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Hospital admission in older persons presenting with dizziness in the Emergency department

Anna Ekwall^{a,b,*}, Johanna Schrab^b, Karolina Runesson^c, Måns Magnussons^a

^a Faculty of Medicine, Lund University, Sweden

^b Falck Ambulance AB, District 1, Sweden

^c Ambulance Care Service, Kalmar County, Sweden

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ABSTRACT

One of the most frequent chief complaints among older persons presenting in the emergency department (ED) is dizziness. Nurses in the ambulance and in the ED play an important role in managing these patients. The challenge in the ED or ambulance is to, with limited diagnostic equipment; decide the correct level of care. The aim of this study was to identify factors that differed between those who were admitted to hospital and those who were not among older persons (65+) presenting in the ED with dizziness. The method was a retrospective journal audit. The sample consisted of persons (n = 166) aged 65+ presenting in the ED with dizziness. Factors that were more frequent among those admitted to hospital were arriving with ambulance, priority and number of medications and high age. Forty percent of the dizzy patients were admitted to the hospital, 50% among those arriving with ambulance and 24% of the walk-in patients. Among the 166 patients included in the study because of dizziness, 64 different discharge diagnoses emerged, illustrating the complex nature of dizziness as a symptom. The results from this study can help the ambulance or ED nurse doing the first assessment with limited information and initiating the management, knowing what factors that are more frequent in older persons being admitted when presenting with dizziness.

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1. Introduction

One of the most frequent chief complaints among older persons presenting in the emergency department (ED) is dizziness. Persons with dizziness often call for an ambulance [1] and, depending on previous medical history and assessment by the medical dispatcher, are triaged as urgent as well as non-urgent. Thus, the nurse in the ambulance plays an important role in the management of patients presenting with dizziness and early decision of the urgency, showing the difficulties in determining the acuity of the symptoms [2,3]. The challenge in the ED or ambulance is to, with limited diagnostic equipment; decide the correct level of care. Dizziness can be a relatively harmless symptom of degenerative processes in the older person's ear, but may, in some cases, also be the first sign of a serious condition such as stroke [4,5], which makes the initial management and decisions on triage level very important in order to avoid unnecessary deaths [2]. Dizziness can be a symptom of cardiac arrhythmia, hypotension, myocardial

infarction, sepsis or a urinary tract infection, of which some need more advanced technical or diagnostic equipment than is available in the ambulance or ED triage to be identified and diagnosed correctly. In old age, dizziness may be a sign of underlying, sometimes serious, medical condition [5], with a high risk of hospitalization. The most frequent cause of dizziness is inner ear related such as Menieres Disease and it is important when assessing a patient to differentiate between urgent and non-urgent causes of dizziness. This means that the use of unnecessary resources for a non-urgent condition may be reduced. There is positive correlation between dizziness and number of medications a person uses meaning an increased risk in the older population [6].

Dizziness affects quality of life in the older population by decreasing the physical ability [7], increasing the risk of falling [2,8–11], and also increasing the risk for depressive symptoms [11]. Persons with dizziness perceive their health as worse and with that come lower quality of life than others in the same age without dizziness [12], with higher prevalence in the older population. It is important to examine these patients, and not just explain the dizziness as a syndrome, or part of being old, and by that risk to underestimate other, treatable, conditions [2]. Early diagnosis and

* Corresponding author at: Faculty of Medicine, Lund University, Sweden.

E-mail address: anna.kristensson_ekwall@med.lu.se (A. Ekwall).

treatment may decrease the suffering of the individual as well, regardless of the medical severity of the underlying factor.

Dizziness is a common reason for seeking acute care in old age, and is also known to be a symptom of underlying severe illness, affecting life negatively [11–13]. Knowledge about what factors that correlates with risk for hospital admission among older persons with dizziness may increase the initial management both in the ED and the ambulance, and reduce time to accurate interventions. With the limited diagnostic resources in the ambulance and ED triage, there is a need for further knowledge that can help in the early assessment and decision regarding urgency and improve the management of older persons presenting with dizziness in the ED. Thus, the aim of this study was to identify factors that differed between those who were admitted to hospital and those who were not among older persons (65+) presenting in the ED with dizziness.

2. Method

The study was a retrospective journal audit, with a quantitative approach. All persons aged 65 or older, with dizziness as their chief complaint, admitted to the ED (with 6300 visits per month), during three months, in the Southern part of Sweden was included.

