

Research Article

Do Irish Surgical Trainees believe they are Adequately Trained to Manage our Ageing Population?

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Abstract

Background: There is an increasing awareness that the ageing population represents a challenge to the provision of future surgical services in Ireland. Data from the UK have demonstrated that surgical trainees consider themselves inadequately prepared to meet the challenges of the ageing surgical population, and are inadequately supported by medical services. We conducted a nationwide survey to assess knowledge and beliefs of Irish surgical trainees towards common perioperative problems encountered in older surgical patients.

Materials and methods: An electronic survey was sent to postgraduate surgical trainees in Ireland via the Royal College of Surgeons in October 2019.

Results: A total of 84 eligible Irish surgical trainees responded to the survey. Of the trainees who responded, 83.1% (n=69) believe that the management of medical problems affecting older surgical patients should feature in the surgical curricula. Just under half of the trainees (45.7%) felt that their training programme did not deliver adequate postgraduate training in the perioperative medical management of older surgical patients. Only one quarter (25%, n=20) reported that they had no difficulty accessing medical advice when managing older surgical patients. The majority (87.7%) supported the need for closer integration with MFTE physicians in the care of older surgical patients.

Conclusion: This survey provides insight into the need for the development of services, and surgical training in Ireland. We recommend that there should be a focused approach within postgraduate surgical education to highlight the preoperative and perioperative surgical issues affecting the management of older surgical patients.

Keywords: Surgery; Medicine for the elderly; Ageing; Surgical training

Introduction

In 2015, an estimated 8.5% of the world's population was aged 65 years or older. It is estimated that this will increase to more than 12% by the year 2030 and 17% by the year 2050 [1]. In Ireland, the average age of the population has continued to increase from 36.1 years in 2011 to 37.4 years in April 2016. The number of those aged 65 years and over rose by 102,174 within the same time period [2]. As a result, increasing numbers of older people are undergoing both emergency and elective surgery. It is well documented that older adults have a high burden of surgical disease, nearly double that of younger patients, with 60% of general surgical procedures occurring in older adults [3]. They are also more likely to suffer a range of postoperative complications, have a higher readmission rate and have increased

mortality rates due to their unique physiology, co-morbidities, social issues, and challenging goals of care [4].

Improving the quality of geriatric surgical care was first recognized by the American College of Surgeons (ACS) and the American Geriatrics Society (AGS) in 2005 [5]. Together, they developed seven main quality indicators for ageing patients (>65 years) undergoing abdominal operations. The American College of Surgeons National Surgical Quality Improvement Program and American Geriatrics Society (ACS NSQIP/AGS) followed in 2012, and collaboratively released guidelines on the preoperative management of older surgical patients. One of the recommendations stated that the surgeon must understand the components of geriatric preoperative assessment and be able to interpret the results [6].

Current recommendations support the involvement of a Medicine for the Elderly (MFTE) physician in the coordination of perioperative care for elderly surgical patients, as a Multidisciplinary Team (MDT) approach has been associated with an improvement in outcomes [7,8]. Despite this, surgical liaison services are not currently delivered in the same proactive and protocol driven manner as the orthogeriatric services across the UK and Ireland. The need for surgeons to be prepared for the unique needs of older adults is widely recognized. The aim of our survey was to assess the knowledge and beliefs of current surgical trainees, across all disciplines, regarding issues commonly encountered in the ageing surgical population.

Methods

Survey design

A previously validated survey (Appendix A) was utilized with

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permission of the authors, who had previously surveyed UK surgical trainees attending the Association of Surgeons of Great Britain and Ireland Congress in 2013 [9].

The survey consisted of 18 questions, was divided into 5 main sections, and took approximately 4.5 minutes to complete. The 5 sections included:

1. Basic demographic data
2. Geriatric medicine training for surgical trainees
3. Models of collaborative geriatric medicine - surgical care
4. Knowledge of common clinical problems encountered in older surgical patients
5. Future models of care for older surgical patients

The questions covered knowledge (21%), attitudes (58%), and behaviors and experience (21%) of surgical trainees towards the elderly surgical patient.

Participants and recruitment

An electronic survey was sent to postgraduate surgical trainees (Core and Higher Surgical Trainees) in Ireland via the Royal College of Surgeons in Ireland electronic mail in October 2019. The survey was sent *via* a Survey Monkey® link [10]. Participants were given two months to respond to the electronic survey.

Data analysis

Responses were analyzed in frequencies and percentages for categorical data and reported with respect to the five themes outlined above.

