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Update in geriatrics: What geriatric oncology can learn from general geriatric research☆,☆☆

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ABSTRACT

Life expectancy has been steadily increasing for decades and this trend is likely to continue in coming years. In fact, there is more than a 50% probability that by 2030 female life expectancy could break the 90 year barrier, with more than half of the expected gains due to enhanced longevity above the age of 65 years. The resultant aging of societies means that health care will be faced with a rising number of increasingly older patients, who are also likely to have higher levels of multimorbidity. Most issues regarding assessment, prognostication and, management of older patients are not unique to geriatric oncology and thus there is opportunity to learn from progress in other fields. The purpose of this paper is to provide an update on research, reviews, and debate in general geriatrics that may be relevant to clinicians and researchers active in geriatric oncology. The selection of topics was based on a general search of the table of contents of widely read geriatrics and internal medicine journals, and includes geriatric co-management, improving research for older patients, caregiver issues, eliciting patient preferences, and shared-decision making.

1. Introduction

In much of the world, life expectancy has been steadily increasing for decades and this trend is likely to continue in coming years. In fact, a recent publication, which used an ensemble of 21 forecasting models, determined that there is more than a 50% probability that by 2030 female life expectancy could break the 90-year barrier, a level that was deemed unattainable at the turn of the 21st century [1]. More than half of the expected gains in life expectancy at birth will be due to enhanced longevity above the age of 65 years.

The resultant aging of societies means that health care will be faced with a rising number of increasingly older patients, who are also likely to have higher levels of multimorbidity [2]. Thus, most general practitioners and medical specialists will need to understand the unique issues of caring for an aging population. This has been recognized in oncology for over 20 years [3,4], and more recently, similar developments are seen in other medical fields: geriatric co-management is becoming increasingly mainstream in orthogeriatrics [5], while geriatric nephrology [6–8] and geriatric cardiology [9–12] are up and coming fields of care and research. Specialists in these fields are asking familiar questions regarding assessment, prognostication, and management of older patients and thus there is opportunity to learn from each other's progress.

The purpose of this paper is to provide an update on recent research, reviews, and debate in general geriatrics that may be relevant to clinicians and researchers active in geriatric oncology. The selection of topics was based on a general search of the table of contents of widely read geriatrics and internal medicine journals, and includes geriatric co-management, improving research for older patients, eliciting patient preferences, shared-decision making, and caregiver issues.

2. Geriatric Consultation and Co-Management

A geriatric consultation team has been defined as a multidisciplinary team that assesses, discusses, and recommends a plan of treatment for frail other patients hospitalized on a non-geriatric ward - based on the patient's main medical reason for admission [13]. In prior studies, the implementation of this kind of team has resulted in a decreased mortality at 6 months post-discharge, but yielded only a limited effect on functional status, length of hospital stay, and readmission rate [13]. It was thought that non-adherence to recommendations and a lack of control over patient care inhibited the effectiveness of these teams. Thus, an alternative approach is geriatric co-management, which is defined as a shared responsibility and decision making between (at least) a treating physician and a geriatrician who provides complementary medical care in the prevention and management of geriatric-oriented problems [14]. In a systematic review of twelve studies with a total of 3590 patients

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[14], geriatric co-management improved functional status and reduced the number of patients with complications. However, the studies assessing these outcomes had a high risk of bias and used heterogeneous methods of outcome assessment, meaning data could not be pooled. Other findings of the review were a decreased length of stay by 1.88 days (95% confidence interval (CI) 1.33–2.44 days; eleven studies) with geriatric co-management and a possible reduction of in-hospital mortality (pooled odds ratio 0.72, 95% CI 0.50–1.03).

Another systematic review assessed the value of a geriatric assessment performed by consultant geriatrician-led teams in an emergency department [15]. This review identified five studies with a total of 28,434 patients. All five reported statistically significant reductions in admission rates, ranging from 2.6 to 19.7%. Results were varied with regard to inpatient length of stay and readmission rates, leading the authors to conclude that complex local factors, such as the design of community support services, may play an important role. Given the impact a hospital admission can have for an older patient, in terms of deconditioning, iatrogenic illness, and loss of independence [16], decreasing admission rates can be valuable for vulnerable patients. However, variation in the degree of changes leaves uncertainty as to the financial viability of this intervention [15]. Furthermore, there is a general shortage of geriatricians or health care workers trained in geriatrics, which can limit its feasibility.

A third systematic review, describing the value of a geriatrician-led comprehensive geriatric assessment on preventing or reducing the level of frailty, found conflicting results [17]. One study reported a significant reduction in the prevalence of frailty and the total number of frailty markers, while the other showed non-significant changes in frailty prevalence. Among the investigated interventions, physical activity interventions and prehabilitation were more consistently found to be successful in reducing the number of frailty markers or the prevalence of frailty than the comprehensive geriatric assessment itself [17].

