Perioperative medicine for older patients: how do we deliver quality care?

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ABSTRACT

The demand for surgical intervention in older people is rising due to the growing older population with multimorbidity. Yet older people continue to have reduced access to surgery and have more adverse postoperative outcomes than younger people. Current models of preoperative risk assessment and optimisation are poorly suited to this complex surgical population. Furthermore, there has been little emphasis on perioperative management of older people in national anaesthetic and surgical curriculums. New models of care and training in perioperative medicine for older people are evolving, with national reports calling for collaboration between geriatricians, general physicians, anaesthetists and surgeons. Such collaboration is necessary to impact clinical service development, research agendas and education and training. In this article, we discuss the challenges and potential solutions in the establishment of quality surgical care for older people.

KEYWORDS: Aged, geriatrics, perioperative care, perioperative period, interdisciplinary communication

Introduction

Life expectancy in the UK is increasing, with the greatest demographic change occurring in the oldest old.[1] Inevitably, the degenerative and neoplastic pathology noted in advancing age are increasingly prevalent. The definitive management of such pathology is often surgical.[2] Legal, cultural and social changes mean that people rightly expect access to gold-standard care, irrespective of age.[3] However, older people are still less likely than are their younger counterparts to receive surgical treatment,[4] and when they undergo surgery experience excess adverse postoperative outcomes.[5] Although advancing age per se is not an independent risk factor for adverse postoperative outcomes, it is closely associated with key predictors such as physiological decline, multimorbidity and frailty.[6–8] Furthermore, the adverse postoperative morbidity noted in older people is predominantly medical rather than surgical.[9] There is little consensus on how to identify and optimise the high-risk older surgical population, which presents challenges in the standardisation of service delivery, education and training.

Current care pathways

In the UK, preoperative care for elective surgery is led by a surgical department with anaesthetic and nursing support. The decision to operate is typically followed by a nurse-delivered preoperative assessment, when a protocol-based appraisal of anaesthetic and medical issues is conducted. This process has historically focused on the binary label of 'fit' or 'unfit' for anaesthesia or surgery, and has not been designed to optimise the patient's fitness. If issues are identified that could impede surgery, a more detailed specialist medical or anaesthetic assessment is requested.

Referrals to organ-specific specialties are often diverted through primary care, which places the onus on the GP to brand a patient 'fit' and refer them back to the surgical pathway. However, GPs and specialist physicians might not always be aware of the research on perioperative risk assessment and optimisation, which can cause delays in surgical treatment or, at worst, a label of exclusion from all future surgical intervention. Although this preoperative assessment model has been used with success for young, uncomplicated patients, it might be less suited to complex older people with multimorbidity and frailty.

Postoperatively, medical and functional issues in elective and emergency surgical patients are typically managed on a reactive basis as problems emerge. After the withdrawal of routine anaesthetic support within 24 hours of surgery, junior surgical doctors often deliver the day-to-day ward-based care. As issues arise, crisis referrals are made to organ-specific specialties or

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the on-call medical registrar, a role widely regarded to be one of the busiest in the hospital.[10] Neither group is well placed to provide timely, proactive and comprehensive care to complex surgical inpatients, or to offer advice on non-emergency geriatric postoperative complications such as failure to rehabilitate.

There is growing recognition that these traditional models of surgical care have not adapted to meet the needs of complex older patients. Deficiencies throughout the surgical pathway are detailed in reports from national bodies, such as the National Confidential Enquiry into Patient Outcome and Death, as well as a joint report by the Royal College of Surgeons plus Age UK that shows discrepancies between the need for, and the access to, surgery for older people.[2,11,12] These bodies, among others, call for increased involvement of geriatricians in the surgical pathway. Furthermore, in the wake of the Mid-Staffordshire NHS Foundation Trust public inquiry, the need to better tailor all hospital services to older people is emphasised.[13]

