

Quaternary Prevention in Geriatric Anesthesiology

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Abstract

Anesthesia administration in geriatric patients has always been challenging. Besides, the variable pharmacokinetics and pharmacodynamics, numerous other factors need to be considered for any surgical procedure or during treatment of critically ill geriatric patients in intensive care units. Besides taking care of clinical comorbidities, many other preventive measures are necessary to minimize the morbidity and mortality in this subset of population. The concept of 'quaternary prevention' has recently gained popularity but its application in geriatric population presenting for surgery has been very limited. The current brief review discusses various aspects of quaternary prevention applicable to anesthesia procedures in geriatric patients during peri-operative period.

Keywords: Anesthesia; Geriatric; Quaternary prevention

Introduction

Geriatric anesthesiology has developed as a distinct subspecialty of anesthesiology. This has been made possible by advances not only in the practice of anesthesiology, but of geriatric medicine as well. Our understanding of the subtle differences between young adult and elderly persons has increased significantly in recent years. Geriatric persons have distinct anatomical, physiological, and biochemical characteristics which impact their response to both pathological processes and pharmacological interventions. This fact holds true in anesthesiology, and forms the basis of the emerging subspecialty of geriatric anesthesiology.

Preventive anesthesiology in geriatrics

Along with anatomical, physiological, and pharmacological considerations, the preventive aspect of anesthesiology must also be kept in mind while dealing with geriatric subjects. This is the concept of quaternary prevention, a term coined by Jamouille, who defined it as "action taken to protect him from new medical invasion, and to suggest to him intervention, which have been ethically acceptable".

Domain	Diagnostic	Therapeutic non-pharmacological	Therapeutic Pharmacological
Pre-anesthesiology checkup	Judicious prescription of test	Appropriate nutrition; avoid food fads	Minimize irrational drug prescriptions
Pre-operative care	Judicious investigations	Words of comfort	Rational drug use
Post-operative care	Judicious investigations	Appropriate nutrition and physical activity	Rational drug use
Critical care	Judicious investigations	Words of comfort	Rational drug use

Table 1: This mini review tries to address this lacuna.

Efforts have been made to colligate examples of quaternary prevention relevant to anesthesiology and to geriatrics earlier [1,2]. However, no author has specifically focused on geriatric anesthesiology as a field fit for quaternary prevention (Table 1).

The anesthesiologists need to update their skills for playing an active role in quaternary prevention so as to keep the pace with recent developments in the specialty. Hospital readmissions may not be a perfect index or scale but it almost highlights the neglected aspects of quaternary prevention. The best way to adopt these principles is to exercise all these aspects in routine anesthesia practice with a practical approach and by identifying patients at risk of inappropriate medication [3].

Pre-requisites for quaternary prevention

This approach of quaternary prevention will be successful if it starts right from the time patient lands up in pre-anaesthetic check-up room. It is mandatory for anaesthesiologist to take a detailed meticulous history including ongoing medication. Alternate therapy is being taken by patients globally which can have serious interaction with various anaesthetic and other medications being administered peri-operatively [4,5]. After through pre-anaesthetic check-up, the diagnostic tests should, if any, should be ordered keeping in consideration the potential peri-operative challenges and complications. The choice of diagnostic tests should be such that only necessary tests should be carried out. But at the same time the relevant investigations in high risk geriatric patients should not be missed as it can possibly amount to medical negligence and is unacceptable in clinical practice. These therapeutic and diagnostic errors should be minimized as much as possible. This age group should be administered only necessary medications so as to fulfill the second domain of quaternary prevention, thus protecting the patient from pharmacological invasion [6]. These aspects are more important in developing nations which invariably are resource challenged in terms of health care delivery system. The priorities should be set by anaesthesiologist/intensivist while dealing with high risk and critically ill geriatric patients.

The choice of anaesthesia is also a daunting task in geriatric patients as most of them are invariably have co-morbidities. As a part of

quaternary prevention, such situations should be tackled by a multidisciplinary approach so as to keep the resource limitations and skills of attending anaesthesiologists in consideration.

Third domain of quaternary prevention aims to minimize the disease promotion process especially in critical care units where incidence of cross infection is high. Few geriatric patients may have lower immunity and immune status is further compromised if they do have any associated co-morbidity [7].

The leadership qualities of anaesthesiologists/intensivist can be tested to the core while adopting a balancing patient centered care and economic and evidence based approach [8,9].

Caring for geriatric patients takes a special effort from the attending clinician and support staff as these patients differ widely in terms of social, behavioral, and psychological aspects besides having clinical co-morbidities. 'First do no harm' as dictated by Hippocratic Oath holds very true for such subset of patients. All domains of quaternary prevention if appropriately followed will definitely reduce the morbidity and mortality in geriatric patients. The concept though not popular at present, will go a long way in further advancements of geriatric medicine [10]. The responsibility lies on us how to make comprehensive advancements in this field where a close-knit approach is required from social, behavioral, psychological, cultural, attitudinal, and financial aspects besides clinical judgment.

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