3. Optimizing Research and Evidence in the Elderly

Underrepresentation of older and frail patients in clinical trials is an issue pertinent to all medical fields dealing with this patient population, even more so in ethnic and racial minorities. This is true not only in pharmacological and non-pharmacological trials, but even in observational studies [18]. Sometimes underrepresentation can be easily explained, for example due to explicit upper age limits or restrictive exclusion criteria [19], but even when researchers aim to include older subjects, there are difficulties in recruiting and maintaining them in research projects. Interestingly, older patients are even underrepresented in studies investigating methodology of research and opportunities for improving trial participation [18].

A 2017 systematic review identified 32 studies, with over 75,000 patients, evaluating the effectiveness of strategies that improve recruitment and retention of adults aged 65 years or older in observational studies and randomized controlled trials [20]. Although few strategies were investigated in more than one study, the evidence showed that an opt-out method of recruitment, rather than opt-in, improved participation of older patients by 14–19%. Similarly, open randomized treatment allocation showed higher recruitment (9% increase) and retention rates (14% increase) than blind randomization. Hand-delivery of (follow-up) questionnaires improved response by 25% compared to postal delivery and advance notification by telephone or newsletter before sending out follow-up questionnaires increased response by 5 to 14%.

Another way to improve participation of older subjects is to limit the exclusion criteria of clinical trials, making them as inclusive as possible [21]. Other suggested strategies include active early involvement of older subjects and members of community/non-profit organizations to guarantee that the burden of a study is acceptable to older or frail patients, and using multiple strategies to contact potential participants [18]. Other influential factors of older adults participating in clinical research are doctor recommendation and education.

The importance of the participation of older and frail patients in clinical trials is highlighted by a series of studies on the association of blood pressure with death in older patients. The observational United States Health and Retirement Study [22] showed that in older adults (≥65 years) with a normal grip strength, a systolic blood pressure over 150 mmHg and/or diastolic blood pressure over 90 mm Hg was associated with an adjusted hazard ratio (HR) for mortality of 1.24 (95% CI 1.07–1.43) and 1.25 (95% CI 1.05–1.49) respectively, confirming results of recent randomized clinical trials [23,24]. However, in older adults with weak grip strength and slow walking speed, higher blood pressure was associated with decreased mortality, with adjusted HRs of 0.85 (95% CI 0.56–1.29) and 0.53 (95% CI 0.30–0.96) respectively. Similar results were seen in a British study among primary care patients aged 80 years and older [25], and in nursing home residents [26]. In a study among 480 community dwelling 90-year olds [27], five-year survival among normotensive subjects was 61%, compared to 72% in non-treated hypertensive subjects and 51% in subjects receiving antihypertensive medication (=0.01); the difference in hazard ratio remained significant after correcting for medical and functional covariates.

Further evidence regarding different outcomes of interventions in the older patients comes from a study on the safety and effectiveness of statins for prevention of recurrent myocardial infarction in over 12,000 typical older patients [28], with a mean age of 76.5 ± 9.2 years. While statins were associated with a protective effect on the recurrence of myocardial infarction in those aged 60–79 years (subhazard ratio (SHR) 0.75; 95% CI 0.57–0.94), this effect was not significant in the 80+ group (SHR 1.06, 95% CI 0.78–1.44). Data also suggested that in those aged 80 years and older, statins increased risk of falls (SHR 1.82, 95% CI 1.45–2.30, $p < 0.001$) and fractures (SHR 1.91, 95% CI 1.36–2.67, $p < 0.001$), and was associated with higher health care costs [28]. Thus, treatment benefit that is demonstrated in clinical trials and reiterated in treatment guidelines may be absent or even reversed in the old and the frail, making it pertinent that treatment utility is confirmed in these patient populations before being put into general clinical practice.

An additional factor that may limit treatment benefit in older patients is the presence of comorbidities that can form competing causes of death. This was demonstrated in a study assessing the influence of competing risks on the expected benefit of warfarin in individuals with atrial fibrillation not currently taking anticoagulants [29]. In a community-based cohort of over 6000 patients, followed for up to seven years, cause-specific hazard ratios indicated a large reduction in thromboembolism with warfarin use (adjusted HR 0.57, 95% CI 0.50–0.65). After accounting for competing death events, the benefit was substantially attenuated (adjusted HR 0.87, 95% CI 0.77–0.99). These results highlight the lower expected long-term benefit of certain treatments in 'real life'-patients, as they are more likely to have significant comorbidities than trial patients and thus more likely to experience competing death events.

The applicability of study outcomes to older patient groups can be assessed by determining the extent to which the study population is similar to the target population treated in daily practice. This is only possible if key baseline characteristics of the participants in studies are recorded and reported. According to a 2017 recommendation published in Age and Aging [18], these should include cognitive and physical function (such as capacity for performing (instrumental) activities of daily living), comorbidities and their treatment, and frailty. Technology can aid data collection, for instance by using a computer-based geriatric assessment to gather some of these key characteristics [30]. However, not all older patients are willing or able to use a (tablet) computer to provide clinical information [31] and not all patient characteristics are suitable for self-reporting, such as cognitive impairments and certain comorbidities [32]. Thus, while technology can be helpful, some data will need to be collected by the team members themselves, and when

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