Time to make enhanced recovery after surgery the standard

Multimodality perioperative interventions could accelerate patient recovery and improve cost-effectiveness. An evidence review found an association between enhanced recovery after surgery and decreased length of stay, while complications and recovery time were unchanged or reduced. More specialties should develop and implement enhanced recovery after surgery pathways.

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Introduction

There is variable but increasing uptake of multimodality interventions for patients undergoing surgery in the UK. Effective interventions, most notably enhanced recovery after surgery protocols, offer to decrease healthcare costs by reducing length of stay and complications, while improving patient experience. These are fundamental aims in the modern-day NHSe.

The review

A National Institute of Health Research-commissioned systematic review by Nunns et al (2019) describes the extent of current understanding of the effects of multimodality interventions for older adults undergoing elective surgery. It delivers the necessary verification for regional and local healthcare providers to confidently pursue the implementation of enhanced recovery after surgery protocols in elective surgery. Outlining current knowledge defines the outer limits of current understanding. Nunns et al (2019) thereby provide the context required to develop the next generation of studies investigating the impact of multimodality interventions.

Specialties and interventions included

This systematic review considered the effectiveness and cost-effectiveness of all types of multicomponent interventions for older adults (mean or median age over 60 years) undergoing elective inpatient surgery (Nunns et al, 2019). The 73 studies included comprised randomised controlled trials from high-income countries, as well as UK-based randomised controlled trials, controlled trials and uncontrolled studies. The output therefore has particular relevance within the UK without compromising the overall quality of messaging, since randomised controlled trials and other types of study were considered separately.

Six broad intervention categories were identified, including prehabilitation, rehabilitation, and 'specialist wards and staff mix'. Enhanced recovery after surgery pathways comprised 67% of the included studies. Enhanced recovery after surgery was defined as interventions with components at different stages of the patient journey, including before hospital, throughout hospital admission and post-discharge. Included studies encompassed the following specialty areas: lower limb arthroplasty (34%), colorectal surgery (25%), cardiac, pelvic, upper abdominal, thoracic, vascular and 'various site' surgery.

The findings

The authors found that multi-component interventions were typically associated with benefit in at least one clinical outcome. Within the limitations of the variables published in the selected studies, adverse outcomes were rarely observed. The largest and most consistent body of evidence from international randomised controlled trials demonstrated associations between enhanced recovery after surgery pathways and reduced length of stay, particularly in colorectal surgery, lower limb arthroplasty and upper abdominal surgery. Generally,

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no increases in complication rates were observed, and upper abdominal surgical patients on enhanced recovery after surgery pathways developed fewer complications. Physical recovery, for example pain control, mobilisation, and restoration of gastrointestinal function, occurred earlier with enhanced recovery after surgery protocols for colorectal surgery.

There were relatively few studies of intervention types other than enhanced recovery after surgery and prehabilitation, which precluded firm conclusions regarding their effectiveness. Prehabilitation interventions examined in international randomised controlled trials were not amenable to meta-analysis, although individually they reported improved outcomes.

Limitations

While demonstrating a remarkable consistency with which enhanced recovery after surgery interventions appear able to reduce length of stay, the review highlights clear knowledge gaps. The impact of enhanced recovery after surgery pathways on the patient experience remains almost entirely unmeasured, and there is a near-complete lack of reporting of longer-term outcomes. A high proportion of studies excluded patients with complex needs; a non-trivial criticism in the modern context of increasingly medically complex patients. The impact on community services as well as primary and social care, both financially and in terms of resource use, was also largely unmeasured.

There was a lack of rigour and consistency with which many contributing papers reported outcomes and methods. Length of stay definitions were variable, and undefined in 40%. Validity and reliability of the primary outcome was only formally considered in 12%, and often the intervention pathways were poorly defined, with a lack of clarity regarding how the interventions and controls differed.

