How to Applicate Comprehensive Geriatric Assessment in Geriatric Rehabilitation

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Abstract: Comprehensive Geriatric Assessment (CGA) is a multidimensional, multidisciplinary diagnostic instrument designed to collect data on the medical, psychosocial-economy, enviromental, spiritual and places high value on functional status. Measurement of functional is an essential components, and the patient's ability to function can be viewed as a summary measure of the overall impact of elderly health conditions. This geriatric models of assessment used in patient first visit to assess geriatric patients who have complicated condition and need special approach. CGA has several essential aspects of evaluating elderly patients, so it is known for it's costly and time consuming. This caused by difficulties in taking histories of geriatric patients, and systematically reviewing the patients. CGA aimed to integrates the functional and medical goals of care, allowing physicians to improve clinical outcomes and patients satisfaction. This tools can be used in primary care (e.g puskesmas), clinic, hospital, long term care or home, and as a strategy to make evaluation process more efficient. Prognosis is focused on medical and function information. CGA can be applied in 4 step process, used by individual clinician but more refers to an interdisciplinary team.

1 INTRODUCTION

The population of elderly, or defined by aged 60 years old or older is increasing along with the life expectancy. Between 2015 and 2050, the proportion of the world's population over 60 years will nearly double from 12% to 22%. In 2050, 80% of older people will be living in low and middle income countries, and the pace of population ageing is much faster than in the past (World Health Organization, 2018). In Indonesia, the number of elderly is increasing, from 18 million people (7.56%) in 2010 to 25.9 million people (9.7%) in 2019, and expected to continue increasing in 2035 to 48.2 million people (15.77%) (Kementerian Kesehatan RI, 2019). This condition cause a face major challenges to ensure their well-being in comprehensive aspect.

Ageing is the natural process of life, results from the impact of the accumulation of a wide variety of molecular and cellular damage over time. Later, it leads to a gradual decrease in physical and mental capacity, a growing risk of disease, and ultimately, death. This gradual decrease could potentially increasing disability that occur over the course of time in health. Disability can have a negative impact on mobility, self-care, and pain. This condition requires the role of rehabilitation, aimed to focus on recovery of self-care ability, mobility, and its requires a longer period of time to achieve.

2 DISCUSSION

2.1 Comprehensive Geriatric Assessment (CGA)

Based on complicated condition generally described above, the elderly need special approach and the CGA is a multidimensional, multidisciplinary diagnostic instrument designed to collect data on the medical, psychosocial-economy, enviromental, spiritual and places high value on functional status. This tool has several essential aspects of evaluating geriatric patient, so its consist of several instrument. CGA assess patient's functional status, using ICF (International Classification of Functioning, Disability and Health), which can be viewed as a

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summary measure of the overall impact of elderly health conditions.

This assesment aimed to integrates the functional and medical goals of care, allowing physicians to improve clinical outcomes and patients satisfaction, and as a strategy to make evaluation process more efficient. CGA can be used at patient first visit in primary care (e.g puskesmas), clinic, hospital, long term care, or home, done in 4 step process by individual clinician but more refers to an interdisciplinary team. Because of its comprehensive method, systematically reviewing the patients, and difficulties in taking histories of geriatric patients, it is known for it's costly and time consuming. The prognosis of this assesment focused on medical and function information.

2.2 Review of CGA

Aging, is an inevitable and extremely complex, multifactorial process, is characterized by the progressive degeneration of organ systems and tissues. It is largely determined by genetics, and influenced by a wide range of environmental factors, such as diet, exercise, exposure to microorganisms, pollutants, and radiation. Gender also plays a part and, in most developed countries, women typically outlive men by 7–10 years. Recent research has also reported that childhood personality and education, as well as behavioral factors, also contribute to longevity (Nigam et al, 2012).

Based on management model for service delivery, elderly can be stratified into one of three strata: robust; frail; and complex care needs. Spoorenberg et al, 2013). Frailty is a geriatric syndrome characterized by impaired performance and reduced functional reserve across multiple physiologic systems, and associated with increase vulnerability adverse health outcomes from even minor stressor (Sloane and Cesari, 2018). Frailty often overlapping with sarcopenia, which is a term of the loss of muscle function as well as the loss of muscle mass that occurs with ageing. It is a common and increasingly condition associated with subsequent disability and morbidity (Dodds and Sayer, 2016).

