Is it possible to diminish 30-day revisits with frontline geriatric assessment?

Jonna Laine (✉ jomalai@utu.fi)

University of Turku

Marika Salminen

University of Turku

Tero Vahlberg

University of Turku

Paula Viikari

City of Turku, welfare division

Maarit Wuorela

City of Turku, welfare division

Matti Viitanen

Karolinska Institute

Laura Viikari

University of Turku

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Abstract

Background

Up to 20% of older patients admitted to Emergency Department (ED) are readmitted within 30 days after being discharged. Geriatric assessment in ED has shown to be associated with preferable discharge rates and reduction of readmission rates in older patients.

Methods

Subjects of this prospective study were ≥ 75 -year-old home-dwelling citizens ($N = 1234$) who underwent comprehensive geriatric assessment (CGA) during their first visit in Urgent Geriatric Outpatient Clinic (UrGerC); 535 were discharged and, of those, 110 had a revisit to UrGerC or an admission to ED within 30 days after index visit.

Results

Of those 535 discharged patients, 110 (21%) had a revisit to UrGerC (42 patients, 38%) or an admission to ED (68 patient, 62%) within 30 days after the index visit in UrGerC. The most common reason for the index visit, as well as for the following visit was nonspecific complaint. Over half of those who were admitted to ED during the office hours and almost all of those who were admitted out of the office hours could have been treated in UrGerC instead of ED.

Conclusions

According to our study, it seems that 20% of older patients seek urgent medical help within 30 days after the index visit even after a multidimensional CGA. Frontline geriatric services are needed to better respond to the complex needs of rapidly increasing proportion of frail older patients presenting to ED.

Background

Older people (age 75 and over) constitute 12–20% of the overall emergency department (ED) attendees [1, 2]. According to previous studies 10–22% of older ED patients are readmitted within 30 days after being discharged [3, 4].

Older ED patients often are medically complex, acutely ill or have an acute exacerbation of a chronic condition [5]. About 20% of older patients present in ED with a nonspecific complaint, which easily leads to undertriage [6].

Lack of time for multidisciplinary geriatric approach in ED may lead to higher readmission rates to ED, higher rates of hospital admission, longer stays at hospital, fragmented and delayed care, unnecessary examinations and invasive interventions [5, 8, 9]. Prolonged hospital stays may result to loss of independence, higher rate of institutionalization, and mortality [10–12].

Different models of acute care for older patients in ED with comprehensive geriatric assessment (CGA) have shown to be associated with preferable discharge rates and reduction of readmission rates in older patients [8, 10, 13, 14¹]. CGA is multidimensional diagnostic process focused on a frail older person's medical, functional, and psychological capability and includes a coordinated and integrated plan for treatment and follow-up [10, 11, 14¹].

In 2013, Urgent Geriatric Outpatient Clinic (UrGerC) was established in Finland, Turku City Hospital separate from ED in Turku University hospital. The procedure of UrGerC was established according to the pattern of geriatric emergency department (GED) [10¹]. UrGerC brings gerontologically attuned, appropriate care and assistance for frail older people who are acutely struggling to manage at home [15¹].

The aim of this study was to evaluate revisits to UrGerC and admissions to ED within 30 days after the index visit with multidimensional CGA in UrGerC.

Material And Methods

Participants

Subjects of this prospective study were 75 years or older home-dwelling citizens who underwent multidimensional comprehensive geriatric assessment during their first visit in UrGerC between the 1st of September 2013 and the 1st of September 2014 (index visit, N = 1300). Patients whose reason for the index visit in UrGerC was medical procedure (n = 66) were excluded, because they didn't need geriatric assessment.

Of the remaining study population (n = 1234), 699 (57%) were admitted to hospital and 535 (43%) were discharged. The final study population consisted of 110 discharged patients who had a revisit to UrGerC (42 patients) or an admission to ED (68 patients) within 30 days after the index visit. Flow chart of the study is shown in figure 1.

