



Editorial

Patient optimisation before surgery: a clear and present challenge in peri-operative care

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Accepted: 19 September 2018

Keywords: optimisation; peri-operative medicine; pre-operative

It is 2025 and Mrs Smith has just seen her family doctor, who is concerned that she has a colorectal cancer and may need chemotherapy and surgery. Vital data that will allow accurate early assessment of the relative benefits and harms of treatment are electronically communicated to her peri-operative care team. Planning for the evaluation and optimisation of physical and psychological function commences in parallel with the evaluation of treatment options for the tumour. With the facts, Mrs Smith is empowered to be fully involved in shared decision-making and an individualised pathway is mapped out early in her pre-operative journey. The peri-operative care team works closely with her to enable physiological and mental preparation for the chosen treatments. Diet, physical exercise, psychology and co-existing conditions are all optimised. Mrs Smith feels a level of control that minimises her anxiety. She uses an individualised 'electronic health navigator' to guide her nutrition, exercise and psychology programme. All this occurs in parallel with the investigations and chemoradiotherapy for the cancer. Following surgery, Mrs Smith is prepared for the expectation that she will drink, eat and mobilise the same day, and is discharged from hospital only 2 days after her operation. Her 'electronic health navigator' guides her recovery phase, and 6 weeks later she returns to her baseline level of function, both physically and mentally.

Although each of the elements of care described in this vignette have been implemented in isolation, very few

hospitals are close to the effective integration of all of these components, and reliable consistent global delivery of this 'ideal pathway' will take time, ambition and an openness to change traditional ways of working.

Towards the end of the 20th century, patients were referred by their general practitioner to a consultant surgeon, listed for surgery and then admitted the day before surgery to allow the 'houseman' to perform investigations and to be seen by the consultant anaesthetist. Consent for surgery was obtained by whichever member of the surgical team was available, typically the most junior doctor, and often on the morning of surgery. Many operations in high-risk patients were cancelled on the day of surgery due to lack of fitness/preparation; many others proceeded without adequate risk assessment, discussion or modification. Many patients suffered complications, including death, following surgery. To try to reduce the risk of mortality and morbidity, a handful of patients were sent to the limited number of intensive care beds available for postoperative care. Augmented postoperative care outside intensive care was uncommon – most patients went straight to the general ward following a short stay in recovery.

In 1987, Shoemaker demonstrated that high-risk surgical patients could be optimised in critical care in the immediate pre-operative period [1]. Even though this novel concept was not widely adopted, it demonstrated that pre-operative strategies could be implemented that would improve surgical outcome. In 1993, Older provided us with

evidence that poor physical fitness, as demonstrated by cardiopulmonary exercise testing, was associated with adverse outcomes following surgery [2]: more than 40 research publications [cited in 2-4], culminating in the recent METS study [5], have reinforced this observation. Around the same time, Kehlet et al. were developing the concept of enhanced recovery after surgery, which has subsequently transformed surgical care worldwide, most notably in a national implementation project in the UK [6]. Enhanced recovery has led to standardisation and streamlining of immediate peri-operative processes with enormous patient benefit. Peri-operative medicine has built on this and is now widely understood to encompass the patient-centred, multidisciplinary and integrated medical care of patients from the moment of contemplation of surgery until full recovery [7]; it embraces collaborative decision-making, prehabilitation, proactive management of comorbidities and individualised postoperative care. Peri-operative care has come of age.

In 2001, the Association of Anaesthetists published its first 'glossy' on the role of the anaesthetist in pre-operative assessment [8]. The content encompassed: identifying potential anaesthetic difficulties and pre-existing medical conditions; improving safety by assessing and quantifying risk; planning of peri-operative care; and providing an opportunity for explanation, discussion and reassurance. The concept of optimising outcome through pre-operative interventions was mentioned, albeit only as a potential opportunity. Updated Association of Anaesthetists guidance published in 2010 highlighted the importance of informed consent as well as management of comorbidities and discharge planning [9]. In the meantime, the parallel development of enhanced recovery was breaking down barriers and eroding the 'silo mentality', bringing teams together to plan and deliver coordinated peri-operative care, with the main focus being on in-hospital care. By 2015, the Royal College of Anaesthetists had embraced peri-operative medicine and committed to developing a collaborative programme for the delivery of peri-operative care across the UK [10]. Although each of these developments has contributed to improving the care of patients around the time of surgery, it is only relatively recently that working with patients pre-operatively, with the aim of enhancing their physical, physiological and psychological resilience to the pathological challenges of surgery, has been considered within the remit of anaesthetists and peri-operative physicians. Intervening to improve immediate peri-operative outcomes, as well as potentially achieve longer term behavioural change, opens new opportunities for anaesthetists to improve public/

population health outcomes and improve value. This supplement brings together contributions from expert authors from around the world to provide a 'state of the art' summary of prehabilitation in relation to surgery and the role of anaesthetists in improving patient care through this means.

