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Review Article

Three Decades of Comprehensive Geriatric Assessment: Evidence Coming From Different Healthcare Settings and Specific Clinical Conditions

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A B S T R A C T

Comprehensive geriatric assessment (CGA) is a multidisciplinary diagnostic and treatment process that identifies medical, psychosocial, and functional capabilities of older adults to develop a coordinated plan to maximize overall health with aging. Specific criteria used by CGA programs to evaluate patients include age, medical comorbidities, psychosocial problems, previous or predicted high healthcare utilization, change in living situation, and specific geriatric conditions. However, no universal criteria have been agreed upon to readily identify patients who are likely to benefit from CGA. Evidence from randomized controlled trials and large systematic reviews and meta-analyses suggested that the healthcare setting may modify the effectiveness of CGA programs. Home CGA programs and CGA performed in the hospital were shown to be consistently beneficial for several health outcomes. In contrast, the data are conflicting for posthospital discharge CGA programs, outpatient CGA consultation, and CGA-based inpatient geriatric consultation services. The effectiveness of CGA programs may be modified also by particular settings or specific clinical conditions, with tailored CGA programs in older frail patients evaluated for preoperative assessment, admitted or discharged from emergency departments and orthogeriatric units or with cancer and cognitive impairment. CGA is capable of effectively exploring multiple domains in older age, being the multidimensional and multidisciplinary tool of choice to determine the clinical profile, the pathologic risk and the residual skills as well as the short- and long-term prognosis to facilitate the clinical decision making on the personalized care plan of older persons.

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Comprehensive Geriatric Assessment: Definition

The observations of high rates of institutionalization in the frail older population and the inadequacy of provision for readily recognisable and remedial problems in this high-risk group led to the development of one of the cornerstones of modern geriatric care: comprehensive geriatric assessment (CGA).[1,2] The concept is that the early identification of individuals at greatest risk for complications and unfavorable outcomes would enable a more adequate treatment plan and a better allocation of the resources available to the multidisciplinary team.[3] CGA is defined as a multidimensional, interdisciplinary diagnostic process focused on determining the medical, psychological, and functional capabilities of a frail elderly person to develop a coordinated and integrated plan for treatment and long-term follow-up.[4] CGA, indicated to effectively explore these multiple domains of health, is indeed the multidimensional and multidisciplinary tool of choice to determine the clinical profile, pathologic risk, residual skills, and short- and long-term prognosis to define the personalized therapeutic and care plan of the functionally compromised and frail older individual so as to facilitate clinical decision making. CGA differs from the standard medical evaluation because of its concentration on frail older people with complex problems, emphasis on functional status and quality of life, use of interdisciplinary teams, and quantitative assessment scales. Moreover, CGA can vary in intensity from screening assessment (focused on identifying older persons' problems performed by primary care/community health workers) to thorough diagnostic assessment and management of these problems carried out by a multidisciplinary team with geriatric training and experience. In the present review article, we considered the body of evidence coming from the last 3 decades of clinical research devoted to the systematic implementation of CGA programs in different healthcare settings and specific clinical conditions, analyzing the benefits that come from the application of the broad principles of CGA in these scenarios with a focus on multidimensional geriatric assessment and clinical decision making.

Methods

A literature database search was performed electronically via OVID (MEDLINE and SCOPUS), combining the term "comprehensive geriatric assessment" with the following keywords: "mortality," "death," "outcome," "hospital," "nursing home," "randomized controlled trial," "review," and "meta-analysis". The search was restricted to articles published in the English language until June, 2016.

In addition, a manual check on the reference lists in the articles and reviews identified was also conducted to seek any additional sources of information. The criteria for including the articles in this scoping review were randomized controlled trials (RCTs), observational clinical studies, and systematic review/meta-analysis on the use of CGA in older people, independently from settings and conditions. The exclusion criteria were certain types of publication (letters to editors or single case reports) and patients with a mean age below 60 years.

The Key Components of CGA

CGA is sometimes termed geriatric evaluation and management, particularly when geriatric assessment programs combine geriatric evaluation with management.[5] The key components of different models of CGA include a coordinated multidisciplinary assessment, geriatric medicine expertise, identification of medical, physical, social, and psychological problems, and the formation of a plan of care including appropriate rehabilitation.[6]

The core domains of CGA are functional status, mobility, gait speed, cognition, mood and emotional status, nutritional status, comorbidities and polypharmacy, geriatric syndromes (fall risk, delirium, urinary incontinence, dentition, visual, or hearing impairments), disease-specific rating scales (ie, parkinsonism, dementia), goals of care, and advanced care planning. A patient's social and environmental situation also is evaluated, with a focus on the social interactions network, social support needs and resources, financial concerns, and environmental adequacy and safety. CGA uses validated geriatric scales and tests to produce an inventory of health problems, which can then serve to develop an individualized geriatric intervention plan. In many settings, CGA process relies on a core team consisting of a physician (usually a geriatrician), a nurse, and a social worker. When appropriate, specialists in several other disciplines either take part in the basic assessment or act as consultants with an "extended" team of physical and occupational therapists, nutritionists, pharmacists, psychiatrists, psychologists, dentists, audiologists, podiatrists, and opticians. Program setting, goals of assessment, availability of resources, and caseload influence the size of the core and extended team.[4] At present, CGA programs are moving toward a "virtual team" concept in which members are included as needed, assessments are conducted at different locations on different days, and team communication is completed via telephone or electronically.[7]

CGA in Different Healthcare Settings

During the last 30 years, the clinical geriatric models based on CGA have evolved in different healthcare settings to meet differing needs becoming the foundation of "progressive" geriatric care, including acute hospital care, day hospitals, rehabilitation units, nursing homes, and home-care services.[8] In progressive geriatric care, CGA is performed at varying levels of intensity in different settings, and its content may vary with the healthcare setting (ie, hospital, post-hospital discharge/nursing home, or community/home) (Table 1).

In 1993, a seminal meta-analysis on different service-based interventions for older people provided a framework for the definition of inpatient and outpatient models of CGA.[6] Inpatient CGA was divided into 2 types. The first was delivered by a team in a discrete ward, with control over the delivery of the multidisciplinary team recommendations, and these are sometimes known as a geriatric evaluation and management units (GEMU) and acute care for elders (ACE) units. Older people requiring inpatient CGA services can be considered along a continuum, where ACE units provide for the immediate short-term acute health needs and GEMUs provide for subacute health needs requiring longer periods of rehabilitation and restorative care. The second type of inpatient CGA was a multidisciplinary team assessing patients and delivering recommendations to the physicians caring for older patients, and this is known as the inpatient geriatric consultation service (IGCS). Outpatient CGA was divided into 3 types.[6] The first was the home assessment service (HAS) with in-home CGA for community-dwelling older persons. The second was the hospital home assessment service (HHAS) with in-home CGA for patients recently discharged from hospital. The last type was the outpatient assessment service (OAS) with CGA provided in an outpatient setting.

Hospital

In 1981, Rubenstein et al[5] published some hospital-based observational findings coming from a GEMU showing that after 1 year of CGA, treatment, and rehabilitation major improvements occurred in several outcome areas (better placement location, improved functional status, previously unmade diagnoses of treatable disorders, and reduced unnecessary medications), although these pre–post data did not prove causality. A RCT conducted on 123 older patients from the same GEMU confirmed the pre–post data also showing new and unanticipated outcomes, (ie, reduced mortality, re-hospitalization rates, and improved high functioning survival).[29] These exciting findings were confirmed, among others, also by a RCT of a GEMU in a private U.S. rehabilitation