The utilization of CGA can be used in the three groups above, especially for screening in elderly, so frailty can be prevented or reversed. By reversing frailty through exercise intervention, elderly patients can be remain physically independent and non-frail throughout a longer period of their life (Pilotto, 2018).

2.3 Geriatric Health Problem

Multiple pathology process occur in elderly and play important role in declining physical function. It is clear that the loss in physical function is inevitable in elderly, but the effects of age are highly individual and age alone is a poor index of physical function. Age is associated with increased prevalence of disease conditions that are impossible to ignore as a strong contributor to occurrence of disability (Manini, 2011). Measurement of disability are able to capture the impact of the presence and severity of multiple pathologies, including physical, cognitive, and psychological conditions, as well as the potential synergistic effects of these conditions on overall health status (Halter et al, 2017).

Balance and gait are important considerations in the health of elderly subjects. Decline of sensory systems in elderly adults has been implicated in the reduced ability of older adults to adapt to changes in their environment and maintain balance; the visual system is particularly important in maintaining postural stability. It is estimated that 13% of adults self-report imbalance from ages 65 to 69 and this proportion increases to 46% in those aged 85 and older. Furthermore, impairments of balance and gait have been implicated in increased risks of falls. In adults aged 65 and older, the estimated annual prevalence of falls is 28% (Nigam et al, 2012). Falls are associated with significant morbidity and mortality in the elderly because they are the most common cause of accidental death and nonfatal accidental injury, accounting for 55.8% of accidental deaths in those 65 and older (Osoba et al. 2019).

2.4 Comprehensive Management In Geriatric Health Problem

The elderly population constitutes a significant challenge for health authorities worldwide as with advancing age multiple chronic diseases are associated. As a result of which elderly people tend to take multiple medications in a day that can be referred to as polypharmacy. Elderly people are at a greater risk for adverse drug reactions (ADRs) because of the metabolic changes and reduced drug clearance associated with ageing; this risk is furthermore exacerbated by increasing the number of drugs used. Polypharmacy may also lead to decreased medication compliance, poor quality of life, and unnecessary drug expenses (Dagli and Sharma, 2014).

As we know before, old age often goes hand in hand with increasingly complex and often interrelated problems, they need social support. Social support has been recognized as an important social determinant of health because it assists individuals in reaching their physical and emotional needs, and it reduces the effects of stressful events on their quality of life. Social support consists of addressing tangible needs, such as assistance with transportation, home and personal care, as well as emotional support such as being listened to, understood, and comforted. This support can be done either by family, neighbor, or other people as their caregiver (Dai et al, 2016).

Caregivers assist the daily care needs of the care receiver using activities of daily living (ADLs) and instrumental activities of daily living (IADLs) scoring. Caregiver as an individual who provides direct care to children, elderly people, or the chronically ill. Stress is defined as "a physical, chemical, or emotional factor that causes bodily or mental tension and may be a factor in disease causation. Caregiver divided by two groups, consist of formal and informal. Formal caregivers are volunteers or paid employees connected to the social service or healthcare systems. The term *informal caregiver* refers to family members and friends, who are the primary sources of care (Llanque et al, 2016).

Elderly well-being, is not just focused on disease or curing the disease, because majority of geriatric patients have chronic illness. Therefore, the need of "care" become necessary to improve or maintain the physical and cognitif function. The role of CGA takes places to assess the functional status of the geriatric patients as a central focus and optimize care outcomes. This tools also used to construct the planning of treatment such listing the comprehensive and inclusive of functional problem for appropriate targetting of interventions. The functionl status is measured before and after treatment to determine the effectiveness and efficiency of care and utilized the necessity level of care (Pilotto, 2018).

