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Imam Abdurrahman Alfaisal Hospital referred cases characteristics and outcomes

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ABSTRACT

One of the secondary hospitals in the nation, Imam Abdurrahman Alfaisal Hospital's emergency department was the subject of this retrospective hospital records-based study. It is vital to look at the kind of cases that are referred and how they turn out since there have been some delays with the primary, secondary, or tertiary hospital referral system, which is crucial to the admission process in this hospital. Our study used hospital records data to gather data on many characteristics, including the patient's state, arrival time, interventional time, and end outcome. Frequency, descriptive statistics, chi-square test, fisher exact test, Pearson correlation, relative risk, and odd ratio were used in the statistical study. According to our findings, there is a slight delay in a patient's arrival at the emergency room. However, there was no discernible delay once the patient arrived, and it was discovered that a delay in intervention was associated with a subpar outcome.

Keywords: Referred cases, emergency department, patient arrival

1. INTRODUCTION

According to the World Health Organisation, "referral is a process where a health worker at one level of the health system seeks the assistance of a better or differently resourced facility at the same or higher level to assist in, or take over the management of, the client's case" when that facility lacks the necessary resources (drugs, equipment, skills) (WHO, 2021). During the referral process, primary care physicians and hospital experts, who both have a crucial role to play in the healthcare system, must interact with one another in both directions (Lee et al., 1983). It is the primary care doctor's duty to explain to the patient why a referral is necessary and what reason(s) there may be.

On the other hand, when a specialist works in a hospital, it is his

responsibility to explain his assessment of the patient's condition as well as a plan for their care (Byrd and Moskowitz, 1987). The referral and appointment documentation rates are more likely to improve when primary healthcare institutions are close to specialised hospitals. Due to strategies that improve patient access, minimise clinic diversity, and streamline scheduling, referral loop closure is expected to increase (Alabbasi et al., 2022). Al Imam Abdulrahman Al Faisal Hospital is a medical facility in Riyadh, Saudi Arabia. Individual who takes part in the Riyadh First Health Cluster. On the Dirab branch road close to Okaz in southern Riyadh.

The hospital was established in 2012. The hospital is 12,000 square metres in size and can accommodate 200 beds. There are two storeys in it. Outpatient clinics, a pharmacy, physical therapy, radiography, an emergency department, a kitchen, a restaurant, an office building and a mosque are all located on the ground level. The ground level of the services building has the mosque, sterilisation, laundry and service/maintenance facilities. Offices for maintenance contractors and accommodation for technical workers. Gates, fences, public transportation, landscaping, paving, asphalting, and outside lighting are a few examples of general services (MOH, 2022).

2. METHOD

To gather information on cases sent to the emergency department of the Al Imam Abdulrahman Al Faisal Hospital, this retrospective study uses hospital records. The investigation was conducted at Al Imam Abdulrahman Al Faisal Hospital in Riyadh, Saudi Arabia (Alquraini et al., 2015). The triage classification was done according to CTAS and classified as (resuscitation, emergent, urgent, less-urgent, and non-urgent). Data collection focused on arrival time of the patients since the referral, demographic characteristics, triage level, time taken from patient arrival to action taken, and final outcome.

We included all patients that were referred to Al Imam Abdulrahman Al Faisal Hospital between January 1, 2023, and April 31, 2023; however, we omitted cases that went straight to the emergency room without a referral and 104 instances whose data were missing. We used SPSS V24 to enter and analyse the data. For categorical variables, we used frequency analysis, and for continuous variables, we used descriptive analysis. Pearson correlation, chi square, and fisher exact tests were used to determine whether the diagnosis and final outcome were correlated, and we also used odd ratio and relative risk to emphasise how delayed emergency intervention affected the patient's final outcome (discharge, referral, and death). For the 95% confidence interval, a p-value threshold of 0.05 was utilised to indicate statistical significant.

3. RESULTS

The emergency room of Imam Abdulrahman Alfaisal Hospital saw 3639 patients throughout the research period. Patient arrivals were most frequent between 8 and 10 am and, less often, between 4 and 6 pm. A total of 3639 patients were sent to the emergency department; of them, 1651 patients (55.3%) were female and (11.4%) were under the age of five. According to their state as established by the triage procedure, patients are categorised in Table 1 according to their conditions. 6.9% of patients required resuscitation, while 23% of patients had an emergency (Table 1). After the onset of symptoms, there were several delays in the patient's presentation to the emergency room. Patients did not endure any significant treatment delays following their presentation to the emergency room.

