

Evaluation of Intershift Handover in Emergency Department

Acil Serviste Vardiya Devir Tesliminin Değerlendirilmesi

Metin Akpınar¹, Ömer Salt², Mustafa Burak Sayhan², Alparslan Mutlu³

¹ Van District Training And Research Hospital, Emergency Department, Van, Turkey

² Trakya University Medical Faculty, Emergency Department, Edirne, Turkey

³ Dr. Lütfi Kırdar Training and Research Hospital, Emergency Department, İstanbul, Turkey

ABSTRACT

Objective: Intershift handover (IH) in emergency departments can lead to serious distress in terms of both patient and doctor safety. In the study; it was aimed to determine how patients handed over between the shifts in the emergency services and the deficiencies, defects and errors occurred during this process.

Methods: This study was conducted with 462 emergency doctors at 62 private, state, training research and university hospitals in İstanbul, Edirne, Kırklareli and Tekirdag cities where almost one fourth of Turkish population live, by interviewing face-to-face between April 2016 and June 2016.

Results: There were statistically significant difference between the groups who said that the transfer quality depends on the transferer doctor and lecturer and the other groups (respectively $p<0.05$). 98.1% (n = 453) of the physicians stated that they completely or partially agree with that; the deficiencies during handover the effect negatively the treatment of the patient ($p<0.05$).

Conclusion: In conclusion, it is obvious that; the intershift handover in emergency department is vital. By reducing the number of mistakes made during this period, the quality of treatment of patients can be increased. In order to achieve this, we also think that it would be beneficial to give education to emergency service doctors about patient handover and to use a standardized intershift patient handover form.

Key Words: Emergency medicine, intershift, handover, patient safety,

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ÖZET

Amaç: Acil serviste vardiyalar arası hasta devir teslimi hem doktor, hem de hasta güvenliği açısından ciddi sıkıntılara yol açabilmektedir. Bu çalışmada, acil servislerde vardiyalar arası hasta devir tesliminin nasıl yapıldığının ve bu süreçteki olası hata ve eksikliklerin tespiti amaçlanmıştır.

Yöntem: Bu çalışma; İstanbul, Edirne, Kırklareli ve Tekirdağ gibi ülke nüfusunun yaklaşık 4 te birinin yaşadığı illerdeki 62 özel, devlet, eğitim araştırma ve üniversitesi hastanesi ziyaret edilerek, acil servislerde çalışan 462 hekimle yüz-yüze görüşme metoduyla Nisan 2016-Haziran 2016 tarihleri arasında gerçekleştirilmiştir.

Bulgular: Devir kalitesinin devreden doktor ya da öğretim üyesine bağlı olduğunu belirtenlerle, diğerleri arasında istatistiksel anlamlı farklılık tespit edildi ($p<0.05$). Katılımcıların % 98.1 i (n=453) devir esnasındaki eksikliklerin tedavi kalitesini olumsuz etkilediği görüşünü tamamen ya da kısmen desteklediğini belirtti ($p<0.05$).

Sonuç: Şu kesin olarak bilinmektedir ki; vardiyalar arası hasta devir teslimi hayati öneme sahiptir. Bu esnada yapılacak hataların en aza indirilmesi hasta bakım kalitesinde artışla sonuçlanacaktır. Bunu sağlayabilmek için standardize edilmiş bir devir teslim formu kullanımının ve hekimlere gerek tıp fakültesi, gerekse asistanlık eğitimi esnasında hasta devir teslimiyle ilgili ders verilmesinin faydalı olacağını düşünmekteyiz.

Anahtar Sözcükler: Acil tıp, devir-teslim, hasta güvenliği, vardiya

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Address for Correspondence / Yazışma Adresi: Ömer Salt, MD Trakya University, Faculty of Medicine Department of Emergency Edirne, Turkey, E-mail: dromersalt@gmail.com

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INTRODUCTION

Patient handover is identified as; the transfer of a patient's information, care responsibility, and treatment from one clinician to another. Although it is a process used in all medical branches, especially important in branches working with shift like emergency medicine. The fact that shift system is being used in the emergency department and that the patient is transferred to another doctor who is not fully aware of the procedures performed and that the follow-up and treatment will be done by this doctor, can cause some undesirable problems in diagnosis and treatment. Although standardized procedures have been developed for other occupational groups, a standardized procedure for handover of patients in medical discipline has not been developed yet.

