OXFORD

Leading Article

BJS, 2022, 1–2
https://doi.org/10.1093/bjs/znac313
Leading Article

The virtual uncertainty of futility in emergency surgery

Hannah Javanmard-Emamghissi[1,*] and Susan J. Moug[2,3]

[1]Department of Medicine and Health Science, University of Nottingham at Derby, Royal Derby Hospital, Derby, UK
[2]Department of Colorectal Surgery, Royal Alexandra Hospital, Paisley and Golden Jubilee National Hospital, Clydebank, UK
[3]College of Medicine, Veterinary and Life Sciences, University of Glasgow, Glasgow, UK

*Correspondence to: Hannah Javanmard-Emamghissi, Department of Medicine and Health Science, University of Nottingham at Derby, Derby DE22 3DT, UK (e-mail: Hannah.javanmard-emamghissi@nottingham.ac.uk)

Futility is when 'there is a goal, there is an action and activity aimed at achieving this goal and there is virtual certainty that the action will fail in achieving this goal'[1]. Having been described initially by Hippocrates before his death in 370BC, the importance of futility remains today.

Futility is underpinned by risk, where the danger or hazard to a patient is extreme. Although risk assessment is relevant in the elective setting, the emergency setting provides increased complexity due to time-pressured decisions that commonly happen in the middle of the night with limited multidisciplinary team support and reduced family presence to guide decisions. In 1995, medical ethicist Bernard Lo divided medical futility into seven principles, including quantitative and qualitative futility, which we apply in this high-risk emergency surgical setting[2]. Quantitative futility is the statistical probability of surviving a procedure or the success of a treatment, for example application of the NELA score (https://data.nela.org.uk/riskcalculator/) or Clinical Frailty Score to predict 30-day mortality after emergency laparotomy[3]. Qualitative futility is where the quality of benefit that surgical intervention will result in is poor, for example the formation of a permanent high-output stoma in a palliative oncological setting. These two principles are different and the application of both, in the era of shared decision-making, can help guide discussions, understanding, and risk stratification. However, they are not absolute, meaning uncertainties can arise in emergency surgery.

There is little work in emergency surgical futility. A recent scoping review found only three publications of 105 157 patients, with 1114 patients deemed to have had futile surgery (1.1 per cent)[4]. All used survival histograms to define quantitative futility, with two studies defining it as death within 48 hours of emergency surgery and the other at 72 hours. Predictors of futility included parameters one would expect: older age, serum lactate, pH, creatinine, sepsis, and reduced consciousness. One study then went on to develop a 'futility score' to be performed alongside a 30-day mortality risk score, providing patients with an objective risk of mortality within 48 hours. However, it was calculated from just 28 patients and has not been externally validated.

The issue with clinically applying 'virtual certainty' is highlighted in a study which looked at consecutive patients who needed emergency surgery but did not undergo surgery ('NoLaps')[5]. Assessment of 314 consecutive patients that needed emergency surgery found that 32 per cent were NoLaps, of whom 74 per cent died during the follow-up period (median 1.3 years). Unsurprisingly, the majority of deaths occurred within 1 month of surgery, but the 26 per cent surviving into the longer term is unexpected. Clearly, further work is needed and we await the results from multicentred Emergency Laparotomy and Frailty (ELF) group's second study, 'Defining the Denominator', to explore further[6].

Critics argue that quantitative futility is the main focus of clinicians and is not easily understood by patients and their families. For example, there can be stark differences in what level of risk patients and their doctors consider to be unacceptable: patients are often surprised to discover that a 5 per cent risk of death after emergency laparotomy is considered high risk when that equates to a 95 per cent chance of survival. Trying to put this in our clinically accepted '30-day mortality' terminology can cloud the issue further. The other criticism about quantitative futility is that it overlooks the patient's values and needs. Many older adults do not consider the risk of death as important in their decision-making, and instead prioritise qualitative outcomes such as the formation of a permanent stoma and returning to their own home[7].

The term futility is controversial in shared decision-making: bringing a predetermined tone or paternalism where treatment can be seen to be being withheld rather than virtually certain to have an extremely poor outcome. A statement in 2015 from the American College of Chest Physicians, American Thoracic Society, and European Society for Intensive Care Medicine advocated for the replacement of futility with 'potentially inappropriate'[8]. Work exploring the correct terminology could be included within development of patient-reported outcome and experience measures (PROMs/PREMs) that remain undefined in this setting, and perhaps the definition applied in the scoping review of 'early postoperative death' is less provoking[4].

