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Abstract

Elderly patients represent an increasing proportion of emergency department (ED) admissions. When no specific complaint is identified, the reason for referral is commonly called "home care impossible". The aim of this study was to describe a population of elderly patients who present to the ED of a 1200-bed university hospital without specific complaint, and to assess how they were evaluated in the ED.

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Pitfalls in the emergency department triage of frail elderly patients without specific complaints

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Summary

**Question under study:** Elderly patients represent an increasing proportion of emergency department (ED) admissions. When no specific complaint is identified, the reason for referral is commonly called “home care impossible”. The aim of this study was to describe a population of elderly patients who present to the ED of a 1200-bed university hospital without specific complaint, and to assess how they were evaluated in the ED.

**Methods:** Data on triage, mode of admission and discharge were collected. After the initial evaluation in the ED, patients were classified in two categories: (1) patients identified with a medical problem requiring rapid care or investigation, (2) patients without a medical problem considered as true “home care impossible”. These latter patients underwent a complete assessment using the Minimal Data Set-Home Care (MDS-HC).

**Results:** During the 10-week study period 253 patients (mean age 81 years) were referred because of “home care impossible”. An acute medical problem was identified in 129 of those patients (51%). All these patients were triaged in lower acuity categories. 33 (26%) were undertriaged due to (1) absence of vital signs measurement, (2) poor recognition of neurological symptoms, (3) atypical clinical presentation. The remaining patients were considered as true “home care impossible”. The MDS-HC evaluation revealed a high level of biopsychosocial comorbidities.

**Conclusions:** Frail elderly patients admitted without specific complaints are at risk of inappropriate or delayed evaluation due to undertriage at the door of the ED. A more specific geriatric assessment should be integrated early in the triage process of these patients.

Key words: frail elderly; emergency service; hospital; triage; geriatric assessment

Introduction

Elderly patients represent an increasing proportion of emergency department (ED) admissions [1, 2], accounting for approximately 20% of all ED visits [2–4]. Compared to younger patients this population has specific characteristics: (1) unclear complaints and difficult triage, (2) more frequent hospital admissions, (3) increased resources utilization, and (4) higher rate of adverse health outcomes [4, 5]. Moreover, emergency physicians feel frequently uncomfortable when evaluating these patients, which may have a negative impact on care [6–8].

Up to 20% of elderly patients presented to the ED have no specific complaints but “general condition impairment” [9], often reflecting insufficient formal or informal out-of-hospital social and/or nursing support. These patients are referred to the ED either by their families, their primary care physicians, or by an ambulatory emergency service and the reason for admission is currently entitled “home care impossible”. Given the lack of specific complaints and objective signs or symptoms, we hypothesized the triage process of these patients to be suboptimal.

The objective of this exploratory study was to describe the clinical characteristics of a population of elderly patients who present to the ED with a complaint of “home care impossible” and to assess how these patients were evaluated and triaged in the ED.
Patients and methods

Setting

This was a exploratory observational study of all con-
secutive patients older than 65 years presented to our ED
during a 10-week period, and in which “home care impos-
sible” was considered as the main reason for admission.
Our hospital is a 1200-bed primary and tertiary care uni-
versity hospital and our ED admits 60000 patients per
year. We serve an urban area with strong state-funded
home care services.

Patients

Patients were classified as having “home care impos-
sible” in the following situations: (1) when their primary
care or referring physicians explicitly noted on their refer-
ral note that home care services and/or social and familial
support were not able to support the patient at home any-
more; (2) when the triage nurse could not identify any spe-
cific chief complaint except insufficient social, familial
and/or nursing support.

ED triage and evaluation

Our ED uses a 4 level triage scale adapted from the
Canadian Emergency Department Triage and Acuity
Scale (CTAS) [10]. Triage is performed by trained nurses
specialized in emergency care, and a triage level (1 to 4) is
attributed to patients following history and vital signs
measurement when indicated. This scale is used to deter-
mine for each level the acceptable time delay before the
patient should be seen:

- level 1. patients should be evaluated immediately;
- level 2. patients should receive medical evaluation
  within 20 minutes;
- level 3. patients are considered as less urgent and
  should be evaluated within 2 hours; finally,
- level 4. patients are considered as non urgent.