Please, add figure 1 here

Acute care of older people in the city of Turku

Urgent Geriatric Outpatient Clinic in Turku city hospital

UrGerC is a service offered for older people who living in Turku and are acutely struggling to manage at home, have an acute illness or an exacerbation of a chronic condition. The patients are assessed according to the domains of CGA including medical, psychological, and functional capacity and

coordinated plan for treatment and discharge. Patients with a suspicion of acute coronary syndrome, cerebrovascular incident, major abdominal complaint, or major injury (suspicion of a fracture) are directed to ED. UrGeriC is open on Monday to Friday and new patients are received between 8 a.m. and 3 p.m. The aim of the UrGeriC is to diminish admissions to the ED and to hospital. A total number of visits in UrGeriC is approximately 2700 annually. The procedure of UrGeriC, established according to the pattern of GED, is described in detail elsewhere [15].

Emergency Department in Turku University Hospital

The Turku University Hospital ED is responsible for emergency and urgent patients of all ages in southwestern Finland. The service is available 24/7, and the total number of visits is 126 000 (approximately 21 000 [12%] visits made by patients aged ≥ 75 years), annually. The focus is on acute medical problems, and there are no geriatricians or geriatric nurses in the ED [15].

Revisit to UrGeriC or admission to ED within 30 days after the index visit to UrGeriC

In this study, revisit is defined as an unplanned following visit to UrGeriC or to ED within 30 days after the index visit to UrGeriC. Data of the day of the week, time and reason of the visit, information about who made the decision to seek medical help, and whether the patient was discharged was gathered from the medical records. The medical conditions of patients who were admitted to ED during and out of the office hours were retrospectively analysed by a geriatrician (LV) and a geriatric advanced practice nurse (APN) (JL) in order to assess whether those patients could have been treated in UrGeriC instead of ED. We also gathered data about the place of residence or caretaking institution of the patient one year after the index visit.

Study design

This prospective study based on medical records and, none of the patients were contacted. Data were de-identified before analysis and, study is performed in accordance with the relevant guidelines.

The study protocol was approved by the Ethics committee of the Hospital District of Southwest Finland. Permission for the study was given by the Ethics Committee of University of Turku and by the City of Turku Ethics Committee on health care (Identification number: ETMK/14/1802/2015). An informed consent was obtained from all participants.

Statistical analyses

Differences in categorical variables between patients with revisit to UrGeriC and admission to ED within 30 days after the index visit in UrGeriC were analysed by using Chi-square and Fisher exact tests. Statistical significance was set at a p-value less than 0.05. All statistical analyses were performed by using the SAS System for Windows, version 9.4 (SAS Institute Inc., Cary, NC, USA).

Results

Altogether 1300 patients were admitted to UrGerIc for the first time between 1st of September 2013 and 1st of September 2014. There were no significant differences in baseline characteristics between those who were discharged and those who were admitted to hospital (data not shown).

Of the 535 discharged patients, 110 (21%) had either a revisit to UrGerIc (n = 42, 38%) or an admission to ED (n = 68, 62%) within 30 days after index UrGerIc visit. There were no significant differences in the baseline characteristics between those who had a revisit to UrGerIc and those who were admitted to ED (Table 1).

Table 1. baseline characteristics of participants with and without a revisit to UrGerIc or an admission to ED (n = 535)

Characteristics	Revisit to UrGerC or admission to ED within 30 days after index visit	No revisit or admission within 30 days after index visit	p- value
	n = 110	n = 425	
	n (%)	n (%)	
Age (Years)			0.773
75-84	49 (45)	205 (48)	
85-94	57 (52)	207 (49)	
≥ 95	4 (4)	13 (3)	
Female	84 (76)	322 (76)	0.896
Living alone	87 (79)	323 (76)	0.527
The use of home help			0.304
No	44 (40)	177 (42)	
1 time a day	22 (20)	110 (26)	
2-4 times a day	37 (34)	123 (29)	
Caregiver	7 (6)	15 (4)	
Walking aid			0.423
No	39 (35)	175 (41)	
Stick	10 (9)	51 (12)	
Walking aid	58 (53)	191 (45)	
Wheelchair	3 (3)	8 (2)	
Existing MMSE (n = 88)	n = 88	n = 338	0.315
24-30	36 (41)	148 (44)	
18-23	31 (35)	133 (39)	
0-17	21 (24)	57 (17)	
Reason to present at the index visit			0.331
Cardiorespiratory syndrome	21 (19)	113 (27)	
	0 (0)	9 (2)	