Results

Demographic data

A total of 84 surgical trainees responded from a survey response population of 249, giving a response rate of 34%. Core surgical trainees (CST1-2) represented 51.2% (n=43) and specialist registrar trainees (ST3-8) represented 48.8% (n=41) of the responses. General surgery, vascular surgery and urology surgical trainees all achieved a response rate >55% for their respective specialties. The distribution of the specialties surveyed is outlined in Table 1.

Geriatric medicine training for surgical trainees

A large majority (83.1%, n=69) of all respondents felt that the management of medical problems affecting the older surgical patient should feature in the surgical curricula. One fifth (20.5%, n=17), felt that their training programme provided adequate training in the perioperative management of the older surgical patient. Approximately half (45.7%, n=38) of the respondents felt that their programme did not provide adequate training; 33.7% (n=28) neither agreed nor disagreed. Nineteen respondents (20.5%) reported that their training programme provided adequate training in the management of older surgical patient. Two thirds (65.1%, n=54) of all trainees surveyed felt confident in their ability to manage the older surgical patient.

Current geriatric medicine support and liaison services

Over three quarters (76.3%, n=62) of surgical trainees reported that they regularly needed medical advice when managing older surgical patients. However, only one quarter (25%, n=20) reported that they had no difficulty accessing geriatric medicine support to help manage older surgical patients.

A large majority (87.7%, n=64) of the respondents supported closer integration of MFTE physicians into the care of older surgical patients. Eleven percent (n=8) reported no need for closer integration. Table 2 outlines the desired components of a geriatric liaison service when managing the older surgical patient. Trainees favored pre-operative optimization, management of medical complications, post-operative rehabilitation and discharge planning. Just under one third of trainees (31.3%, n=25) supported assistance when communicating with families.

The majority of surgical trainees felt that responsibility for the older surgical patient should be shared with MFTE (82.2%, n=60). However, only 35.6% (n=26) felt that the older surgical patients should be taken over by MFTE physicians once the immediate peri-operative period is over.

Knowledge of perioperative geriatric medicine issues

Over three quarters of the trainees (76.2%, n=63) were unfamiliar with the key findings and recommendations of the 2010 National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report on old age problem [8]. Three topics identified by this report and the ACS guidelines were selected to assess trainee knowledge [6].

Frailty

Thirty one (41.9%) of surgical trainees had no confidence in their ability to identify frailty amongst elderly surgical patients. One quarter (28.4%, n=21) of surgical trainees reported routinely used a validated tool when assessing fitness for surgery in older patients.

Delirium

Over three quarters (78.4%, n=58) of respondents were aware that postoperative delirium is preventable, however only 40.5% (n=30) routinely assessed their elderly surgical patients for post-operative delirium. Acute onset was recognized as a key diagnostic feature of delirium by 70.3% (n=52), inattention by 52.7% (39) and altered consciousness by 51.4% (n=38) of all surgical trainees. Only 6 (8.1%) of the respondents were able to correctly identify all the 3 key diagnostic criteria of delirium (Table 3).

Mental capacity

Less than one fifth of respondents (18.9%, n=14) had received formal training in the assessment of mental capacity. Over two-thirds (n=50) reported no formal training in the assessment of mental capacity. Thirty respondents (40.5%) felt confident in their ability to formally assess mental capacity when consenting elderly patients for surgery. However, only 17.6% (n=13) were able to correctly answer a series of true/false questions relating to the core features of the capacity assessment (Table 4).

Discussion

The results of this survey show that Irish surgical trainees recognize the changing demographics of the surgical population. However, only 20% consider that current training adequately prepares them to meet the challenges of the ageing population. This survey shows that knowledge of geriatric issues such as frailty, delirium and mental capacity is limited amongst surgery trainees. Notably, current access to medical support is scarce and difficult to access. Trainees recognize the need for new models of care incorporating improved collaboration between surgeons and physicians in line with the results from the UK survey [9].

The results of this survey require a collaborative response to meet

the needs of our ageing population. The results of the NCEPOD report (2010) highlighted several inconsistencies and subsequently made specific recommendations regarding the care of the older surgical patient including greater geriatric input, fewer delays in surgery and more input from senior and experienced surgical decision makers. The report also made specific recommendations for improved postgraduate education of geriatricians, anaesthetists and surgeons [8,10,11]. Alarming, over three quarters of the trainees surveyed were unfamiliar with the recommendations from this report.