Single-organ specialists

Traditionally, single organ specialty physicians provide medical input for patients undergoing operations on that organ – eg cardiologists consult on cardiac surgery patients, neurologists on neurosurgery patients. Although single-organ physicians are skilled in specific management of the relevant organ system, in older surgical patients several organ systems are often implicated, which could result in several referrals to single organ doctors, each providing their opinion in isolation. The purpose of such referrals can be unclear to the recipient, and consultations are known to provide few recommendations that subsequently affect perioperative management.[14,15] For inpatient surgical support, the report of the Future Hospital Commission suggests a buddy system to ensure that medical outliers are managed postoperatively.[16] This system would provide a medical presence on surgical wards, but will not achieve direct clinical responsibility for physicians, or physicians with specific perioperative skills. Furthermore, this arrangement is unlikely to garner extra funding and would be in addition to physicians' current workload.

Generalists

The Future Hospital Commission states that generalists need to be at the heart of the patient pathway. In the USA, a similar hospitalist model of general physicians managing the whole inpatient stay has emerged.[17] This proposed model could result in joint care of all surgical patients between a physician and surgeon. Wards would no longer be surgical, but instead tailored for the needs of patients. This model could evolve to a general physician coordinating the inpatient pathway, with anaesthetists and surgeons providing timely perioperative care. Junior doctors would receive clinical and educational supervision from a ward-based medical team, helping to alleviate the conflict between postoperative ward supervision and operating time. To deliver evidence-based quality care to a complex and predominantly older surgical population, the generalist will need subspecialty training, raising the question of whether such generalists are in fact perioperative specialists.

Perioperative specialists

There is an increasing move towards development of subspecialty training in perioperative medicine in older patients. These specialists would provide input throughout the surgical pathway, with skills in preoperative assessment, optimisation, complex decision-making, and delivery of postoperative care, including medical management, rehabilitation, discharge planning and end-of-life care. These specialists could have an anaesthetic, organ-specific or geriatric medicine background, but would need additional subspecialty training. The orthogeriatric experience of geriatricians in improving patient outcomes through collaboration will be invaluable to development of models of care for older elective and emergency patients across surgical subspecialties.

How to identify high-risk patients

Although most surgical patients will not need additional physician input either preoperatively or postoperatively, there is a high-risk group who warrant these specialist services. There has been much interest in how to identify high-risk patients to target preoperative optimisation, plan individualised intraoperative care and ensure postoperative medical and rehabilitation expertise. Four broad approaches are often suggested for the selection of patients for targeted specialist perioperative care: age, multimorbidity, frailty, and surgical risk stratification tools.

Age and multimorbidity *per se* are unlikely to be helpful in this context, because many patients who are older or have controlled comorbidities (such as hypertension), or both, are not necessarily at increased risk of adverse postoperative outcomes. By contrast, emerging research showing the importance of frailty as an independent predictor of poor postoperative outcomes has led to the increasing use of scores such as the Edmonton Frail Scale to select patients for targeted intervention.[18,19,20] There is a lack of evidence that this approach ensures a sensitive and specific screening method for identification of high-risk patients, although evidence suggests that higher scores on the scale are associated with greater postoperative complications and prolonged inpatient stays.[21] Similarly limited evidence supports use of surgical risk stratification tools (such as POSSUM or SORT) to identify patients who would benefit from specialist perioperative care.[22] Further research is needed to compare different strategies, not only to identify high-risk patients but also to assess whether identification leads to altered clinical management and ultimately better outcomes.

Guidance

The necessary components for delivery of high-quality perioperative care to older surgical patients are national guidance, responsive models of care, an appropriately skilled workforce and a translational research agenda. Evidence-based guidance for the standardisation of perioperative management in older surgical patients is available. Such guidance is by necessity collaborative: the Association of Anaesthetists of Great Britain and Ireland have drawn on expertise from emergency medicine, surgery, geriatrics and anaesthetics, while the American Geriatrics Society and American College of Surgeons

have co-produced guidelines on preoperative assessment in older patients.[23,24] The British Geriatrics Society and the Health Foundation have published best practice guidance on the essential features of perioperative services for older surgical patients and how such services can be developed.[25,26]