Intershift handover (IH) in emergency departments can lead to serious distress in terms of both patient and doctor safety. For this reason, avoidance of improper IH has serious precaution in the proper execution of the treatment (1). Here, one of the most important parameters affecting IH quality is that; each service has its own IH procedure and it was not standardized (2). Although some guidelines have been published by various organizations to ensure this standardization, there is still no full consensus on this issue (3). Overlooked patient information or the incomplete or incorrect transfer of patients between shifts can lead to serious complications as well as causing disruption in the patient's treatment protocol (4). Due to the sudden development of the illness in the patients who applied to the emergency service, the clinician does not have enough information about the previous health status of the patient and inaccurate or incomplete information about the patient much more increases the incidence of problems especially in emergency settings (5).

Patient handover is a dynamic process as well as closely related to interpersonal communication. Experience and knowledge levels of transferers and transferees also play an important role here. The lack of a standardized protocol in this process, combined with the chaotic and stressful environment of the emergency department, can increase the incidence of deficiencies and mistakes.

Other parameters affecting IH include behavioral habits such as; not to share the treatment plan, decision about the patient and giving only verbal information about the patient as well as environmental factors such as; interruption of handover by other factors, noise and overcrowding, (6).

The importance of the effect of patient handover on patient care is becoming increasingly aware of day by day. In a study it was stated that; if emergency residents don't make preparation before IH, 31% them make mistake during handover (7). In another study, it was seen that; the most frequent mistake during patient handover is incomplete handover (45.2%) and interestingly, the non-handover rate of patients was 29.3% (8). In the study; it was aimed to determine how patients handed over between the shifts in the emergency services and the deficiencies, defects and errors occurred during this process. In this way, it was aimed make a standardization of patient handover in the future and reduce the rate of mistakes during handover.

METHODS

This study was conducted after approval of Ethics Committee of Trakya University Faculty of Medicine (TÜTF-BAEK protocol no: 2016/37) at 62 private, state, training research and university hospitals in Istanbul, Edirne, Kırklareli and Tekirdag cities by interviewing face-to-face between April 2016 and June 2016. This study was conducted by visiting 62 private, state, training research and university hospital emergency services in 4 cities (Istanbul, Tekirdag, Edirne, Kırklareli) where approximately one fourth of Turkish population lived via face to face interviews with physicians who work actively in emergency department by using questionnaire that prepared before. Informed consent forms were taken from 462 emergency doctors who agreed to participate in the study. Then the questionnaires were given to physicians and asked for answers. There were 32 questions in the questionnaire form about participants' sociodemographic characteristics, occupational groups, positions of work, information on attitudes and attitudes related to IH procedures.

Statistical Analysis

The evaluation of the data was carried out using the SPSS for Windows 20.0 package (Statistical Package of Science). Descriptive statistics were shown as mean \pm standard deviation (SD) or median (minimum-maximum) for continuous variables, and frequency and (%) for categorical variables. Kolmogorov Smirnov test were used whether the distribution of the variables is normal or not. Spearman rank correlation test was used to measure the degree of association between two variables.

Results for Demographic Data (gender, age, etc) were presented as; frequency and (%) in categorical variables and mean \pm SD or median (minimum-maximum) in continuous variables. For the comparison of categorical variables with abnormal distribution to continuous variables, a nonparametric test, the Mann Whitney U test was performed. $P < 0.05$ was considered statistical significance

RESULTS

A total of 462 emergency service doctor were included in the study. Of these, 295 (63.9%) were male. When the participants are examined in terms of their degrees; it was seen that; 85 (18.4%) were general practitioners, 247 (53.5%) were emergency medicine residents and 130 (28.1%) were emergency physicians. In terms of the duration of working at emergency department; 48.7% ($n = 225$) of the participants have been working for 1-5 years. The socio-demographic characteristics of participants are shown in Table 1.