2.5 Geriatric Rehabilitation

The most important point for geriatric rehabilitation is maintaining the continuity of care by tracked the patients through the system over time, and use the care management for those with greated degrees of disablement or handicap patient to receive additional support. Several benefits are achieved by using CGA. First benefit is aspect of care process, physician could find a new diagnoses or problems uncovered by the instrument. Second is patient outcomes, when intervention done according problem discovered by CGA, the score of functional status, affective, and cognitive function could improving, and further resulting in prolonged survival of the patients. The third is using the nursing home, CGA can improved placement, and reducing mean days in nursing home. The last is health care use and costs, by improving the use of home health care, so the using of hospital services (mean days and hospital rates) and medical care cost can be reduced (Pilotto, 2018).

2.6 Application CGA in Geriatric Rehabilitation

A hallmark of geriatrics is emphasis on the functional ability of older patients. This approach recognizes that although individual diseases are important and that our system of modern medicine is oriented toward the diagnosis and treatment of specific diseases, the consequences of single and multiple diseases can be understood best by evaluating the functional status of the patient (Halter et al, 2017).

Nowadays, WHO using ICD (International Classification of Diseases) model for approaching diagnosis and treatment of the disease. As noted above, functional status play very important role, assessing the patient should also use the model of ICF which as an integrative model of functioning and environmental factors. This assessment could become a comprehensive one covers the need of "cure" and "care" in elderly, and noted that the functional status is the end result of various efforts of geriatric approach to care (Pilotto, 2018).

Clinical practice in order to structure the clinical description and assesment of functioning, apply the ICF Core Sets. This should be use in practical for everyday use by presenting the most relevant categories (health condition, condition group, and healthcare context). Items of the Geriatric ICF Core Set (GeriatrICS) grouped into clusters of health related problems as experienced by community-dwellling elderly in frail group devided into mental function, physical health, mobility, personal care, nutrition, and support (Spoorenberg et al, 2019).

Table 1: Areas of Concern Based on the Geriatric ICF Core Set (GeriatrICS) (Spoorenberg et al, 2019)

Cluster	GeriatrICS Item (ICF Category)
Mental Functions	b144 Memory functions
	b152 Emotional functions
Physical Health	b210 Seeing functions
	b230 Hearing functions
	b410 Heart functions
	b420 Blood pressure functions
	b525 Defecation functions
	b620 Urination functions
	b810 Protective functions of the skin
Mobility	b240 Sensations associated with hearing
	and vestibular function
	b455 Exercise tolerance functions
	b710 Mobility of joint functions
	b730 Muscle power functions
	d410 Changing basic body position
	d450 Walking
	d470 Using transportation
Personal Care	d510 Washing oneself
	d520 Caring for body parts
	d540 Dressing
Nutrition	b530 Weight maintenance functions
	d550 Eating
	d560 Drinking
Support	d760 Family relationships
	e310 Immediate family
	e320 Friends
	e325 Acquaintances, peers, colleagues, neighbors and community members
	e570 Social security services, systems and policies
	e575 General social support services, systems and policies
	e580 Health services, systems and policies

CGA as tools used for this comprehensive assesment done by 4 step, with SOAP (Subject, Object, Assessment, and Plan) which familiar in daily clinical practice. This step used to approach to organizing patient information and collect subjective and objective database. Later, this data integrate into assessment and following with discharge planning and create a care plan (Pilotto, 2018).

Table 2: SOAP model in CGA

Step	Content
Step 1 Subjective and Objective Database	Chief complaint
	Biomedical data impact to physical & mental function
	Assess impact of each medication effect to function
	Psychological data effect to function
	Summary scales of function
	Physical examination
Step 2 Assessment	Overview
	Areas of concern
	Prognosis of function
Step 3	Discharge Planning
	Care Plan
Step 4	Checklist

2.7 Assesing of the CGA

The first step of assessing CGA is subjective and objective database by viewing from both patient's and family or caregiver's word, and finding the specific functional losses of geriatric patients. Biomedical data collect the history of medical diagnosis and history of medication, with a statement of duration and impact on patient's physical and mental function (include appetite, sexual, performance, constipation, and incontinence). Another aspect is nutritional data, includding any changes in weight, appetite, the way of feeding and swallowing problems (Pilotto, 2018).

