

Study for Ionizing Radiation Safety Awareness among Patients in Erbil Hospitals

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Abstract

Background: Medical x-ray exposures have the largest man made source of population exposure to ionizing radiation in different countries. Recent developments in medical imaging have led to rapid increases in a number of high dose x-ray examinations performed with significant consequences for individual patient doses and for collective dose to the population as a whole. Although the quantity is low in diagnostic examinations, special attention should be given to this fact in order to minimize unnecessary exposure for patients.

The purpose of the study was to evaluate the level of radiation safety awareness among patients.

Methods & Materials: The study was carried out by using questionnaires tailored to the patients at selected hospitals administrated to 260 patients. 239 (91.9%) were responded. The data was analyzed using SSPS 17 package.

Results: Equally proportion of female 111(46.4%) and male 128 (53.6%) was found. Of these 84(35.1%) of patients done X-Ray without asking physician, while 142 (59.4%) of patients known that radiation causing damage. Large majority of patients 187 (78.2%) wish knowing about radiation advantage. A few patients 78 (32.6%) knowing radiation warning sign and more than 146 (61.1%) patients repeated X-Ray more than once.

Conclusions: The study shows lesser awareness about ionizing radiation. There is need for educations of the public on radiation safety and to allay their fears about radiation. Determine the level of radiation safety awareness among patients.

Key words: Radiation safety, radiation dosimeters, radiation causing damage.

Introduction

It's important to build awareness of the potential risks of radiation exposure among senior leadership, patients and patients' families, physicians, including referring physicians, as well as technologists. Practices in the hospitals being investigated although the quantity of radiation is low in diagnostic examinations there is a need to minimize unnecessary exposure for both radiographer and patient. Ionizing radiation in medical imaging is one of the powerful diagnostic tools in medicine. Radiation which is applied in radiology departments has hazardous effects on biological systems [1] The term 'radiation' covers a wide spectrum of different forms of energy most of which have been suspected to cause ill health to human-beings. [2] The effects of low level exposure to ionizing radiation are a concern to large number of people. [3] Radiographers are not very awareness of radiation doses, and that there is a lack of communication between radiographers and patients relating to radiation and its possible effects. [4- 6]

Methods

The study was carried out by using questionnaires tailored to the patients at selected hospitals administrated to 260 patients only 239 (91.9%) patient were responded. The data was analyzed using SSPS 17 package. Collecting the data relation to the subject was performed by designing a special questionnaire. The questionnaire with various questions around radiation

protection and safety related to patients. The questionnaire contained information about demographic data like name, age, sex, work experiences and attitude of employees around protection acts, protection device and dose limit. The questionnaire forms were completed by staff during one year and their responses was only base on their subjective data.

The objective of the study was to determine the level of radiation safety awareness among patient. People were interviewed using different questionnaires.

Results

1-Samples:

The answers to the questions are provided in Appendix 1 on the copy of the questionnaire, along with the relevant reference sources. A total of 260 patient's questionnaires 239 (91.9%) were answered. 111(46%) female and 128(54%) male "Figure (1): Number of males and females patients". A larger proportion of these patients were aged of 15 years to more than 60 years "Figure (2): Number of patients and % with different ages". With deferent sex "figure (3): Number of patients and % with different sex".

2-Awareness and knowledge

One of the aims of the study was to measure awareness and knowledge of patients on ionizing radiations. Such a method of questioning was incorporated into this study as it was hypothesized that patients might show their tendency to say 'yes' to the first question even though they have not heard off (Table-1). The mostly known technique is X-rays, which is known to only (78) of total patients in the sample (239) of patients who are aware of ionization radiations have heard of X-rays.

3-Advantage and Repeat:

Table (2) show Number and percentage of patients wish knowing about radiation advantage, 81.3 % male and 74.8% female say yes that wish to know about radiation advantage also 79 male and 67 female repeat testing X-ray showing in table (3).

Discussion

Radiation safety is a vital component of protective measures taken at any hospital that has diagnostic radiological and radiotherapy equipment [7]. Most of the respondents in this study were visiting the department of radiology for the first time [8].

Table (1) a large number of the patients were of the view that x-rays were dangerous while some thought they were not dangerous. A good number of patients had formal education though not aware of the dangers of ionizing radiation. This meant that besides being able to respond without difficulty to the questions on the questionnaire, it would not be so difficult for them to understand what radiation was if explanation was offered.

Table (2) results health care providers to recognize and inform patients about the risks of radiation, an area of potential concern. [9-11] An improved understanding of the risks of radiation is clearly needed, and raising such awareness among providers has been the focus of recent efforts.[12-13] With technological advances, it may also become feasible to estimate patient-specific doses and to include them in the medical record in order to identify patients at risk for a high cumulative dose.