In 2016, the ACS laid out a blueprint to improve the quality of surgical care for the older surgical patients [12]. They identified a pressing need to prioritise the unique aspects of care for older surgical patients, and to create a system that could provide high quality interdisciplinary surgical care to this vulnerable population [13]. Over 75% of trainees surveyed reported that they regularly needed medical advice when managing this cohort, however only 25% reported that they no difficulty accessing this support. There is a need to move from the traditional approach of junior members of surgical teams managing this cohort, to a more integrated multidisciplinary approach, in line with the recommendations from the ACS [13]. Almost 90% of surveyed trainees would support this multidisciplinary approach.

The ACS has launched Geriatric Surgery Verification (GSV) which is a national quality improvement programme developed to meet the rising needs of the older adult surgical patient. A major focus of the GSV programme is to enhance the preoperative assessment of patients to better inform goals of care and shared decision-making. The aim is to shift the priority from fixing a surgical problem to weighing the impact of an operation on patient outcomes and quality of life [14].

Over 85% of trainees felt that the management of medical problems affecting this cohort of patients should feature in the surgical curricula. However, only 20% felt that they had received adequate training. Guidelines for the Perioperative Care of the Elderly have been published by The Association of Anaesthetists of Great Britain and Ireland, British Geriatric Society, American Society of Anesthesiologists and the American Geriatrics Society [6]. It is widely accepted that surgeons do not have the expertise to manage complex pre-existing and perioperative medical conditions that elderly patients commonly have and subsequently develop. Our data reflects similar data from a UK survey by Shipway et al. [9] where almost 90% of trainees reported that the management of medical problems affecting elderly surgical patients should feature on surgical curricula.

The creation of the National Emergency Laparotomy Audit (NELA) in 2014 was established to promote key standards in emergency service provision across Ireland and the UK [14,15]. Currently NELA is increasingly implemented in Ireland. Despite the high level of Irish hospitals and trainees involved with NELA, only 28.4% of surgical trainees surveyed used a validated tool to assess fitness for surgery amongst elderly patients.

Frailty has been shown to independently predict higher rates of postoperative events, increased length of stay, and a higher likelihood of discharge to a skilled or assisted-living facility in elderly surgical patients [6]. Despite the well documented risks, over 40% of surgical trainees had no confidence in their ability to identify a frail, elderly surgical patient. The most recent data from NELA has shown that 55% of patients treated are over the age of 65 years, but only 19% of these had a formal assessment of frailty, and of these frail patients, only

36.9% had input from a MFTE physician. Frailty was associated with increased mortality, regardless of patient's age. For patients found to be frail and aged over 70 years, 30-day mortality was 23.4% compared to 14.5% if not frail [16]. Guidelines from the ACS NSQIP/AGS place specific emphasis on the importance of screening for frailty in older surgical patients. Our survey indicates that few patients may routinely be assessed for frailty in surgical patients at the point of admission [6].

Elderly patients are at risk of developing delirium which is known to have significant implications for hospital length of stay, complications and subsequent mortality [17]. Only 6 (8.1%) of the surveyed trainees were correctly able to identify the 3 key diagnostic criteria of delirium (Table 3). Up to 30% to 40% of cases of delirium are preventable or treatable, but if surgical trainees are unable to correctly identify delirium, our ability to take action is attenuated [18].

Furthermore, over two-thirds of trainees surveyed reported that they had received no formal training in the assessment of mental capacity. Fewer than 20% of trainees were able to correctly identify key aspects of mental capacity: this may potentially have medico-legal ramifications. It is evident that training and education in this regard must be improved to prepare surgeons of the future for the treatment of frail older persons with cognitive disorders and questionable capacity to consent to surgery.

The cornerstone of holistic geriatric medicine practice is Comprehensive Geriatric Assessment (CGA). This is defined as a multidimensional interdisciplinary diagnostic process focused

Table 1: Survey Respondents' Subspecialty.

Speciality	% (n)	Response rate per speciality
General surgery	40.5 (34)	57%
Urology	14.3 (12)	55%
Plastics	11.9 (10)	37%
Trauma and orthopaedics	10.7 (9)	15%
ENT	7.1 (6)	29%
Vascular	7.1 (6)	55%
Cardiothoracic	3.6 (3)	38%
Other	4.8 (4)	NA

Table 2: Desired Components of a Medicine for the Elderly Surgical Liaison Service.

