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Original Article

Geriatrician-performed comprehensive geriatric care in older adults referred to an outpatient community rehabilitation unit: A randomized controlled trial

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ABSTRACT

Background: Older adults make increasing demands on all sectors of the healthcare system. We investigated the effect of geriatrician-performed comprehensive geriatric care (CGC) in older adults referred to an outpatient community rehabilitation unit.
Design: Randomized controlled trial.
Setting: Two Danish non-hospital based rehabilitation units.
Participants: Persons aged 65 or older admitted from home or hospital.
Intervention: CGC performed by a geriatrician at the rehabilitation unit.
Outcomes: Primary outcome was number of hospital admissions and emergency department (ED) visits. Secondary outcomes were number of ambulatory contacts, general practitioner (GP) contacts, activities of daily living (ADL) and overall quality of life (OQoL). Outcomes were measured within 90 days of admission to the rehabilitation units.
Results: 368 persons were randomized: 185 to the intervention group (IG) vs 183 to the control group (CG). Groups were comparable at baseline. The number of hospital admissions and ED visits, ambulatory contacts and out of hour GP visits or phone calls did not differ between the groups. The number of daytime GP consultations and visits or phone and email consultations was lower in the IG ($P < 0.001$). There were no differences in the mean between the groups for ADL and OQoL, but more participants in the IG improved their OQoL (OR 1.63, 95% CI: 1.07–2.48, $P = 0.023$).
Conclusion: Geriatrician-performed CGC in older adults in an outpatient community rehabilitation unit had no effect on the secondary healthcare utilization, but may reduce primary healthcare utilization and improve OQoL during the 90-day follow-up period.
Trial registration: ClinicalTrials.gov NCT01506219.

1. Introduction

Older adults with chronic illnesses and geriatric conditions rarely receive the recommended standard of care [1] and account for a relatively large share of healthcare use [2]. Despite worldwide efforts to reduce hospital attendances and admissions, the numbers are increasing each year [3]. Admissions to hospital for older adults are combined with risk of rapid decline in functional ability and cognitive impairment [4]. Older adults who remain functionally impaired after hospitalization may not qualify for skilled nursing care and home health services to meet all their medical, rehabilitative, and social needs [5]. These people are expected to have a high risk of (re)hospitalization.

Data from the National Patient Registry in older adults referred to an outpatient community rehabilitation unit in Denmark showed a significant number of hospital admissions and emergency department (ED) visits within three months of the start of rehabilitation stay [6]. Those persons were usually referred due to a critical functional decline and are likely appropriate candidates for outpatient comprehensive

Abbreviations: ADL, activities of daily living; CCI, Charlson Comorbidity Index; CI, confidence interval; CGA, comprehensive geriatric assessment; CGC, comprehensive geriatric care; DL, Depression List; IG, intervention group; CG, control group; GP, general practitioner; HR, hazard ratio; ED, emergency department; IRR, incidence rate ratio; ITT, intention-to-treat; IQR, interquartile range; MBI, Modified Barthel-100 Index; MMSE, Mini-Mental State Examination; OR, odds ratio; OQoL, overall quality of life; RCT, randomized controlled trial; SD, standard deviation

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geriatric assessment (CGA) [7].

CGA is defined as a “multidimensional interdisciplinary diagnostic process focusing on a frail older person's medical, psychological and functional capability in order to develop a coordinated and integrated plan for treatment and long term follow up” [8].

Two previous meta-analyses have shown no benefit of outpatient CGA [9,10]. However, more complex CGA programs that address adherence to treat patients at high risk of hospitalization prevented a decline in function and quality of life [11,12]. In addition, evidence suggests that healthcare settings may modify the effectiveness of CGA programs [13]. Physicians alone can perform many aspects of CGA followed by intervention. The staff of outpatient community rehabilitation units has expertise in care of older adults with deteriorating function. Therefore, the concept of geriatrician-performed comprehensive geriatric care (CGC), which covers the combined assessment and interventional follow up by a geriatrician, was suggested [7].

The aim of the present study was to investigate effects of the geriatrician-performed CGC on healthcare utilization, activities of daily living (ADL) and overall quality of life (OQoL) during a 90-day follow-up period in older adults referred to an outpatient community rehabilitation unit.

2. Methods

2.1. Study design

The study was an open assessor-blinded, clinical randomized controlled trial with two parallel groups.