Central nervous system problem	20 (18)	62 (15)
Pain	7 (6)	28 (7)
Infection	48 (44)	162 (38)
Nonspecific complaint	14 (13)	51 (12)
Fall/ Collapse		

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Revisit to UrGerC or admission to ED within 30 days after the index visit to UrGerC

The most common reason for the revisit to UrGerC or the admission to ED was a nonspecific complaint. The proportion of patients with the revisit to UrGerC for the same reason as that of the index visit was significantly higher compared to those admitted to ED (Table 2).

Table 2

Reason for a revisit to UrGerC or an admission to ED within 30 days after the index visit and number and proportion of patients admitted to hospital after the following visits (n = 110)

	UrGerC n = 42 n (%)	ED n = 68 n (%)	P-value
Reason for the following visit (symptom)	6 (14)	11 (16)	0.120
Cardiorespiratory syndrome	0 (0)	3 (4)	
Central nervous system problem	12 (29)	15 (22)	
Pain	0 (0)	6 (8)	
Infection	21 (50)	22 (32)	
Nonspecific complaint	3 (7)	8 (12)	
Fall / collapse	0 (0)	3 (4)	
Medical procedure			
Reason for the following visit same as in the index visit (symptom)	28 (67)	27 (40)	0.006
Admitted to hospital after the following visit	27 (64)	37 (54)	0.405

Admissions to ED within 30 days after the index visit to UrGeruC

Of those 68 patients who were admitted to ED, 21 (31%) sought medical help during the office hours and in two thirds of the cases the decision was made by patients themselves or by the next of kin. After retrospective analyses, 12 of these patients didn't need emergent medical help and, therefore, could have been treated in UrGeruC.

Altogether 47 patients (69%) made their visit to ED out of the office hours and, almost in two thirds of the cases the decision was also made by patients themselves or by the next of kin. After retrospective analyses, almost all the patients could have been treated in UrGeruC if the service had been available (Table 3).

Table 3
Patients with an admission to ED within 30 days after the index visit in UrGeruC (n = 68)

	Admitted to ED during the office hours (n = 21) n (%)	Admitted to ED out of the office hours (n = 47) n (%)
Admitted to ED	14 (67)	30 (64)
By decision made themselves or the next of kin	6 (29)	12 (26)
By decision made by a healthcare professional	1 (4)	5 (10)
Not known		
Could had been treated at UrGeruC	12 (57)	42 (89)

During the one-year follow-up, patients who had a revisit to UrGeruC or an admission to ED, were more often institutionalized (21% vs 10%, respectively) or deceased (25% vs 10%) than those with no revisit or admission (data not shown).

Discussion

In this study, we evaluated revisits to UrGeruC or admissions to ED within 30 days after the index visit with CGA in UrGeruC. The 30-day revisit rate was 21%, which is in concordance with earlier studies [4, 16, 17¹].

The most common reason for the revisit to UrGerC or the admission to ED, as well as for the index visit to UrGerC, was a nonspecific complaint, as also found in previous studies [1, 6, 12, 19, 20].

Most patients admitted to ED, sought medical help without consulting healthcare professionals. However, after retrospective analyses, most of them could have been treated in UrGerC if the service had been available. There were no significant differences in baseline characteristics between patients who had the following visit within 30 days after the index visit and those with no following visit. Still, patients who had the revisit were more often institutionalized or deceased during the one-year follow-up.