Component	Support for component of service % (n)
Managing medical complications	88.75 (71)
Post-operative rehabilitation	87.5 (70)
Pre-operative optimisation	85 (68)
Discharge planning	82.5 (66)
Assessment of mental capacity	78.75 (63)
Quantifying Medical Risks of Surgery	61.25 (49)
Communication with patients and families	31.25 (25)

Table 3: Trainees' Responses to the Knowledge Test of the 3 Key Diagnostic Features of Delirium

"Which 3 of the Following Clinical Features are Most Characteristic of Delirium?"

Clinical feature	Correct answer	Frequency of response (n)	%
Altered sleep-wake cycle	FALSE	57	77
Acute onset	TRUE	52	70.3
Inattention	TRUE	39	52.7
Altered consciousness	TRUE	38	51.4
Delusions	FALSE	25	33.8
Gradual onset	FALSE	7	9.46
Fever	FALSE	3	4.05
Dysphasia	FALSE	1	1.35

on determining a frail elderly person's medical, psychological and functional capability and in order to develop a coordinated and integrated plan for treatment and long term follow up. It has been proven to improve mortality, disability and independence in older persons [19]. GCA has been modified for the perioperative setting where it can be used to optimize the patient for surgery and rapidly respond to complications and discharge issues in the post-operative period [20]. The effectiveness of the perioperative GCA through the improvement of patient outcomes has been well documented for patients with hip fractures [21], and emerging data indicate it may also improve outcomes in gastrointestinal, urological, orthopedic and vascular surgery [22-24].

The 2010 NCEPOD report specifically recommended that there should be closer integration of MFTE teams into surgical pathways to ensure that older surgical patients have routine access to a MFTE physician [8]. Almost 85% of trainees surveyed support this recommendation, believing that the responsibility for patient care should be shared between teams. Only 35% felt that older surgical patients should be taken over by MFTE physicians once the immediate perioperative period is over. There has been widespread implementation of specialist multi-disciplinary care within orthogeriatric services; although a recent survey of UK-based MFTE consultants reported that only 29.2% provided routine geriatric medicine input into the care of older surgical patients. The majority of respondents provided only postoperative services on a reactive basis, i.e. following referrals from the surgical teams. The primary conclusion from this survey was that the involvement of MFTE physicians in perioperative care of older people in the UK remains limited, with the main barrier to establishing such services being access to funding [25].

Conclusion

As life expectancy increases, so will the demand for surgical management of age-associated degenerative and neoplastic pathology. Postoperative complications frequently observed in elderly surgical patients are predominantly medical, rather than surgical, and are known to be predictive of both short and long-term mortality [20]. Almost 85% of trainees surveyed support the inclusion of geriatric medicine issues in surgical curricula. They believe that they receive inadequate training and are inadequately supported in the perioperative management of complex older surgical patients [11]. We recommend that there should be a focused approach within postgraduate surgical education to highlight the preoperative and perioperative surgical issues affecting the management of older surgical patients. This curricular approach should be developed across surgical specialties to develop knowledge and skill set that combines with other clinical teams in order to provide mutually beneficial improvements in patient care for elderly surgical patients [11].

Disclosures

The survey was used with permission from Dr David Shipway, Department of Medicine for Older People, North Bristol NHS Trust, UK.

Ethical Statement

Compliance with ethical standards

All ethical standards were complied with whilst conducting this research.

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Conflict of interest

The authors declare that they have no conflicts of interest.

Ethical approval

Ethical approval was not required for this study.

Informed consent

Informed consent was obtained from all individual participants included in the study.

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Table 4: Knowledge of Trainees' Assessment of Mental Capacity when Consenting a Patient for Surgery.

When consenting a patient for surgery	Correct answer	% of trainees who responded correctly (n)
Where mental capacity is found to be absent, the patient's next of kin should be asked to make a decision on the patient's behalf	FALSE	82.43 (62)
Patients with a disorder of the brain or mind (e.g. Dementia) lack capacity	FALSE	79.73 (59)
A patient must score >26/30 on the MMSE to demonstrate mental capacity	FALSE	64.86 (48)
Being able to retain information for 24 hours is necessary to display mental capacity	FALSE	43.24 (32)
A patient must understand the information given to them to display capacity	TRUE	97.3 (72)
Having the ability to weigh up risks and benefits is essential to display mental capacity	TRUE	95.95 (71)
Being able to communicate a decision is a key feature of mental capacity	TRUE	91.89 (68)
Mental capacity needs to be tested for each decision	TRUE	72.97 (54)
Number of trainees who answered all 8 questions correctly	n/a	17.6 (13)

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