2.2. Participants and setting

The inclusion criteria were age 65 years or older and a referral to an outpatient community rehabilitation unit from a hospital department or home. The exclusion criteria were assessment by a geriatrician during the past month or receiving palliative care.

The participants were all residents in a community rehabilitation unit outside the hospital (here after referred to as “rehabilitation unit”). The Danish rehabilitation units are not parts of hospitals and are run by the municipal authorities. Patients attending the rehabilitation are staying overnight at the unit during the whole program. The staff of the unit consists of nurses, assistant nurses, physiotherapists, occupational therapists, and nutritionists.

Participants were recruited consecutively from the rehabilitation unit Vikaergaarden in the period from January 17, 2012 to May 29, 2015 and from the rehabilitation unit Thorsgaarden from October 20, 2014 to May 29, 2015 in Aarhus, Denmark. The project manager screened the participants for eligibility at the rehabilitation units and obtained written informed consent from each participant or his/her relatives. Older adults with dementia or confusion on arrival at the rehabilitation units were also included. The study was approved by the Ethical Committee of Central Denmark Region, journal no. M-20110262. The study participants and ethical considerations described in details elsewhere [7].

2.3. Randomization and blinding

The random allocation of the participants to an intervention group (IG) or a control group (CG) was done by an independent external organization (“TrialPartner”, Public Health and Quality Improvement, Central Denmark Region). The permuted block sizes stratified the randomization according to sex, age, and place of referral. After gaining written consent, the project manager logged into the remote, internet-based randomization system to access the randomized treatment allocation. The randomization took place within three days after the participant arrival to the rehabilitation unit.

Owing to the nature of this study, it was impossible to blind participants and their relatives to the allocation group. The project manager was blinded to the study outcomes, which were collected from the registers or by the blinded research occupational therapist. Rehabilitation units' staff, particularly physiotherapists, were not blinded.

2.4. Care in CG (usual care)

The typical standard rehabilitation and care program lasts five weeks. On the first day of rehabilitation, the patient functional status is observed by the rehabilitation units' physiotherapists and occupational therapists, and a nutritional screening is performed by the rehabilitation unit's nutritionist. The patient GP visits the patient during the stay if required or occasionally by own initiative depending on practice routine and geographical distance. GPs mostly visit frail and high-risk older patients especially if recently hospitalized. Acute medical aid is called for in case of illness after 4 p.m. and on weekends and public holidays.

2.5. Care in the IG

Participants in the IG had the same access to usual care and also underwent a CGC performed by a physician specialized in geriatric medicine in collaboration with the staff of the rehabilitation units. The intervention included the medical history, physical examination, blood tests, and related treatments, including intravenous antibiotics or blood transfusions conducted by the geriatrician at the rehabilitation units. Individual disease management and coping was provided using the holistic approach during the face-to-face counselling, where the actual problems, expectations and aims were defined in dialogue with the patient and/or relatives. Afterwards, targeted problem solving with focus on the potentially reversible causes of functional deterioration was established. Finally, medication adjustment was carried out with particular attention to drugs which may lead to cognitive impairment, falls, or malnutrition. A simple tool like the STOPP (Screening Tool of Older Person's Prescriptions) and START (Screening Tool to Alert doctors to Right Treatment) criteria have been used as an evidence-based approach to reduce inappropriate prescribing and to encourage appropriate prescribing in the older adult [14,15]. When no evidence existed for drug use, the approach was based on clinical judgment only, and the balance of risks and benefits of the drug for the individual was presented to the participants and/or relatives. The geriatrician followed the participants with regard to any change in symptoms or signs that might indicate a restart of a specific medication, which had been discontinued.

The geriatrician was employed 18.5 h per week and was present at the rehabilitation units, and could be contacted on telephone for any reason by participants, their relatives, or the units' staff on weekdays from 8 a.m. to 3 p.m. The care in the IG versus care in the CG is described in details elsewhere [7].

2.6. Baseline assessments

Before randomization, baseline characteristics were registered from the electronic medical records by the project manager, comprising age, gender, place of referral, marital status, residence, previous diagnoses, list of medications and comorbidity burden by Charlson Comorbidity Index (CCI) [16]. CCI was used to categorize comorbidity in three levels: 0 = low, 1–2 = moderate, and 3 or more = high.

Baseline ADL and OQoL measures were assessed on day 3 from admission to the rehabilitation units by a research occupational therapist who was blinded to group allocation.