Table 1. Socio-demographic characteristics of participants

		n (%)
Gender	Man	295(63,9)
	Woman	167 (36,1)
	Private Hospital	31 (6,7)
Institution	State Hospital	96 (20,8)
	Training and Research Hospital	210 (45,5)
	University Hospital	127 (27,1)
	General Practitioner	85 (18,4)
Position	Emergency Medicine Resident	247 (53,6)
	Emergency Physician	130 (28)
	<1 year	50 (10,8)
Duty term	1-5 years	226 (48,9)
	5-10 years	111 (24)
in Emergency Department	10-15 years	54 (11,7)
	>15 years	21 (4,5)
	24 hours	150 (32,5)
Type of shift	2 shifts	293 (63,4)
	3 shifts	19 (4,1)

The majority of the doctors ($n = 185$, 40.5%) have been working in an ED with daily 500-1000 patients admission. In terms of the number of patients handed over it was seen that 86.1% ($n = 398$) of them handed over 20 or fewer patients. The correlation was found between the number of patients handed over and the number of patient admission ($p < 0.05$). During the patient handover process, it was determined that; the vast majority of participants spend less than 5 minutes for each patient to handover. There was no statistically significant difference among the groups in terms of type of the hospital ($p > 0.05$). The answers of participants about the number of patients handed over, daily ED admission and period of handover time per patient are shown in Table 2.

Table 2. Participants' responses to the number of emergency service admissions, handed over patients, and the time spent per patient handover

	n (%)	
Patient admission in 24 hours	50-100	38 (8,2)
	100-200	67 (14,5)
	200-300	41 (8,9)
	300-500	51(11)
	500-1000	187 (40,5)
	>1000	78(16,9)
Number of handed over patients	1-5	62 (13,4)
	5-10	171 (37)
	10-20	165 (35,7)
	20-40	57 (12,3)
	40-50	2(0,4)
Spent time to handover a patient	>50	5 (1,1)
	0-1	17 (3,7)
	1-2	102 (22,1)
	2-3	139 (30,1)
	3-5	143 (31)
	5-10	47(10,2)
	>10	14 (3)

54.5% (n = 252) of the respondents gave the answer of “depends on the doctor who handovers” to the question; whether the experience of physician affects the quality of the IH process ? Similarly, 60% (n = 272) of the participants gave the answer of “depends on the lecturer who ” to the question; whether attendance of the lecturer affects the quality of the IH process ? There were statistically significant difference between the groups who said that the transfer quality depends on the transferer doctor and lecturer and the other groups (respectively p<0.05, p<0.05). 98.1% (n = 453) of the physicians stated that they completely or partially agree with that; the deficiencies during handover the effect negatively the treatment of the patient (p<0.05). 94.4% (n = 436) stated that they completely or partially agree with that; using the handover quality evaluation form would decrease the errors (p<0.05). The responses to the questions are shown in Table 3.

Table 3. Responses to other questions related to intershift handover

	n (%)	
Does the level of experience of the transferer physician affect the quality of the IH?	Definitely affects	156 (33,8)
	Depends on transferer	252 (54,5)
	Sometimes affects	43 (9,3)
	Absolutely not	11 (2,4)
Does the of attendance of the lecturer into the IH affect IH positively?	Definitely affects	170 (36,8)
	Depends on lecturer	277 (60,0)
	Absolutely not	15 (3,2)
Do you think that the use of the IH quality assessment form will reduce errors?	Definitely think	183 (39,6)
	Be useful in part	253 (54,8)
	Absolutely not	26 (5,6)
Do you think that deficiencies in IH process affects the treatment negatively?	Definitely think	240 (51,9)
	Sometimes affects	213 (46,1)
	Absolutely not	9 (1,9)

When 76.9% (n = 354) of respondents answered always or frequently to the question of whether the crowd of the emergency department prevent from more detail IH, the rate of those who stated that they always informed the colleague about the patients was determined as 20.3% (n = 94) (p>0.05). The answers given by the participants to these questions are shown in Table 4.

