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The Frail Elderly Patient and the Need for a Video Store on Regional Anaesthesia Blocks

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According to The United Nations, the world's population reached 8 billion people on 15 November 2022, a milestone in human development [1]. Life expectancy at birth has never been higher, reaching 80 years and over in several countries [2]. This is a testimony showing the triumph of humanity thanks to improvements in sanitation, the availability of clear running water and more abundant and safer foods, better housing, technology, education and better healthcare. This health transition began at different times in different world regions, but globally, life expectancy at birth doubled across all world regions and increased from an average of 29 in 1850 to 73 years in 2019 [3]. After two centuries of progress we can expect to live much more than twice as long as our ancestors. And this progress was not achieved in a few places. In every world region people today can expect to live more than twice as long. An even more important factor is the 'estimated healthy life expectancy or HALE', the average number of years that a person can expect to live in 'full health'. Indeed, in modern healthcare, substantial resources are devoted to reducing the incidence, duration and severity of major diseases that cause morbidity and to reducing their impact on people's lives.

Many elderly people enjoy a healthy lifestyle, but a significant part is frail, shows loss of physiological reserves with low functional performance, lack of physical activity, has loss of muscle mass which result in mobility issues and is affected by medical issues, e.g., multi-morbidity, multi-pharmacy use, malnutrition, loss of functional reserves, preoperative cognitive decline, depression, dementia and sensory deficits. It is known that preoperative cognitive impairment is a risk factor for the development of postoperative delirium and postoperative cognitive decline. Frailty and functional impairment are strong predictors of adverse postoperative outcomes, with more medical complications, prolonged hospitalisation, institutionalisation, readmission and short-term and long-term mortality [4]. Limited mobilisation and falls usually lead to functional decline, longer hospitalisation periods, discharge to a rehabilitation facility or residential care with loss to maintain independence and increased health costs. Understanding frailty measurement, mechanisms and management is important as the prevalence of frailty may be as high as 50% and more in patients aged 85 or over [5].

This all means that anaesthesiologists will be confronted with a much larger group of elderly patients undergoing surgery. Age alone is no longer a barrier to surgery [6]. Anaesthesiologists need to assess the patient's body capacity to cope with stress of illness of surgery and the factors which contribute to poor outcomes. Anaesthesiologists can reduce postoperative morbidity and mortality to adequately control pain, correct inadequate nutrition and hydration, provide

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thromboprophylaxis and is alert for sepsis and delirium. The anaesthesiologist needs to understand the impact of changing physiology, pharmacodynamics and pharmacokinetics of the ageing process and aims to maintain homeostasis in the presence of surgical stress and actions of anaesthetic drugs. A tailored anaesthetic optimum management plan adjusted to the elderly patient's condition focuses on taking care of pain, delirium, sepsis, deep vein thrombosis, poor nutrition and hydration and rehabilitation planning. Risk factors for the development of postoperative delirium and postoperative cognitive decline include pre-existing cognitive impairment, sleep deprivation, immobility, visual and hearing impairments, dehydration, and the use of sedative-, hypnotic, and anticholinergic medication. Optimum management includes recognition and prevention of infections, effective knowledge about antibiotic prophylaxis, thromboembolic prophylaxis, the use of compression stockings, attention to the needs of nutritional and hydration requirements, early mobilisation and rehabilitation planning well before and after surgery.

It is known that prolonged and aggressive surgery under general anaesthesia may result in postoperative delirium and cognitive decline due to neuroinflammation, but also extended length of hospital stay and increased morbidity and mortality, especially in the frail elderly group. George et al. [7] recently demonstrated in a cohort study of over 2.7 million frail elderly patients, the 180-day mortality rates for very frail patients across nine noncardiac surgical specialties were greater than 25%. Frail patients in all specialty categories had 15% to 18% mortality following higher stress procedures and 7% to 17% mortality after procedures causing less stress. These findings suggest that there is no such thing as a low-risk procedure for frail patients.