Using our triage scale, patients admitted with a chief
complaint of “home care impossible” are usually classified
in lower acuity categories (level 3 or 4). 45 different triage
nurses are involved in this process in our ED. They all re-
ceived a formal training on the use of our triage instru-
ment and on the importance of vital signs measurement in
order to determine the appropriate emergency level.

In the ED, all patients had a standard evaluation per-
formed by internal medicine residents under the supervi-
sion of permanent ED staff. This evaluation included a
clinical history and complete physical exam, laboratory
tests (blood cell numeration, glucose, Na, K, urea, crea-
tin), urine analysis and chest X-ray. After the initial eval-
uation, patients were classified in two categories: (1) pa-
tients for whom the initial evaluation identified a medical
problem requiring rapid care or additional investigation;
(2) patients for whom the initial evaluation confirmed the
absence of acute medical problem and in whom the chief
admission reason was adequately considered as primarily
due to insufficient social, familial and/or nursing support.

Data collection

A research nurse was available daily in the ED and
collected baseline data on triage, mode of admission, dis-
charge diagnosis, and final orientation after patients left
the ED. Patients without an acute medical problem un-
derwent an additional assessment using the Minimal Data
Set Home Care (MDS-HC) instrument [11]. This instru-
ment is a multinationally developed instrument offering a
comprehensive psychosocial geriatric assessment. It is
widely used in community care programmes and is in the
process of being implemented in all home care services in
Switzerland. It was developed to provide a common lan-
guage for the assessment of the health status and care
needs of frail elderly people living in the community. The
MDS-HC components explore multiple functional do-
 mains. The assessment is divided into the following sec-
tions: cognition, communication, vision, mood and behav-
our, social functioning, informal support services, physi-
cal functioning (IADL and ADL), continence, disease di-
agnoses, preventive health measures, health condition,
nutrition/hydration, dental status, skin condition, medica-
tions, adherence to treatment, and environmental assess-
ment. This instrument aims at improving not only the
evaluation but also the management of home care patients.
Whenever the patient has a problem that is recognized by
the MDS-HC, an indicator is triggered. This indicator is
used to guide deeper evaluation and develop an individu-
alized health care plan.

Our institutional ethics committee approved the
study and all patients participating in the structured inter-
view gave their informed written consent.

Data analysis, statistical methods

Mean and 95% confidence intervals were calculated
using SPSS 11.0 for Windows.

Results

During the study period, 253 patients were
identified by the triage nurse as having “home care
impossible”. 60% were female, and the median
age was 81 years (range: 65 to 97). The majority of
the patients was referred by their primary care
physician (36%) or by an out-of-hospital emer-
gency care physician (39%). Remaining patients
(25%) were referred by their families or came by
themselves. More patients were admitted during
weekdays than during the weekends. The mean
(95% confidence interval) number of patients
admitted during weekdays was 4.0 (3.6–4.3) per
day, compared to 2.0 (1.5–2.4) patients admitted
every day during weekend days. Most of the
patients were admitted during the day, as only 16%
were admitted between 7 pm and 7 am, and only
7.6% between 10 pm and 7 am. During the study
period 11639 patients were admitted at our ED;
2729 of them were 65 years or older. Hence, pa-
tients admitted for “home care impossible” repre-
sent 9.3% of the geriatric population seen in our
ED during the 10-week study period. In 38% of
the situations, the admission note written by the
referring physician clearly stated that care was no
longer possible at home and the triage nurse could
not identify more specific complaints that could
explain this situation. In the remaining situations,
the initial evaluation performed by the triage nurse
identified a lack of social or familial support as the
primary reason for admission; accordingly to our
After initial medical evaluation in the ED a diagnosis considered as acute because it required treatment without delay, was established in 129 of the 253 patients (51%) (figure 1). The most common medical conditions were infections (mostly pneumonia), cardio-vascular problems (congestive heart failure and ischemic heart disease), neurological problems (stroke), delirium and fractures (table 1). These acute problems were considered responsible for the patients’ non-specific complaints. These patients were triaged in lower acuity categories (3 and 4). However, based on ED discharge diagnosis, clinical presentation and vital signs measurement, 33 (26%) should have been triaged in a higher category (table 1). Reasons for undertriage were absence of vital signs measurement (n = 16), poor recognition of neurological symptoms (n = 9) and atypical clinical presentation (n = 8). For these patients, care and treatment was delayed due to undertriage.

