69%)	19 (31%)	10 (21%)	37 (79%)	8.37 (3.46–20.24)	< 0.001
Your opinion whether to take care of a patient in the OR or not is respected.	33 (53%)	29 (47%)	8 (17%)	39 (83%)	5.54 (2.23–13.77)	< 0.001
You are involved during all the phases of the patient's evaluation before the OR.	34 (55%)	28 (45%)	13 (22%)	34 (78%)	3.17 (1.41–7.15)	0.005
Your evaluation can modify the care of the patient in the OR.	25 (40%)	37 (60%)	17 (36%)	25 (64%)	1.19 (0.54–2.60)	0.659
You feel pressure when deciding to take care for a patient in the OR.	33 (53%)	29 (47%)	43 (92%)	4 (8%)	0.10 (0.03–0.33)	<0.001
You are the only one who can decide if the patient must be operated.	59 (95%)	3 (5%)	36 (83%)	11 (17%)	6.00 (1.57–23.00)	0.004

Results are expressed in numbers (percents). DNR, Do Not Resuscitate, OR, Operating Room.

whether to proceed to surgery or not. They more often felt that their opinion was not taken into consideration and that they felt hierarchical pressure to proceed to surgery. Another finding was that anesthetists informed patients to a lesser extent than surgeons (84% vs. 100%) about all possible complications of an emergency intervention ($p < 0.005$).

This study has limitations. The cross-sectional design of the study does not allow causal inferences to be made but only speculations to be generated. It was a single center

study and generalizability of findings is limited to hospitals and working environment similar to the study setting. Thirdly, we approached all anesthetists and surgeons of specialties connected to the emergency unit. But only those that had substantial experience in the emergency setting answered, limiting response rate and generalizability of study results. However, since both surgical and anesthesia professional groups were well represented, the study has good internal validity.

Despite limitations, our study showed that anesthetists felt more concerned than surgeons by the benefit of surgery and postoperative quality of life. In contrast they were more likely to proceed with surgery in patients with "do not resuscitate orders" and informed patients to a lesser extent about all possible postoperative complications.

This highlights the ambiguity of the role that anesthetists play in emergency high-risk procedures because they are concerned by the importance of providing benefits to the patient but also exposed to external pressure to perform surgery in any circumstances, without fully informing patients about postoperative complications.

These study findings may contribute to improve mutual understanding when disagreement occurs between the two specialties. It may help to solve conflicts in the current context of overwhelmed hospitals

Conflicts of interest

The authors declare no conflicts of interest.

References

1. Prin M, Guglielminotti J, Mtalimanja O, Li G, Charles A. Emergency-to-elective surgery ratio: a global indicator of access to surgical care. World J Surg. 2018;42:1971—80.
2. Chiu AS, Jean RA, Resio B, Pei KY. Early postoperative death in extreme-risk patients: A perspective on surgical futility. Surgery. 2019;166:380—5.
3. Kwok AC, Semel ME, Lipsitz SR, et al. The intensity and variation of surgical care at the end of life: a retrospective cohort study. Lancet. 2011;378:1408—13.
4. Maerz LL, Mosenthal AC, Miller RS, Cotton BA, Kirton OC. Futility and the acute care surgeon. J Trauma Acute Care Surg. 2015;78:1216—9.
5. Morris RS, Ruck JM, Conca-Cheng AM, Smith TJ, Carver TW, Johnston FM. Shared decision-making in acute surgical illness: the surgeon's perspective. J Am Coll Surg. 2018;226:784—95.

Rosa Tesoro [a,*], Mélanie Suppan[a], Arnaud Dupuis[b], Monica Escher[c], Guy Haller[a]

[a] *University Hospitals of Geneva, Intensive Care and Emergency Medicine, Department of Anaesthesiology, Clinical Pharmacology, Division of Anaesthesiology, Geneva, Switzerland*
[b] *University Hospitals of Geneva, Department of Visceral Surgery, Geneva, Switzerland*
[c] *University Hospitals of Geneva, Department of Rehabilitation and Geriatrics, Division of Palliative Care, Geneva, Switzerland*

[*] Corresponding author.
E-mail: rosa.tesoro@hcuge.ch (R. Tesoro).
Received 25 November 2021; accepted 14 April 2022
Available online 22 April 2022