Emergency surgery is not the only healthcare speciality grappling with the uncertainty of futility: sustaining care in intensive care medicine and paediatrics are daily decisions, with many in the latter group receiving media attention when there are differences in opinion[9]. Irrespective of the clinical setting, it is certain that neither treating clinicians nor patients and their families benefit from disagreements. While the patient's viewpoint and emotional upset is evidently clear, healthcare

Received: August 01, 2022. **Accepted:** August 09, 2022

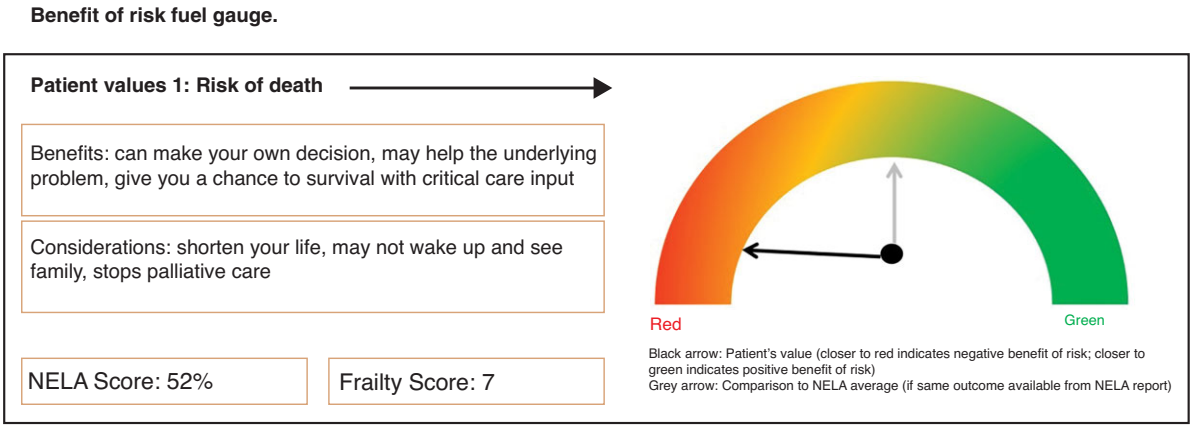

Fig. 1 Benefit of risk gauge

professionals care deeply about their patients' wishes and conflict with that leads to high levels of emotional distress, depression, and burnout[10].

Managing scenarios where you, as the surgeon, believe that a surgery will be futile is challenging. The first step is to recognize that this is a balance of risk and that your experience and perception of risk using objective scores needs to work alongside the patient's values and their perception of risk according to those values. The BRAN framework ('benefits, risks, alternatives, what happens if I do nothing?') can be used to guide the shared decision-making conversation, breaking the conversation down into bite size pieces and signposting the conversation in a way that is easier to deliver in acutely stressful and time-critical situations. This framework and the guidance from the Centre of Perioperative Care (https://cpoc.org.uk/shared-decision-making) can allow the multidisciplinary team to engage the patient in a meaningful discussion about changing the focus of active management to palliative care, and provide the surgeon with support that not operating is an appropriate step.

Consideration of appropriate terminology, and an explanation of terms and risk scores should all be placed within the correct clinical, cultural, and socio-economic context, supported by appropriate documentation. Visual explanations may aid these discussions, including the Clinical Frailty Score and/or the widely recognized risk fuel gauge, which allow each of the patient's values to be considered on different gauges (*Fig. 1*).

Hippocrates stated that futility was to 'refuse to treat those who are overmastered by their disease, realizing that in such cases medicine is powerless'. While this remains relevant with uncertainties and controversies, what is certain is that the futility of today is not the futility of tomorrow. We must adapt to future research findings that could downgrade futility to provide the best patient-centred outcomes in emergency surgery.

Funding

The authors have no funding to declare.

Acknowledgements

Both authors contributed equally to the conception, writing, and revision of this article.

Disclosure

The authors declare no conflict of interest.

References

1. Trotter G. Mediating disputes about medical futility. *Cambridge Q Healthcare Ethics* 1999;**8**:527–537
2. Lo B. *Resolving Ethical Dilemmas: a Guide for Clinicians*. (6th edn). Philadelphia: Lippincot Williams and Wilkins, 2019
3. Parmar KL, Law J, Carter B, Hewitt J, Boyle JM, Casey P *et al.* Frailty in older adults undergoing emergency laparotomy: results from the UK Observational Emergency Laparotomy and Frailty (ELF) Study. *Ann Surg* 2021;**273**:709–718
4. Javanmard-Emamghissi H, Lockwood S, Hare S, Lund JN, Tierney GM, Moug SJ. The false dichotomy of surgical futility in the emergency laparotomy setting: scoping review. *BJS Open* 2022;**6**:zrac023
5. McIlveen E, Wright E, Shaw M, Edwards J, Vella M, Quasim T *et al.* A prospective cohort study characterising patients declined emergency laparotomy: survival in the 'NoLap' population. *Anaesthesia* 2020;**75**:54–62
6. Reeves N, Chandler S, McLennan E, Price A, Boyle J, Knight S *et al.* Defining the older patient population that require, but do not undergo emergency laparotomy: an observational cohort study protocol. *Int J Clin Trials* 2021;**8**:138–144
7. Law J, Welch C, Javanmard-Emamghissi H, Clark M, Bisset CN, O'Neil P *et al.* Decision-making for older patients undergoing emergency laparotomy: defining patient and clinician values and priorities. *Col Dis* 2020;**22**:1694–1703
8. Bosslet GT, Pope TM, Rubenfeld GD, Lo B, Truog RD, Rushton CH *et al.* An official ATS/AACN/ACCP/ESICM/SCCM policy statement: responding to requests for potentially inappropriate treatments in intensive care units. *Am J Respir Crit Care Med* 2015;**191**:1318–1330
9. Wilkinson DJ, Savulescu J. Knowing when to stop: futility in the ICU. *Curr Opin Anaesthesiol* 2011;**24**:160–165
10. Lambden JP, Chamberlin P, Kozlov E, Lief L, Berlin DA, Pelissier LA *et al.* Association of perceived futile or potentially inappropriate care with burnout and thoughts of quitting among health-care providers. *Am J Hosp Palliat Med* 2019;**36**:200–206