In the remaining 124 patients (49%), evaluation provided no acute conditions and their chief problem was considered as true insufficient social, familial, and/or nursing support (“home care impossible”). When possible these 124 patients underwent the structured interview. This was not possible for 63 of them because of dementia (n = 33), refusal (n = 15), and logistical problems (n = 15).

Finally, 61 were interviewed (figure 1). 60% were female, and the median age was 81 years, the same as in the full population. The median number of MDS-HC indicators was 13 per patient (range 4–20), representing a high level of biopsychosocial comorbidities. The most frequent indicators are summarized in table 2. These indicators represent chronic conditions that were not always previously identified but altogether explained the difficulties to maintain the patients at home. Their admission mode was not different from the patients who were not interviewed and from the patients finally diagnosed with an acute medical condition (figure 1).

After their stay in the ED, all but 14 patients (6%) were admitted (figure 1). 39% were admitted in an acute medical and surgical ward, and 55% in a geriatric or rehabilitation unit. Patients diagnosed with an acute medical problem during their stay in the ED were more frequently admitted to an acute care unit (57%) than the other patients (22%). Patients without specific complaint were not rarely (22%) admitted in an acute medical unit due to lack of place in geriatric or chronic care units.
### Table 1

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th># of patients</th>
<th># of undertriaged patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardio-vascular</td>
<td>18 (14%)</td>
<td></td>
</tr>
<tr>
<td>Heart failure</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Myocardial infarction / angina</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Arrhythmias</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Syncope</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Ruptures abdominal aortic aneurysm</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Hypertension crisis</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>6 (5%)</td>
<td></td>
</tr>
<tr>
<td>Acute exacerbation of COPD</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Pulmonary embolism / venous thrombosis</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Digestive</td>
<td>9 (7%)</td>
<td></td>
</tr>
<tr>
<td>Non-specific abdominal pain</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Inguinal hernia</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Neurological</td>
<td>12 (9%)</td>
<td></td>
</tr>
<tr>
<td>Stroke / transient ischemic attack</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Radicular compression</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Infectious</td>
<td>31 (24%)</td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Flu-like syndrome</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Gastro-enteritis</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>UTI</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Diverticulitis</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Sepsis</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>39 (30%)</td>
<td></td>
</tr>
<tr>
<td>Delirium</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Fractures</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Anaemia</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Cirrhosis</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Minor trauma</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Arthritis</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Hyperosmolar diabetic decompensation</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Hypoglycaemia</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Hyponatremia</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Uncontrolled pain</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Non-specific alteration of general status</td>
<td>14 (11%)</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2

<table>
<thead>
<tr>
<th>Indicator</th>
<th>% of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem with instrumental activities of daily living</td>
<td>90%</td>
</tr>
<tr>
<td>Problem with activities of daily living</td>
<td>53%</td>
</tr>
<tr>
<td>Communication problem</td>
<td>75%</td>
</tr>
<tr>
<td>Cognitive decline</td>
<td>61%</td>
</tr>
<tr>
<td>Depression</td>
<td>62%</td>
</tr>
<tr>
<td>Alteration of social functioning</td>
<td>57%</td>
</tr>
<tr>
<td>Dehydration</td>
<td>41%</td>
</tr>
<tr>
<td>Falls</td>
<td>67%</td>
</tr>
<tr>
<td>Nutrition problem</td>
<td>56%</td>
</tr>
<tr>
<td>Bladder incontinence</td>
<td>48%</td>
</tr>
<tr>
<td>Use of psychotropic drugs</td>
<td>57%</td>
</tr>
</tbody>
</table>
Discussion

Three to four elderly patients were brought to our ED per day because they became too difficult to manage at home by their caretakers. This represents approximately the same number of patients admitted daily for other medical conditions such as syncope, acute poisoning, or abdominal pain. Despite the lack of specific complaints at admission, an acute medical problem was identified in more than half of them. These patients were systematically undertriased.

