International Emergency Nursing xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

International Emergency Nursing

journal homepage: www.elsevier.com/locate/aaen

The helicopter as a caring context: Experiences of people suffering trauma

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ARTICLE INFO

Article history:
Received 6 July 2016
Received in revised form 29 August 2016
Accepted 12 September 2016
Available online xxxx

ABSTRACT

Introduction: When emergency medical services (EMS) are needed, the choice of transport depends on several factors. These may include the patient's medical condition, transport accessibility to the accident site and the receiving hospital's resources. Emergency care research is advancing, but little is known about the patient's perspective of helicopter emergency medical services (HEMS).
Aim: The aim of this study was to describe trauma patients' experiences of HEMS.
Method: Thirteen persons (ages 21–76) were interviewed using an interview guide. Data were analyzed using qualitative content analysis.
Findings: The analysis resulted in three themes: *Being distraught and dazed by the event* – patients experienced shock and tension, as well as feelings of curiosity and excitement. *Being comforted by the caregivers* – as the caregivers were present and attentive, they had no need for relatives in the helicopter. *Being safe in a restricted environment* – the participants' injuries were taken seriously and the caregivers displayed effective teamwork.
Conclusion: For trauma patients to be taken seriously and treated as 'worst cases' enables them to trust their caregivers and 'hand themselves over' to their care. HEMS provide additional advantageous circumstances, such as being the sole patient and having proximity to a small, professional team.

1. Introduction

Suffering a trauma results in a sudden change to one's everyday life and, initially, not knowing the extent of one's injuries [21]. Injury due to trauma may require emergency medical services (EMS) to assist in transferring the victim from the pre-hospital location to a hospital, as he or she may require specialist care and specific medical technology [7]. EMS-assisted transfers are done mostly with help from ground ambulances [34], but centralization of highly specialized care is expected to increase the need for airborne transport [33]. However, patients' experiences of helicopter emergency medical services (HEMS) are rarely studied.

2. Background

Sweden has approximately 700 ground ambulances [31] and 9 ambulance helicopters [30]. There are three priority levels for alerting EMS: acute life-threatening symptoms or an accident; urgent but not life-threatening symptoms; other assignments for care or supervision needs where a reasonable period is not expected to affect a patient's condition [32]. Choice of transport and destination are decided based on a patient's status, the receiving hospital's clinical capabilities, transfer time from the scene of the accident, the accessibility of the accident site and weather conditions [13]. According to the Swedish trauma registry's annual report for 2014 (2015), 9.4% of trauma patients arriving at regional hospitals and 3.5% arriving at county hospitals did so by HEMS. There is an ongoing discussion regarding the cost effectiveness of HEMS and to what extent they contribute to reducing morbidity and mortality compared to ground ambulances. HEMS' greatest advantage is significantly faster speed compared to ground ambulances if the distance exceeds 10 miles [4]. This includes the ability to avoid traffic delays and obstacles on the ground [38], resulting in faster transport to a hospital. However, research also shows disadvantages including difficulties evaluating patients, noise interfering with monitoring and management, turbulence, vibration and acceleration in the cabin [15,16,26,28]. These can result in difficulties detecting audible alarms [18] and being unable to hear

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http://dx.doi.org/10.1016/j.ienj.2016.09.006
1755-599X/

respiratory sounds, making it necessary to rely more on visual observation [16,25]. Furthermore, the high noise level limits the oral communication [2,19,25,29], and the confined space and turbulence can complicate repositioning patients [29,2]. It is argued that HEMS can provide more-advanced care than ordinary ground ambulances, as medical crews on board are often more skilled in advanced care [8,13]. Surveys of the Nordic countries [13,12] show that HEMS in Sweden are usually manned by two pilots, one anesthesiologist and one nurse, often a nurse anesthetist, and alternatively with a single pilot and an additional nurse or paramedic. Critical care nurses (CCNs) can also be on board, as found in Senften and Engström's [29] article about experiences of nursing critically ill patients during helicopter transport. The CCNs described HEMS teamwork as good, as they worked in small teams without significant hierarchical relationships. Studies [25,29] stress that in order to provide safe nursing care in HEMS, it is important to have a plan for the patient during the transport and continuously evaluate it to minimize risks. Furthermore, to be able to evaluate the patient and ensure safety in HEMS requires specific knowledge of standard helicopter safety procedures and about how to perform care in this particular environment [2,8,26].

