



THE FREQUENCY OF UTILIZATION OF X-RAYS IN EMERGENCY DEPARTMENT OF KING TALAL MILITARY HOSPITAL

Ishraq Abu Darweesh, Hajem Abu Dalo, Omar Bataineh, Saleh Alshurfat, Laith Alomari, Zeyad S. Bataineh

Royal Medical Services, Jordan

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ABSTRACT:

Introduction: Emergency department in any hospital is the first line to treat with patients who have emergent conditions including car accidents, falling cases, cases of conflicting assaults, etc. X-ray is requested to examine various health conditions including bones, lungs, etc.

Study objectives: To identify the frequency of requesting X-rays in Emergency Department of King Talal Military Hospital, and to investigate the patterns of X-rays, and clinical significance.

Methods and patients:

Study design: A retrospective design was selected to collect data from files of patients who visited the emergency department of King Talal Military Hospital, and were requested for X-rays.

Study sample: A total of 200 files of those patients were reviewed. X-rays were classified according to cases requested. The data were analyzed using SPSS version 21. Data were presented as frequencies and percentages.

Study results: The results revealed that the majority of participants were males (61%), and were older than 31 years (62%). The request of X-ray was for initial diagnosis (73.5%). Results also showed that 7.5% of X-ray request was for head, 10.5% for abdominal area, 22.5% for lower limits, 27.5% for backbone, and 32.5% for upper limits. The most requests for X-ray were for fractures, followed by lung problems, abdominal problems, and renal problems.

Conclusion: The present study confirmed the importance of utilizing X-rays in emergency department to help in appropriate management of clinical status of patients at an early stage.

KEYWORDS: X-ray, fracture, bone, emergency department, lung.

Corresponding author: Ishraq Abu Darweesh

E-mail: Ishraq.abudarweesh@yahoo.com

Mobile no: 00962775784481

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INTRODUCTION:

From a clinical point of view, we need to do investigations to achieve an appropriate clinical management of a disease in terms of confirming or excluding a certain diagnosis¹.

Radiology can be defined as a medical specialty that utilizes s medical imaging in reaching diagnosing of diseases².

The discovery of X-ray was made in 1895, and the first medical studies using X-ray were made by Wilhelm Rontgen³. Later studies on medical use of X-rays put focus mainly on detection of fractures and foreign bodies, and then other uses included evaluation of other diseases including acute abdominal pain^{3,4}.

In emergency department, it has been estimated that up to 10% visits are attributed to abdominal pains⁵. Abdominal pains cover a wide range of diseases from simple diseases to those need emergency surgery⁵. However, it is crucial to reach a definite diagnosis to facilitate taking appropriate decision not to delay treatment^{6,7}.

X-ray images are the most popular techniques to identify bone problems in addition to other organs⁸. X-rays are characterized by being faster, cheaper, and more available than other radiological imaging techniques⁹. Furthermore, X-rays have appropriate quality for evaluation of bone fractures⁸.

Study objectives: To identify the frequency of requesting X-rays in Emergency Department of King Talal Military Hospital, and to investigate the patterns of X-rays, and clinical significance.

Methods and patients:

Study design and setting: A retrospective design was selected to collect data from files of patients who visited the emergency department of King Talal Military Hospital, and were requested for X-rays. A total of 200 files of those patients were reviewed. X-rays wre classified according to cases requested. Study variables included age, gender, diagnosis, and anatomical location.

Study procedure: All data were entered into excel sheet to create the raw data, and after data had been completed, the data were exported into SPSS version 21 for further analysis. Data were presented as frequencies and percentages, and formulated in tables and figures.

Results:**Demographic characteristics of patients**

As seen in table 1, a total of 200 files of patients with X-ray were included. The majority of participants were males (61%). The majority of participants were older than 31 years (62%).