Models of care

Comprehensive geriatric assessment is an organising principle of geriatric medicine that has been used in different settings to improve outcomes for older patients.[27,28] The value of this approach in surgical settings is that it allows assessment and optimisation across multiple domains, with the development of a structured management plan to address potential perioperative medical, functional and psychosocial issues.[29] Comprehensive geriatric assessment and optimisation have been used with good effect in the development of orthogeriatric services. The British Orthopaedic Association and British Geriatric Society's *Blue Book*, in combination with the national Best Practice Tariff, has transformed the provision of hip fracture care in the UK.[30] Data from this model show better postoperative recovery, a one-third fall in postoperative delirium and as much as a 40% reduction in mortality.[31–33]

The inclusion of geriatricians in the pathway of care for other older surgical patients is advocated in reports from the National Confidential Enquiry into Patient Outcome and Death, Royal College of Surgeons, Health Foundation and King's Fund.[2,11,26,34] Notable programmes that embrace these recommendations include the national Enhanced Recovery Programme, geriatrician-led perioperative services and anaesthetist-led services.[35–38]

However, cross-specialty services for older patients are not commonplace. A national survey showed that most UK surgical trainees recognised the need for geriatric input on older patients, but were unable to easily access this input.[39] This difficulty is unsurprising in the context of another survey of 161 acute UK trusts, only 12% of which have formal arrangements for geriatric medicine input preoperatively, and 20% postoperatively (excluding orthogeriatic care).[40] The National Emergency Laparotomy Audit (NELA) published similar results – in its study, only 14% of hospitals provided geriatric perioperative assessment, and geriatricians had proactive inpatient involvement in the care of emergency surgical patients at only 4%.[41]

These findings persist despite two-thirds of respondents (surgeons, patients and other stakeholders) to a Royal College Surgeons' survey rating the involvement of geriatricians as the most important measure in improving coordination of care in the perioperative period.[42] Reasons for the slow uptake of geriatric surgical liaison services in the NHS are many and include the insufficient numbers of consultant geriatricians, difficulties funding cross-specialty services and challenges of whole-system reorganisation.

Education and training

Improvement of service delivery via a collaborative workforce will necessitate an emphasis on education and training. The 2013 update of the Joint Royal Colleges of Physicians Training Board geriatric syllabus contains guidance on orthogeriatrics and perioperative medicine for older people.[43] Concerningly, however, such a focus has decreased in other national syllabuses at both undergraduate and postgraduate levels.[44] The section 'Anaesthesia and the elderly' was removed in the Royal College of Anaesthetists 2010 syllabus, and the only mention of older patients in the Royal College of Surgeons' general surgical 2013 syllabus simply regards the need to know the 'differences in children and the elderly'.[45,46] Encouragingly though, the increasing awareness of the need for a perioperative specialist has been recognised through a new master's programme in perioperative medicine at University College London, and an out-of-programme training post for geriatric medicine registrars.[47] The growth of interspecialty collegiate working will probably soon be reflected in changes to the national anaesthetic and surgical curriculums. Such changes are needed to ensure that the general workforce has adequate skills in generic perioperative medicine and that subspecialists are equipped to deliver and develop high-quality services for older surgical patients. For example, all practitioners should be competent in the assessment of capacity, although in complex, controversial cases specialist skills will be required.

Collaborative quality improvement and research

Nationally, specialist networks are developing with the aim of pooling expertise in service and research. The British Geriatric Society POPS (Proactive Care of Older People Undergoing Surgery) special interest group has established this nascent subspecialty and allow sharing of knowledge and experience.[48] The Age Anaesthesia Association similarly has a mixed anaesthetic and geriatric medicine membership and promotes joint working through its annual conference. Encouragingly, NELA includes a section on the provision of geriatric services and is considering use of geriatric descriptors for the patient population. A similar cross-specialty approach in national surgical audits would allow a focus on the improvement of outcomes in a complex multimorbid group. Collaboration is now needed to establish both an evidence base for gold-standard models of care for older surgical patients and the effective translation of these standards into NHS settings. ■

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