Carlisle has discussed risk, but has given it a slant that is from the patient's perspective [11]. His arguments demonstrate that it is necessary to look at the extra burden of risk to that patient at that particular age of their life, rather than just looking at population outcome. The review by Sturgess et al. on shared decision-making explores the changing world of consent before surgery [12]. This international team of authors discuss the landmark cases that have ingrained shared decision-making into medical practice and demonstrate its need to protect and promote patient autonomy.

The research literature demonstrates that poor functional fitness has an impact on postoperative outcome; pre-operative optimisation aims to overcome this burden. Pre-operative optimisation of the high-risk elective surgical patient includes both lifestyle modification and medical optimisation of comorbidity. Prehabilitation is the term adopted by the McGill group to describe the identification of impairments of the patient who is being considered for major surgery, and then provide interventions that promote physical, metabolic and psychological health to reduce the incidence and/or severity of these impairments [13]. Prehabilitation has until recently only included physical fitness training, improving nutritional status and psychological robustness. However, it is being increasingly recognised that lifestyle modifications also extend to smoking cessation [14]. Furthermore, many of these interventions, as well as improving surgical outcome, may also improve the general health of the patient. The time before surgery is seen as a 'teachable moment' [15], as patients are more amenable to lifestyle modifications if they can see and gain the immediate benefit of their lifestyle changes. This supplement therefore has contributions covering multi-modal prehabilitation; as well as pre-operative optimisation of physical, [13] respiratory function, [14] nutritional, [16] and psychological status [17].

As well as optimising psycho-social factors before elective surgery, patients with comorbidity need their existing diseases to be optimised. For some patients this may include screening for undiagnosed disorders. There is now irrefutable evidence that patients with undiagnosed/undertreated diabetes and undiagnosed/undertreated anaemia have worse outcomes and there is now a growing body of evidence to support the identification and

treatment of these two common conditions [18, 19]. This too is discussed in the relevant reviews in this supplement.

The review by Lee et al. discusses the advances in optimisation of the patient with cardiac disease and provides an excellent summary of the current peri-operative management of diagnosed and undiagnosed hypertension, chronic heart failure and implantable devices [20].

The elderly patient presenting for surgery is becoming more common. Not only do older people have co-existing morbidity, they often have multimorbidity with accompanying polypharmacy. In addition they may be frail, which is a recognised risk factor for a worse surgical outcome. Frailty as a distinct disease entity was only defined in 2001. The review by Chan et al. highlights the collaborative interventions that can, and should, be implemented to improve outcome in elderly patients, and reduce the risk of problems from malnutrition and cognitive impairment [21]. The authors also rightly highlight the need for patient-accessible, individualised risk assessment, and further support the approach and advice of Carlisle and Sturgess et al. [11, 12].

The first 10 reviews of this supplement discuss the medical and psychosocial interventions and optimisations that can be implemented pre-operatively, and clearly document the evolution of the pre-operative assessment clinic with a narrow remit into the collaborative pre-operative clinic practising holistic peri-operative medicine. However, for these interventions to be introduced in a timely manner it is necessary to rethink the classical patient pathway, and thus the review on how the patient pathway can be re-engineered to facilitate timely intervention [22]. As well as the need to update the elective care surgical pathway, there is the need to re-engineer the pathway for the emergency surgical patient. The article by Poulton et al. discusses this, as well as the need and the mechanisms available to optimise the pathology and comorbidity of the emergency patient effectively within the limited time available [23].

The interventions proposed by the authors of this supplement are evidence-based and are achievable in most healthcare systems. They are standards of care that these authors would wish for themselves, their family and their patients. So why is the delivery of these interventions so sporadic and variable? The evidence base, while still very new and of modest depth, is developing very rapidly. Resource limitation in the aftermath of the global financial crisis can not only make change challenging but also offers opportunities if improved value can be demonstrated. Professional conservatism rightly resists

fads, but may delay implementation of beneficial innovations. Variation in the implementation of effective care is increasingly being challenged, most notably through programmes such as the 'Getting it Right First Time' initiative in the UK. The minimisation of unwarranted variation through a culture of continuous improvement is a critical driver for the ongoing delivery of improving peri-operative care for patients.

Peri-operative medicine is first and foremost about improving the care of patients to maximise quality and quality of life. Pre-operative patient optimisation is the vital component that empowers patients and doctors to achieve this goal. Who would argue with an approach that allows us to contribute at one and the same time to enhanced surgical outcomes, better value for money and improved public health?

Acknowledgements

No external funding or competing interests declared.

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