Table 1: Demographic characteristics of patients

Variable	Frequency (N)	Percentage (%)
Gender:		
- Males	122	61%
- Females	78	39%
Age (years):		
- ≤30	76	38%
- >31	124	62%

Multiple requests for X-ray in emergency department

As demonstrated in table 2, the request of X-ray was for initial diagnosis (73.5%). According to

anatomical location, 7.5% of X-ray request was for head, 10.5% for abdominal area, 22.5% for lower limits, 27.5% for backbone, and 32.5% for upper limits

Table 2: Multiple requests for X-ray in emergency department

Request type	Frequency (N)	Percentage (%)
Diagnosis:		
- Initial diagnosis	147	73.5%
- Follow-up	53	26.5%
Anatomical location:		
- Head	15	7.5%
- Upper limits	65	32.5%
- Lower limits	45	22.5%
- Abdominal area	20	10%
- Backbone	55	27.5%

Reasons for requesting X-ray: As can be seen in figure 1, the most requests for X-ray were for

fractures, followed by lung problems, abdominal problems, and renal problems.

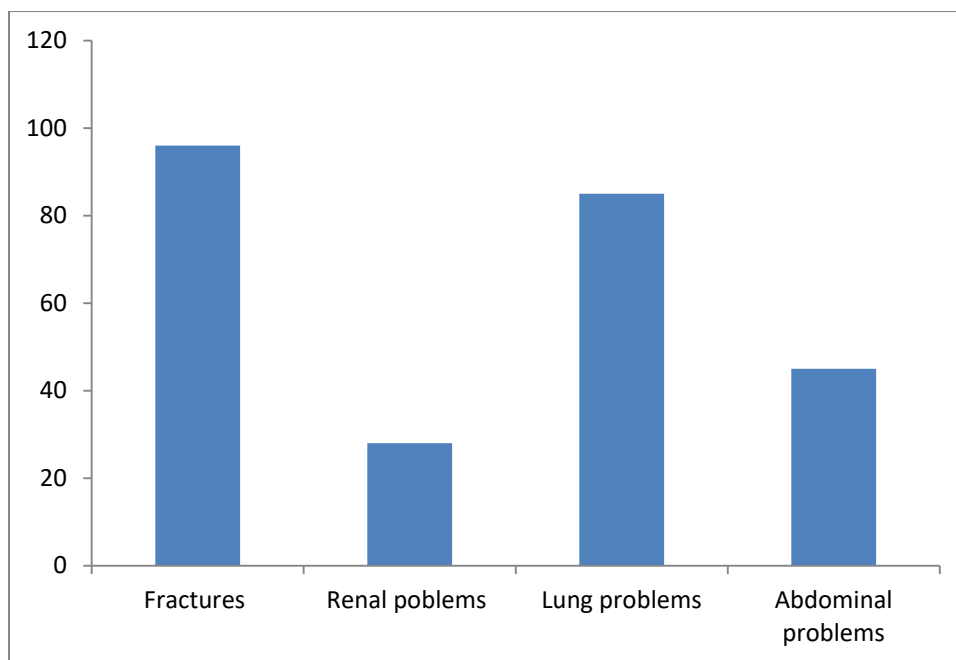


Figure 1: Reasons for requesting X-ray

DISCUSSION:

The present study showed some analysis of using X-rays in emergency department of King Talal Military Hospital. In clinical practice, doing appropriate investigations is a crucial step to reach final diagnosis and to manage the clinical status of the patients¹. Since its introduction, X-rays have played a very important role in diagnosis and management of patients^{3,4}.

The results showed a predominance of males over females. Also, older patients were involved. However, other studies conducted in western countries showed that females were more likely to visit emergency departments compared with male, and agree with our findings that older patients were likely to visit emergency departments⁹⁻¹³. The explanation for variations in predominance of males in our study compared with other studies may due to the nature of structure of our community in which males are more engaged in public activities and employment, particularly in military services.

The results showed that approximately 74% of cases were requested to get X-rays for initial diagnosis. This reflects the importance of emergency department in reaching diagnosis at an early stage^{3,4}. About 26% of X-ray requests were for follow up cases. However, cases are usually followed up in out-clinics.

According to anatomical location, upper limits ranked firstly, followed by backbone, while head ranked lastly (table 2). Irrespective to the frequency patterns, it seems that X-rays are used in different parts of the body to assess the clinical status of the patients. This is in agreement with previous studies⁶⁻⁸. The present study revealed the causes of X-ray requests such as lung problems, abdominal problems, and renal problems. Actually, these findings agree

with a lot of studies that showed the wide use of X-rays in various medical problems^{1,2,3,8}.

CONCLUSION:

The present study confirmed the importance of utilizing X-rays in emergency department to help in appropriate management of clinical status of patients at an early stage.

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