European Colorectal Congress

28 November – 1 December 2022, St.Gallen, Switzerland

Monday, 28 November 2022

09.50
Opening and welcome
Jochen Lange, St.Gallen, CH

10.00
It is leaking! Approaches to salvaging an anastomosis
Willem Bemelman, Amsterdam, NL

10.30
Predictive and diagnostic markers of anastomotic leak
Andre D'Hoore, Leuven, BE

11.00
SATELLITE SYMPOSIUM
ETHICON

11.45
Of microbes and men – the unspoken story of anastomotic leakage
James Kinross, London, UK

12.15
LUNCH

13.45
Operative techniques to reduce anastomotic recurrence in Crohn's disease
Laura Hancock, Manchester, UK

14.15
Innovative approaches in the treatment of complex Crohn Diseases perianal fistula
Christianne Buskens, Amsterdam, NL

14.45
To divert or not to divert in Crohn surgery – technical aspects and patient factors
Pär Myrelid, Linköping, SE

15.15
COFFEE BREAK

15.45
Appendiceal neoplasia – when to opt for a minimal approach, when and how to go for a maximal treatment
Tom Cecil, Basingstoke, Hampshire, UK

16.15
SATELLITE SYMPOSIUM
Medtronic
Further,Together

17.00
Outcomes of modern induction therapies and Wait and Watch strategies, Hope or Hype
Antonino Spinelli, Milano, IT

17.30
EAES Presidential Lecture - Use of ICG in colorectal surgery: beyond bowel perfusion
Salvador Morales-Conde, Sevilla, ES

18.00
Get-Together with your colleagues
Industrial Exhibition

Tuesday, 29 November 2022

9.00
CONSULTANT'S CORNER
Michel Adamina, Winterthur, CH

10.30
COFFEE BREAK

11.00
SATELLITE SYMPOSIUM
INTUITIVE

11.45
Trends in colorectal oncology and clinical insights for the near future
Rob Glynne-Jones, London, UK

12.15
LUNCH

13.45
VIDEO SESSION

14.15
SATELLITE SYMPOSIUM
BD

15.00
COFFEE BREAK

15.30
The unsolved issue of TME: open, robotic, transanal, or laparoscopic – shining light on evidence and practice
Des Winter, Dublin, IE
Jim Khan, London, UK
Brendan Moran, Basingstoke, UK

16.30
SATELLITE SYMPOSIUM
Takeda

17.15
Lars Pahlman lecture
Søren Laurberg, Aarhus, DK

Thursday, 1 December 2022
Masterclass in Colorectal Surgery
Proctology Day

Wednesday, 30 November 2022

9.00
Advanced risk stratification in colorectal cancer – choosing wisely surgery and adjuvant therapy
Philip Quirke, Leeds, UK

09.30
Predictors for Postoperative Complications and Mortality
Ronan O'Connell, Dublin, IE

10.00
Segmental colectomy versus extended colectomy for complex cancer
Quentin Denost, Bordeaux, FR

10.30
COFFEE BREAK

11.00
Incidental cancer in polyp - completion surgery or endoscopy treatment alone?
Laura Beyer-Berjot, Marseille, FR

11.30
SATELLITE SYMPOSIUM
EVOLUZIONE DISPOSITIVI MEDICI

12.00
Less is more – pushing the boundaries of full-thickness rectal resection
Xavier Serra-Aracil, Barcelona, ES

12.30
LUNCH

14.00
Management of intestinal neuroendocrine neoplasia
Frédéric Ris, Geneva, CH

14.30
Poster Presentation & Best Poster Award
Michel Adamina, Winterthur, CH

15.00
SATELLITE SYMPOSIUM
OLYMPUS

15.45
COFFEE BREAK

16.15
Reoperative pelvic floor surgery – dealing with perineal hernia, reoperations, and complex reconstructions
Guillaume Meurette, Nantes, FR

16.45
Salvage strategies for rectal neoplasia
Roel Hompes, Amsterdam, NL

17.15
Beyond TME – technique and results of pelvic exenteration and sacrectomy
Paris Tekkis, London, UK

19.30
FESTIVE EVENING

Information & Registration **www.colorectalsurgery.eu**