Table 4. Answers to the questions about emergency department crowdedness, saving the patients' data and giving information about the patient before the IH

		n (%)
Does the emergency department crowdedness prevent IH from being done in detail?	Always	171 (37,0)
	Frequently	183 (39,6)
	Sometimes	80 (17,3)
	Rarely	26 (5,6)
	Never	2 (0,4)
Do you record pre-IH structures?	Frequently	151 (32,7)
	Sometimes	198 (42,9)
	Rarely	56 (12,1)
	Never	44 (9,5)
Do you give information to transferee doctor about the patients before IH?	Frequently	13 (2,8)
	Frequently	94 (20,3)
	Sometimes	232 (50,2)
	Rarely	97 (21,0)
	Never	30 (6,5)
	Frequently	9 (1,9)

A large majority of participants (66.2%, n = 306), stated that; patients were better handed over during the morning IH. There was significant difference between two groups (p<0.05) About the question of “whether the patient handover should be done at bedside or at any point in the emergency service?”,70.3% (n = 325) of the doctors stated that; they wanted a bedside visit IH. One fourth (25.5%, n = 118) of the participants have the thought of patients who frequently admit to the ED get careless treatment (p>0.05).

The rate of those who thought that; giving courses on IH during the medical faculty training or residence training was found to be as high as 90.9% (n = 420) (p<0.05).

DISCUSSION

Intershift handover in emergency departments can lead to serious distress in terms of both patient and doctor safety. In this reason, avoidance of improper IH has serious precaution in the proper execution of the treatment (1). In one study, in-hospital mortality rates were examined during shifts and after IH, and it was found that; there was a significant increase in mortality rates after IH (12). In another study, it was observed that; the mortality increase after IH that were done with intern doctors and the novice residences (8). From this point of view, it is once again understood that; IH in emergency department has a vital importance.

In a study conducted among emergency physicians in order to determine the mistakes during IH, it has been found that; there is a lack of information transfer especially during the handover of elderly patients with chronic illness (3). In our study, it was also found that the patients who frequently admit to the ED were treated more sloppy than the other patients and the evaluations of these patients were partially incomplete. We think that the less important consideration of these complaints is because of the fact that; the patient always admits with the same complaints.

In another study that was conducted in order to determine the IH quality of the emergency residents, it has been seen that; only 10% of the residents were transfer the patients' information adequately by using computer records (9). Instead, it has been reported that; a large majority prefers to transfer the patient data verbally. In our study, it was determined that; more than 70% of the participants record patients' data on computer before IH. This is important both for patient safety and for the physician to prove what has been done before IH.

In another study, it was determined that the average time spent to hand of each patient was 8.3 minutes during IH (9). In our study, this time period was found to be 3.2 minutes on average. We think that; the number of patients who admit to the emergency department and also continuing admission during IH are effective on this short spent time.

In a study conducted in 172 clinics providing emergency training programme in the United States, a training was organized for the residents and 45% of the participants stated that; IH quality was improved after education (10). In our study, more than 90% of the participant also gave the answer that; they believe that such kind of training would be beneficial in IH quality. In this situation, we think that; taking lessons about IH during the medical faculty or residency training may increase the IH quality, and may also be effective in reducing medical malpractices.

The overcrowding of the emergency departments can lead to a shorter period of time for the patient handover, as well as the inability to transfer patient's information (11). Already 90% of the participants believed that; crowd affects IH quality negatively. More than half of the participants stated that; they wanted to use a standardized patient handover form during the IH. We think that; the form is the rest of the participants don't want to use this form because of thinking that; waste of time and workload.

In conclusion, it is obvious that; the intershift handover in emergency department is vital. By reducing the number of mistakes made during this period, the quality of treatment of patients can be increased. In order to achieve this, we also think that it would be beneficial to give education to emergency service doctors about patient handover and to use a standardized intershift patient handover form.

Conflict of interest

No conflict of interest was declared by the authors.

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