Table 3 shows that 97% of patients received care within the allotted time for treatment. Only 7.5% of resuscitation instances went beyond the target period, while around 92% of urgent cases were treated inside the 15-minute target window. In comparison to patients who received treatment within the goal time, patients whose target time to treat was not met had a greater risk of mortality, with a Relative Risk of 2.4 (95% CI 1.7-3.7). Of trauma cases 12.1% was discharged. Of all referred cases 9.09% was renal disorders, Table 2 represent the frequency of diagnosis and the final outcome. Figure 1 shows that trauma was the most common condition, followed by numerous fractures, cardiac issues, and diabetes. Resuscitation level and mortality were connected when compared using person correlation (P correlation.735; p value.034).

Table 1 Frequency and percentage of triage level

Triage level	Frequency	%
Resuscitation	251	6.9
Emergent	838	23
Urgent	1410	38.7
Less urgent	1105	30.4
Non urgent	35	0.96

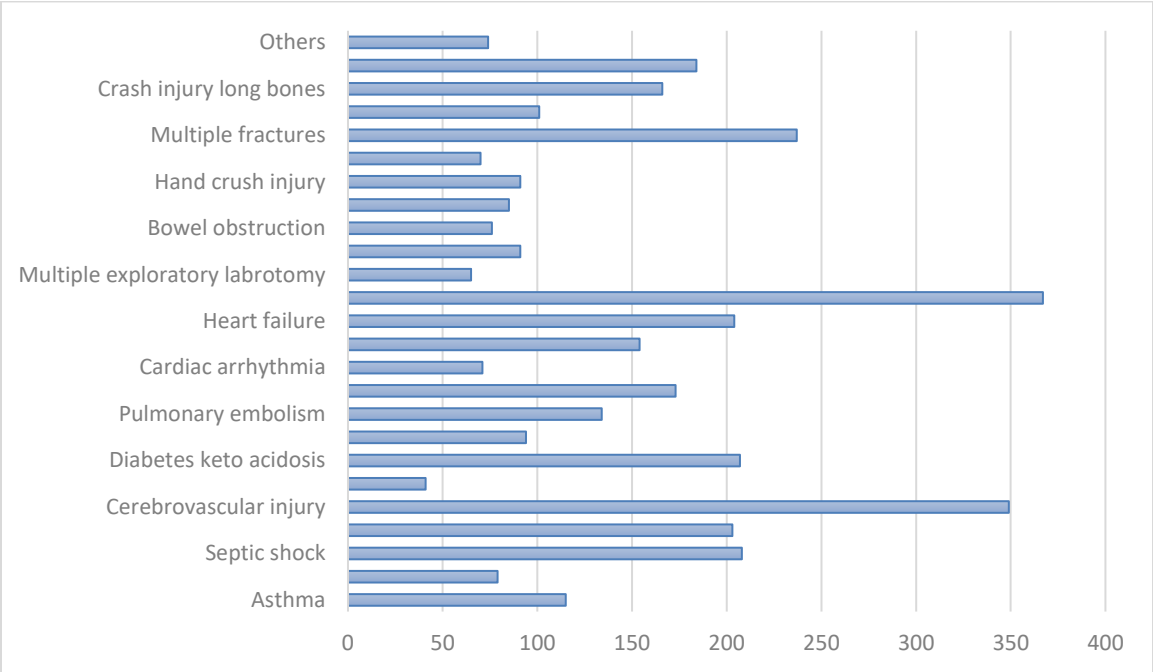

Figure 1 Diagnosis and outcome

Table 2 Chi squire test of diagnosis and final outcome

	Discharged		Referred		Death	
	Frequency	(%)	Frequency	(%)	Frequency	(%)
Asthma	106	3.64	8	4.04	1	0.19
Hypovolemic shock	65	2.23	0	0	14	2.67
Septic shock	167	5.73	12	6.06	29	5.52
Seizure	198	6.79	3	1.52	2	0.38
Cerebrovascular injury	197	6.76	85	42.9	67	12.8
Drug ingestion	41	1.41	0	0	0	0
Diabetes keto acidosis	207	7.1	0	0	0	0
Renal failure	69	2.37	18	9.09	7	1.33
Pulmonary embolism	99	3.4	8	4.04	27	5.14
Myocardial infarction	97	3.33	9	4.55	67	12.8
Cardiac arrhythmia	51	1.75	3	1.52	17	3.24
Cardiac arrest	41	1.41	0	0	113	21.5
Heart failure	187	6.41	11	5.56	6	1.14
Trauma	354	12.1	1	0.51	12	2.29
Multiple exploratory laparotomy	46	1.58	1	0.51	18	3.43
Abdominal aortic aneurism	54	1.85	0	0	37	7.05
Bowel obstruction	57	1.95	0	0	19	3.62
Burn	64	2.19	4	2.02	17	3.24
Hand crush injury	81	2.78	1	0.51	9	1.71
Amputation	64	2.19	2	1.01	4	0.76
Multiple fractures	194	6.65	16	8.08	27	5.14
Open fractures	82	2.81	0	0	19	3.62
Crash injury long bones	154	5.28	4	2.02	8	1.52
Abdominal pain in pregnancy	181	6.21	3	1.52	0	0
Others	60	2.06	9	4.55	5	0.95