In summary, HEMS are an integral part of Swedish EMS and research suggests that caregivers must be attentive to the specific environment in order to provide safe care. However, to the best of our knowledge, research about how patients experience HEMS is scarce, and we found none that explored the trauma patient's perspective. The views of injured persons are important to gain understanding about their experiences and create awareness about possible ways HEMS can adapt nursing-care interventions.

2.1. Aim

The aim of this study was to describe trauma patients' experiences of HEMS.

3. Methods

3.1. Design

We used a qualitative approach aimed to provide an in-depth, holistic and contextual understanding (cf. [24]) of trauma patients' experiences of HEMS. The participants were purposely selected and data collected by means of individual interviews with open-ended questions (cf. [24]).

3.2. Procedure

The inclusion criteria were: over 18 years of age, having suffered a trauma (defined as unintended physical injury) and having received primary transport from the accident scene to a hospital by HEMS. The trauma should have occurred less than 6 months prior to the data collection, as longer time could lead to reduced memory of the event. Exclusion criteria were: being diagnosed or suspected of suffering an influencing head injury and/or assessed as unable to participate due to the accident. A head nurse at a midsized hospital in Northern Sweden was commissioned to select participants by examining medical records of patients from the hospital emergency department (ED). A written inquiry was then sent to those who met the criteria, and those who chose to participate responded by sending a signed letter with their informed consent to the researcher. Of the 30 persons who received information, 13 chose to participate.

3.3. Participants

In all, 13 people participated, four women and nine men ages 21–76 (Md = 33); all were in good health before the accident. Of the participants, three were retired, one was studying at university, one was unemployed, and the others were working in tourism, healthcare or industry. Eight of the participants had been injured in leisure activities, such as downhill skiing or snowmobiling; others had been injured in a fall or in crashes involving cars/quadricycles and one using a circular saw. Two were diagnosed with multiple trauma (more than one injury); six had either fractured vertebrae or a fracture of the femur, radius or humerus. One suffered a tracheal injury due to blunt trauma, and one lost the fingers of one hand using a circular saw. Four received surgical interventions. The time that had elapsed between the accident and the interview varied between 4 and 6 months. Six participants were having ongoing rehabilitation and were still on sick leave on a part- or full-time basis.

Table 1
Interview guide.

Tell me about the accident
Tell me about the care you received
How did you experience the helicopter? What were your thoughts?
How did you experience the healthcare staff?
Was there, overall, anything special you would like to point out?
Follow up questions were, for example: How did you feel? Can you elaborate or give an example?

3.4. Data collection

The first author (L.S.) conducted individual interviews with open-ended question (cf. [24]); the questions were developed from an interview guide (Table 1) based on two previous articles [29,37]. Six participants were interviewed in person and seven by telephone because of geographic distance and/or participants' preferences. The interviews lasted between 35 and 70 min and were digitally recorded and transcribed verbatim by the first author (L.S.).

3.5. Data analysis

To reduce and make sense of the transcribed texts, we chose content analysis (cf. [24]), beginning with reading the text several times to discover patterns of experiences. Then we organized and categorized texts according to similarity of the core content (internal homogeneity) or exclusive differences (external heterogeneity). The categories were then interpreted as themes that revealed the meanings of the descriptive patterns. During the analysis process, different themes were tested until the authors reached consensus about the themes that best corresponded to the data (cf. [23]) (see Table 2).

3.6. Ethical considerations

The study received approval from the Ethical Review Board in Umeå (Dnr 1828-13) before being conducted. Participants received oral information about the study when contacted to schedule interview times and the researcher guaranteed their confidentiality and informed them of their right to withdraw from the study at any time without explanation. They were encouraged to contact the researchers after the interviews if any questions arose, but none did.

4. Findings

The analysis resulted in three themes describing the meanings of trauma patients' experiences of HEMS. When the trauma happened, some participants realized its seriousness and described a

Please cite this article in press as: Sandström L et al. The helicopter as a caring context: Experiences of people suffering trauma. Int. Emerg. Nurs. (2016), http://dx.doi.org/10.1016/j.ienj.2016.09.006