Among the anaesthetic techniques, four main classes are available: general anaesthesia, sedation, loco-regional anaesthesia (central neuraxial and peripheral nerve blocks) and local anaesthesia. The use of local anaesthesia in the frail population has increased tremendously over the last 10 years [5]. The main reasons for its popular use are that it is a simple, low cost, reproducible technique requiring no premedication, avoiding the side effects and complications of sedation and general anaesthesia. The application of regional anaesthesia leads to early recovery without perioperative hypothermia or hypotension and a reduction in airway and pulmonary complications, proinflammatory reaction and delirium. However, it is not a panacea that can be applied in every situation. Not every surgical intervention lends itself to perform under regional anaesthesia or local anaesthesia, i.e., major cardiac, neuro or intra-abdominal surgery. It requires patient cooperation, and the patient needs to know there may be periods of intraoperative discomfort, while in certain circumstances it is not even possible to do the operation under regional anaesthesia, e.g., in an anticoagulated patient or when there is (local) sepsis. Anaesthesiologists need to be aware of potential side effects and toxicity of local anaesthetics or their adjuncts (e.g., epinephrine in a cardiac compromised patient), especially in the frail population, and have all the precautions ready at hand in case of a local anaesthetic systemic toxic reaction [5].

Regional anaesthesia needs to be educated. It cannot be learnt from books alone. Workshops and education on manikins are helpful, but limitations are known. But how best to learn new techniques? Major illustrated textbooks offer a large range of regional anaesthesia techniques but lack the interaction. The best practice is obtained during teaching on patients in the presence of a qualified mentor, allowing discussion how to improve specific techniques and how to adjust these blocks to the frail surgical population. This is not only helpful for junior doctors, but also experienced anaesthesiologists can learn from each other.

The last decade saw a dramatical advance in regional anaesthesia techniques, benefitting from new blocks, medications, medical equipment and the application of ultrasonography and its decreasing impact on serious problems, while boosting efficacy and practicality of the blocks [8]. The last five years saw an increased annual research production on topics in regional anaesthesia. This is partly due to the trend toward less invasive surgical procedures, and the application of anaesthetic solutions that reduce systemic opioid doses, allowing same-day discharge to become more popular.

Specialized journals such as the International Journal of Regional Anaesthesia (IJRA) can substantially help in providing extra knowledge, updated to the latest standards, focusing on all kinds of regional block techniques. Scientific articles on these blocks are helpful, but video presentations of the blocks will be even more appreciated. A collection of video-recorded regional anaesthesia blocks in a new video store of the journal, providing a structured approach, with clear details of the anatomy, graphs and visual illustrations of each block, including guiding how to do the block (technical aspects) and what kind of local anaesthetic solution to use, should be provided. Clear instructions about dosing (dose, volume and concentration of the local anaesthetics and their additives) based on the individual (frail) patient; positioning of the patient; use of sedatives or not during a regional block; how to avoid wrong-side/site blocks; how to evaluate the resulting block and when to allow surgery to start; when and what to monitor during the block and during surgery; what and how to distract the patient during surgery (headphone

with preferred music); are just a few of the numerous aspects of information these videos can provide.

This video teaching platform should rank videos from easy basic practice (*) to intermediate (**) and advanced (***) practice. The videos can be used during workshop discussions in a group as the instructor can focus on particular aspects of importance.

This video-store of IJRA should be built up in the coming years and made available free of access as this will help in distributing knowledge that all of us can use to provide better healthcare and safe and effective anaesthesia to our patients, especially to the frail elderly ones. The quality and quantity of these videos on regional anaesthesia techniques depend on the collaboration and willingness of our colleagues to produce high-quality video material. The journal could provide a format of what constitutes the basic information that needs to accompany any of these regional anaesthesia techniques. As such, IJRA could prove to become a major player in regional anaesthesia education.

Anaesthesiologists aim to care to a whole range of patients, young and old, healthy and frail, undergoing surgery by various specialists. Ageing is heterogenous, variable and malleable [9]. Age as the passing of chronological time, is not synonymous with ageing, i.e., the increased risk of adverse outcomes over time. Comprehensive geriatric assessment is the fundamental diagnostic and management instrument, enabling us to understand that each individual has a unique profile of health status. Quantification of frailty is just the beginning of risk stratification. Clinicians can then guide their patients and caregivers through a shared decision-making process. Often, regional anaesthesia can provide the best choice for people at age, especially for the frail older people. We, as anaesthesiologists, need to be ready to provide high-standard regional anaesthesia blocks to all patient categories, whether they are young or old, healthy or frail.

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Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his/her consent for his/her images and other clinical information to be reported in the Journal. The patient understands that his/her name and initials will not be published, and due efforts will be made to conceal his/her identity, but anonymity cannot be guaranteed.

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