Data regarding length of stay in the ED, initial priority, chief complaint and time of arrival was recorded from the patient administrative system. If a computer tomography was conducted, if the patient arrived to the ED by ambulance, discharge diagnosis, number of medication, hospital admission and if so, number of days, *s* was collected by the patient's audit. In order to get data comparable with the authentic clinical situation, information from the initial assessment situation i.e. only the ED data was used, not the medical charts written after the ED visit, nor the results of the computer tomography. The variable "discharge diagnosis" was categorized into either central or peripheral dizziness, based on its origin (Table 2).

SPSS (Statistical Package for the Social Sciences) version 22 was used for statistical analysis. Chi-2 och *t*-test was conducted when comparing groups of admitted persons with those who were not [14].

Ethical permission was given by the regional Ethical committee (2013/56), and the study was conducted in accordance with the code of ethics [15]. Permission for access to data was given by the director of the ED.

3. Results

A total of 166 persons, aged 65+ were included during the three months data was collected. 51% were women, and 60% were discharged home from the ED. Mean age was 76, range 65–99. 51% of the patients were brought to the ED by ambulance. The most frequent triage code (55%) was non urgent, while 37% were urgent (meeting a doctor within 15 min) (Table 1) and only one person arrived to the ED with the need for resuscitation. The number of prescribed medications in the population varied between none to 19. 45% took 5 or more prescribed drugs per day. Most of the patients arrived to the ED during day time. All but three persons (2%) survived 60 days after ED admission. The patients spent many hours in the ED, with some outliers that spent the whole day and night there. Outliers were also seen in the time spent in the ward, with a few being hospitalized for more than a month.

There was significant difference between patients admitted to the hospital admission and those who were not, regarding arriving by ambulance, high initial triage code, high age, many medications

and having a computer tomography (CT) during the ED visit (Table 2).

4. Discussion

A retrospective journal audit was conducted, with data from the patient administrative system in the ED, not the medical journal as a whole. All patients aged 65 and above, presenting with dizziness as the chief complaint was included, meaning that those who had an incident, such as fall, due to dizziness were not included. Due to quality of the data, comparative analysis was done. Since the study was done focusing the initial assessment, data, almost as limited as in the real ambulance and triage situation, was used in order to draw conclusions for the early assessment situation. This turned out to be a weakness with the study, since more valid results would have been obtained with stronger and more comprehensive data. Medications (including Warfarin or not), findings from DT and comorbidities had increased the usefulness of the results. For deeper understanding of the influence of different variables, and their predictive value, a more advanced design, with a larger population, is needed. This is in line with Kerber et al. [5] who shows the importance of neurological examinations which are not possible in the prehospital care, nor in the ED triage. An important factor, with significantly more in the group that was admitted, was whether the patient had a computer tomography in the ED or not. Those who had this were more often admitted to a ward. The value of CT has been questioned for dizzy patients [16–18], with the value of a physical examination by ED doctors in order to differentiate between central and peripheral reasons has been enhanced [17]. Nurses in the ambulance and ED triage may as well need to be competent in some aspects of the neurological, physical examination in order to differentiate between urgent and non-urgent cause for dizziness, since they meet the patient first.

Some factors that are possible to identify in the prehospital and triage situation, differed between the groups, such as age and number of medications. Increased dizziness due to medication is also known from other studies too [6,19]. Different types of medication may have different impact on dizziness, and this should be considered by the triage nurse as well, not only the number of medications [13,19]. Also the fact that the more persons in the admitted group needed an ambulance to get to the hospital indicated the severity of the symptom and with this a future need for care and treatment in the hospital [20,21].

The patients in the study waited for many hours, which indicates the complex, but often non-urgent nature of dizziness, and the clinical decisions that have to be made by the doctor. This illustrates the difficulties in making the right decision with the limited prehospital information, and a tool for clinical decision may be useful for this complex and vulnerable group of patients [22]. Since length of stay in the ED is known to increase morbidity among older patients any unnecessary waiting time should be avoided [23] and which can be the case if decision about hospital admission is made early [21].

The complexity of the dizzy older patients was evident in the discharge diagnosis. Among the 166 included patients, 64 different discharge diagnoses were present. They varied from psychological factors to stroke, from peripheral to central origin.

As said before; dizziness is a symptom coming from several diseases. However, this study added knowledge that some basic factors, easy to identify in the early assessment, may imply the need for hospital admission, but most important, showed that the limited information in the first assessment of a person presenting with dizziness is seldom enough to tell the severity of the

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