ED is attuned to treat emergent medical conditions, and thus is not designed to meet the complex medical and social needs of frail older patients [18, 21]. The limited access to primary care or self-perceived urgency of the medical condition or greater confidence in ED services are explanatory factors behind ED attendance [4, 17]. In Finland, primary health care as well as UrGerC service is available only during the office hours. Thus, it is not surprising that 60% of the following visits were to ED. On the other hand, UrGerC with $\frac{1}{4}$ of the weekly opening hours could cover 40% of the following visits.

Geriatric emergency guidelines manuals were launched in 2012 [22] and 2014 [23]. The implementation of the recommendations concerning the basic principles of acute care of geriatric patients in ED is heterogenous and not brought to practice [24]. Over the past decade, different models to organize frontline geriatric services have been presented. Yet there is no consensus about most effective intervention. Recent studies have focused on separate geriatric units which are embedded in the ED. Those units may provide the most focused and holistic care for the acutely ill geriatric patients [25].

UrGerC is an outpatient urgent clinic focused on providing frontline CGA to frail older patients who are not emergent but have an acute exacerbation in their chronic medical condition which threatens their ability to manage at home. Patient intake to UrGerC is controlled by healthcare professionals (a geriatrician or geriatric nurse) in order to ensure, that patients with emergent medical symptoms are directed to ED [15]. Approximately 50% of UrGerC patients are discharged and only 2% are referred to ED after an assessment in UrGerC.

The limitations of this study are the small size of the study population and the fact that the study and the data collection happened at the time of intense development and implementation process of UrGerC. In addition, the descriptive data on baseline characteristics concerning the degree of frailty is insufficient, ie. the severity of frailty was not documented systematically.

Conclusion

It seems that 20% of older patients seek urgent medical help within 30 days after the index visit even with a frontline CGA. In our study, patients who sought medical help within 30 days after the index visit didn't need emergent medical help. Thus, we need to pay attention for transitional care with completed post-discharge to ensure seamless care coordination after UrGerC visit [26] (e.g post-discharge phone call, increasing home help). Currently, we are analysing a larger dataset with more detailed information on

frailty to recognize the reasons for revisits and to better understand the features of the patients with a 30-day revisit in order to find new pathways for their care after the acute visit in UrGeriC or ED.

Abbreviations

ED
emergency department
UrGeriC
Urgent Geriatric Outpatient Clinic
CGA
Comprehensive Geriatric Assessment
GED
Geriatric Emergency Department

Declarations

Acknowledgements

Not applicable

Availability of data and materials

The datasets generated and analyzed during the current study are not publicly available due to containing information that could compromise research participant privacy/consent but are available from the corresponding author on reasonable request.

Author's contributions

All authors (JL, MS, TV, PV, MW, MV, LV) contributed to the design of the study. JL analysed and interpreted patient data and was the major contributor in writing the manuscript. All authors read and approved the final manuscript.

Authors information

Affiliations

¹ Faculty of Medicine, Department of Geriatrics, Turku City hospital, University of Turku, Kunnallissairaalantie 20, FI-20700, Turku, Finland.

² Faculty of Medicine, Unit of Family Medicine, University of Turku, Joukahaisenkatu 3-5 A, FI-20014, Turku, Finland.

³ City of Turku, Welfare division/Turku City Hospital, Kunnallissairaalantie 20, FI-20700, Turku, Finland

⁴ Institute of Clinical Medicine, Biostatistics, University of Turku, Kiinamylynkatu 10, FI- 20014, Turku, Finland.

⁵ Division of Clinical Geriatrics, NVS, Karolinska Institutet, Karolinska University Hospital, Huddinge, 14186 Stockholm, Sweden.

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Ethics approval and consent to participate

The study protocol was approved by the Ethics committee of the Hospital District of Southwest Finland. Permission for the study was given by the Ethics Committee of University of Turku and by the City of Turku Ethics Committee on health care. An informed consent was obtained from all participants.

Consent for publication

Not applicable

Competing interests

All contributing authors declare that they have no conflicts of interest

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Figures

Figure 1

Flow chart of the study