Psychological data including assessing the cognitive function (include any episodes of ACS following medications, hospitalizations, surgery, or change of living situation). Its also explore the emotional function, screen for depression, anxiety, personality, and coping styles. The last is evaluate the perceptive function (include vision, hearing, and speech). Social data also assessed, including individual social skills (include marital history, issues of physical and emotional intimacy, need for control, acceptance of help, and presence of confidant). Identifying family support system, primary contact (include list of other potential caretakers and use of existing community resources). Explore patient's feeling about medical treatments

(such as surgery, hospitalization, NGT, ventilators, and CPR). Don't forget to check the document existence of prior directive (durable power of attorney, living will, DNR, and Physician Order for Scope of Treatment (POST). The last is summary scales of function and physical examination (Pilotto, 2018).

Second step is assessment, integrating the patient data and organize the problem list. There are 9 areaas of concern such as diagnosis, medication, nutrition, continence, defecation, cognition, emotion, mobility, and cooperation with care plan. This care concern if systematically reviewed in preparing discharge planning and care plan, lead to improve health outcomes and satisfaction. This can be used as a problem checklist to identify areas relevant to the individual patient and as the goals of care. A comprehensive view of the complexity ill patient can be obtained and help the physician to provide accurate prognostic information to both of patients and their families (Pilotto, 2018).

The next step is discharge planning and care plan. The care plan is reconciliation between standards of medical practice and patient preference. Reconciling standard medical practice and patient reference is the most critical step in creating an appropriate and successful care plan for patients. Physician should identify reversible or potentially treatable factors in each area of concern and make treatment recomendation against the patient's preference (e.g no no hospitalization or surgery, no feeding tubes, no NH placement, no chemotherapy). It is important to consider individual preferences in each area of concern. Once recommendation have been reconciled with the patient's preferences, common goals and treatment can proceed (Pilotto, 2018).

Discharge planning is an interdisciplinary approach to continuity of care; it is a process that includes identification, assessment, goal setting, planning, implementation, coordination, and evaluation and is the quality link between hospitals, community based services, nongovernment organizations, and carers. It has five component, abbreviated as IDEAL, consist of include, discussion, education, assess, and listen. Physician should including the patients and family as a partners in the process of discharge planning. The next is dicussion should be done with the patient and family about five key prevent the problem in house, such as describing how is living at home, what medication is given, warning the possible problem, explain the result of examination or treatment, and make a schedule for the next visit (Lin et al, 2012).

Throughout the hospital stay and at discharge, patient and family education is critical in teaching self-care skills and promoting treatment adherence. Train and assess the staff on their ability to explain health information to patients and caregivers and to use proven teaching methods such as teach-back. The last is listen to what patients and families have to say about their needs, concerns, and goals (Lin et al, 2012).

Outcome measures usually include the following: length of stay in hospital; readmission rate to hospital; complication rate; place of discharge; mortality rate; patient health status; patient satisfaction; carer satisfaction, both professional and nonprofessional; psychological health of patient; psychological health of carers; cost of discharge planning to the hospital and the community; and use of medication (Lin et al, 2012).

The last step of CGA is checklist, used to monitor outcomes of care. The nine areas of concern provide a comprehensive and convenient checklist which the physician can monitor the outcomes of care plan recommendations. Checklist could reevaluate the patient's current medical and functional status. Further, of up-to-date care plans that reflect new findings can be created (Pilotto, 2018).

CGA may be done by one person or through an interdiciplinary team approach. Interdiciplinary approach defined by combining knowledge and methods from different disciplines, using effective methods of synthesis (e.g combining of internal medicine, rehabilitation medicine, and psychiatric). CGA needs to be providing comprehensive care to geriatric patients, collaboration and team communication; well planned team meeting; pantient specific goals; clearly understood and agreed by all members (Pilotto, 2018).

3 CONCLUSION

CGA is the comprehensive and multidiciplinary instrument for assessing geriatric patients, who need a special approach due to multiple problem associated with aging. This tools not only focused on disease itself, but also places high value on functional status based on ICF model, or using ICF Core Sets in daily clinical practice. CGA has four step consist of SOAP model, which is familiar to physician. CGA and multidisciplinary intervention can improve health outcomes of older people at risk of deteriorating health and admission to hospital, and further maintain the functional status of elderly.

Elderly patients can be remain physically independent through a longer period of their life, and reducing their morbidity.

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