Total N of cases in each category	2916		198		525	

Table 3 Mean time in minutes taken by intervention according to CTAS level

	N	Minimum	Maximum	Mean	Std. Deviation
Resuscitation	370	0	3.00	2.6	1.6
Emergent	844	1.00	28.00	12.0	7.7
Urgent	1440	19.00	40.00	27.5	5.9
Less-urgent	950	37.00	69.00	47.2	7.8
Non-urgent	35	69.00	143.00	89.5	23.6

4. DISCUSSION

A time-sensitive medical treatment system for accidents and acute diseases is employed by emergency services. Treatment at the scene of the accident and transportation to the emergency department are both included in the emergency care system that offers both services. Many medical treatments depend largely on timing to save lives, but only when administered at the appropriate moment (WHO, 2018). Our study illustrates the types of patients that are sent to the emergency department of the imam Abdurrahman Al-Faisal hospital in Saudi Arabia from various hospitals and basic health care facilities, we also emphasized the connection between the diagnosis and the result.

Our investigation revealed delays in referral cases, and a Saudi Arabian study was conducted to determine the causes of these delays in stroke patient referrals. The study found significant contributing variables for stroke patients who presented late to the emergency room of a large hospital in Riyadh, the Saudi capital, after their stroke had already started. The majority of the patients arrived at the hospital more than 4.5 hours after their stroke had started. Risk factors for late arrival included not being taken in an ambulance, being alone when the stroke first happened, being uninformed that they were experiencing a stroke, and residing outside of Riyadh (Al-Khathaami et al., 2018). Living in rural areas and being older than 60 were both associated with prehospital time delays. Semiconscious or unconscious patients were more likely than conscious ones to be the first to arrive.

Asthma, upper and lower airway obstructions, hypovolemic shock, septic shock, convulsion, drug ingestion, and diabetes keto-acidosis—which was mostly seen in newly found diabetes—were among the diagnoses that accounted for roughly one-third of the cases. Most paediatric instances that were documented involved children under the age of five. Similar distributions have been seen in paediatric ERs in the US, Lebanon, and another region of Saudi Arabia (El-Zahran et al., 2021; Massin et al., 2006; Alhusain et al., 2017). According to Al-Qahtani et al., (2021) Saudi Arabia has a low rate of paediatric hospital admissions in contrast to other parts of the world. This was mostly caused by the alarmingly high frequency of non-urgent visits to the emergency department. This emphasises the problem of needless use of emergency department services since these cases should be channelled more efficiently towards primary healthcare institutions.

According to study conducted by Al-Qahtani et al., (2021) on unreferred patients who went to the emergency room. Fever was the most frequent complaint, then respiratory problems. In our study, several patients had delayed intervention, which was linked to poor results. Research by Rincon et al., (2010) found an independent relationship between poor outcomes at hospital discharge in critically sick patients and transfers to the NICU that were delayed by more than 5 hours. In contrast to our findings, Saukkonen et al., (2006) found that the length of ED stay in a university hospital was not associated with the outcome of critically sick patients. The impact of ED care and delays on patient outcomes and outcome prediction in critically ill patients, however, merits more study, in our opinion.

5. CONCLUSION

Cardiac arrest was the most frequent diagnosis linked to poor outcomes. There was no discernible delay in the interventional time following the patient's arrival, however there was a delay in the patient's arrival time at the hospital.

Authors Contribution

Khalid Alsunidi: Participated in all steps of the research from the idea to the submission

Mazi Mohammed Alanazi, Khalid Ayidh Aljuaydi, Ahmed Hadi Khormi, Osamah Mohammed Bin Bakheet: Participated in collecting literature, writing introduction and discussion

Abdullah Mohammed Alamro, Abdulrahman Jameel Bakhsh, Mohannad Saeed Alzahrani, Areej Manie Alhamdi, Mohammed Abdullah Alsagoor, Anfal Sulieman Alrehaili: Participated in wiring result and method

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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