The future

The findings provide a robust rationale for the widespread adoption of enhanced recovery after surgery pathways in colorectal, upper abdominal surgery and lower limb arthroplasty. If there were previous reservations regarding the safety or benefits offered by enhanced recovery after surgery in these specialty areas, this review should largely dispel them. It is also reasonable to infer that ‘related’ specialties such as gynaecology and urology will likewise benefit from enhanced recovery after surgery pathways. In fact, there are numerous pre-existing descriptions of successfully implemented pathways in these specialities which did not meet the review’s selection criteria (Daneshmand et al, 2014; Nelson et al, 2014; Simpson et al, 2015).

Within standard hospital clinical governance structure and processes, a broader range of specialties should consider developing and widely implementing enhanced recovery after surgery pathways. Such interventions ought to be derived using expert multidisciplinary consensus, as was the case for the specialties that pioneered enhanced recovery after surgery (Lassen et al, 2009; Collins et al, 2016). It is reasonable to infer that well-considered interventions spanning the entire patient journey are likely to confer benefit when developed by individuals possessing the necessary expertise and an ambition for improvement.

The national inpatient survey identified that elective surgical patients more frequently report positive experiences in hospitals delivering enhanced recovery pathways (NHS Improving Quality, 2013). In future, measuring the influence of enhanced recovery after surgery on patient-reported outcome and experience measures would help to significantly and meaningfully expand the current knowledge base.

Positive confounding?

Having observed the benefits of enhanced recovery after surgery pathways, should clinicians consider exactly how they exert their effect? Is it purely a case of multiple component interventions, each with a small net benefit, producing an additive and measurable gain – as was originally described by Kehlet (1997)? Beyond this, it is probable that a whole range of secondary phenomena exert a positive confounding influence. For example, the

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Key points

- There is a large body of data supporting the effectiveness of enhanced recovery after surgery pathways in reducing length of stay for patients undergoing colorectal surgery, upper abdominal surgery and lower limb arthroplasty.
- Enhanced recovery after surgery pathways should be implemented widely within these specialty areas.
- New enhanced recovery after surgery pathways should be developed for a broad range of specialties and interventions, with such developments being undertaken outside of the trial setting, using appropriate governance.
- Future studies should measure a wider range of variables, with a specific focus on patient-reported measures, the impact on the wider healthcare system, and the gains made by introducing a structured multi-component intervention that encompasses the patient's care pathway.

effect of clear targets and messaging on patient empowerment and motivation are almost certainly significant. Improved team communication and cohesion, as all members work from the same pre-defined enhanced recovery after surgery 'script', is likely to reduce errors and delays in progression of care. Furthermore, highly specialised skill sets are developed as a result of having routinely practiced ways of working, as is promoted in enhanced recovery after surgery. These 'secondary' gains require understanding in future work. Characterising these more nuanced yet generic secondary effects might provide valuable and transferrable knowledge.

Building on the concept of secondary gains, there is a notion that nationwide variations in enhanced recovery after surgery pathway components do not affect their positive influence, providing that pathway deviations within individual hospitals are minimised. Nunns et al (2019) identified significant variation in the components comprising enhanced recovery after surgery pathways within specific specialty areas. They also found that there were sometimes few differences between the enhanced recovery after surgery pathways and the standard of care against which they were compared. Despite this, consistent reductions in length of stay, without increased complications, were observed across studies. Attention to a pathway is therefore possibly more important than its specific content.

Conclusions

Nunns et al (2019) provide a timely review of multimodality interventions in elective surgery. They reveal a large body of data supporting the effectiveness of enhanced recovery after surgery pathways in safely reducing length of stay in colorectal surgery, upper abdominal surgery and lower limb arthroplasty. This provides the necessary justification for widely implementing enhanced recovery after surgery pathways in these specialties.

The consistent proof of enhanced recovery after surgery as a concept should instil confidence that, with appropriate expert involvement, successful pathways can be developed for a broad range of specialties and interventions. Such processes can be undertaken outside of formal trials, using appropriate local governance measures to assess safety.

There is a need to expand the range of variables measured in future studies. Priorities should include patient-reported measures, the impact on the wider healthcare system and the secondary gains conferred by introducing enhanced recovery after surgery pathways.

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