The triage process of these patients is particularly difficult and various parameters may explain these difficulties. First, elderly patients have different and more atypical presentations compared with younger adults [12]. Cognitive and functional impairment, multiple comorbidities, communication problems, and chronic or subacute presentation of actual illness may explain this phenomenon. Second, busy ED nurses and physicians tend sometimes to underestimate the severity and the acuity of complaints among elderly patients. Thus, they may neglect this frail population of elderly patients [3, 13–15].

Our results raise the question of the optimal triage process for these patients. Because time constraints do not allow a thorough evaluation of this frail population [16], standardized procedures should help triaging these patients. Various triage scales have been developed and are used routinely in EDs. However, none has been tailored or validated for this population [10, 17, 18]. In our institution, we have been using a four-level triage algorithm based on the evaluation of the patient’s chief complaint, symptoms’ severity, and vital signs measurements. This instrument is based on the Canadian Triage and Acuity Scale and on the Australian National Triage Scale [10, 17]. This scale was designed for a general adult population and has no specificity for a geriatric population. Using this triage scale, all patients included in our study were triaged in low acuity categories. This clearly questioned the validity of our algorithm for the evaluation of elderly patients.

Different ways could be explored to improve the initial management of these patients. First, the impact of a resource-based triage scale and a more systematic use of vital signs should be evaluated. The Emergency Severity Index (ESI), a five-level resource-based instrument, is widely disseminated in the US ED [18]. Using this instrument, all patients included in our study would have been triaged at least in category 3 and vital signs would have been measured for every patient. Although the impact of a systematic measurement of vital signs on patients’ outcome is questioned [19], at least 12% of the studied patients would have been upgraded in a higher emergency category following vital signs assessment. Second, a better training of emergency nurses and physicians in the recognition of atypical clinical presentation and in the identification of patients at high risk could also improve this process. Although a specific geriatric emergency medicine curriculum has been developed, its impact on the care of elderly patients should be evaluated [20]. Third, the importance of functional decline, psychosocial dysfunction and the impact of comorbid conditions on the outcome of elderly patients in the ED are frequently underestimated [4, 21, 22]. Therefore, a systematic and more thorough geriatric assessment is crucial to better and earlier identify seniors at risk [22, 23].

This geriatric assessment using simple scores combining medical and social factors (e.g., lack of social support or marital support) could help predicting early and repeated returns to the ED. During the study period, we used the MDS to evaluate our patients. Although this instrument has not been designed and is too complex to be used in the ED, its use in the community has been associated with decreased ED use [24, 25]. Finally, a better integration of health care services, a better coordination between the ED and home care services would be highly important to provide care to this population, and could help gather timely information on the patient’s condition prior to admission and on the actual home nursing and social support. This may help the ED physician to better evaluate the patient in his entirety.

Our study has some limitations. First, it was performed in an urban environment with a strong home care service. Thus, this may not reflect the reality of other EDs. Second, a complete evaluation of the patients’ complexity was feasible in only a subset of patients who accepted or were able to sustain a 45 minutes interview. Third, although the MDS-HC questionnaire used for the evaluation of our patients gave us detailed information on their biopsychosocial status at admission, this instrument has not yet been validated for patients in ED settings. Fourth, we did not have a strictly standardized initial work-up. Therefore, it was impossible to conclude about the optimal baseline work-up that could be proposed for the ED evaluation of these patients without specific complaints. Finally, the study focused on the initial evaluation of these patients in the ED. Follow-up might have identified additional medical problems in patients initially identified as true “home care impossible”.

In conclusion, frail elderly patients admitted without specific complaints are at risk of inappropriate or delayed evaluation during the triage at the entry of the ED. This might have a negative impact on their care. As it is one of the missions of the ED to take care of this particularly fragile population when home care is no more possible, specific protocols for their management should be tailored to their needs in order to limit the risk of inadequate evaluation.
References


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