Table (3) show that number of the patients was ignorant of the radiation symbols and this implies that they could repeat it with out known the risk radiation field. Despite this ignorance many were willing to learn more about radiation and they preferred this to be done by the medical workers. Patients thought direct dialogue with the radiation worker was the best and most effective source of information.

The results of this study should be interpreted in the context of several limitations. First and most important, we used claims data. Although this allowed us to undertake a comprehensive examination of the utilization of imaging procedures, we could not evaluate their appropriateness. An important reason for the growing use of such procedures stems from their ability to radically improve patient care.

Radiation workers did not explain procedures before carrying out exposures on them. Radiation workers should as a matter of explains every procedure to patients before carrying it out. This result is compare with [14].

Conclusion

- 1- Three keys to eliminate risk of radiation: the good use of radiation is an important, patient safety and quality issue.
- 2- Radiographers, Radiologist and Technicians those working in radiation departments should also importance undergo trainings courses in radiation to a ware patients.
- 3- Hospital should design programmer which would emphasize patient education like meting with doctor every morning before work begins. Information posters should be displayed throughout the hospital, and brochures that explain safety procedures and common concerns should be made available to all patients.
- 4- Radiation is around in all places and we need to be aware of the various sources, when to be concerned and how to protect ourselves from harmful exposure. Part of the responsibility for protecting people(patients) and the environment rests with the Government, but individuals have responsibilities too

Recommendation

- Use other imaging technologies, such as ultrasound and magnetic resonance, to reduce exposure to ionizing radiation whenever one will produce the image quality necessary for the diagnostic information needed.
- Adopt "As Low as Reasonably Achievable" guidelines designed to make sure radiation dose is as minimal as possible.
- Provide patients a medical imaging record card that tracks the type of test performed, the date and location of the test and the radiation dose for the study being conducted.

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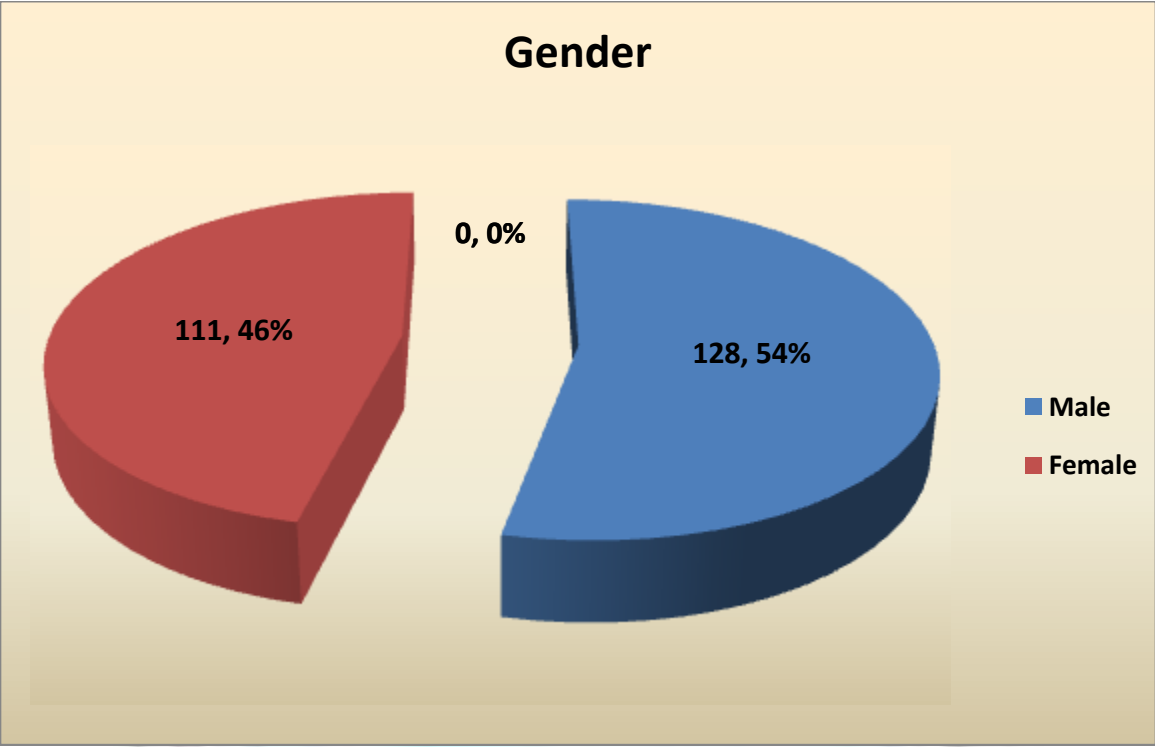


Figure (1): Number of males and females patients.

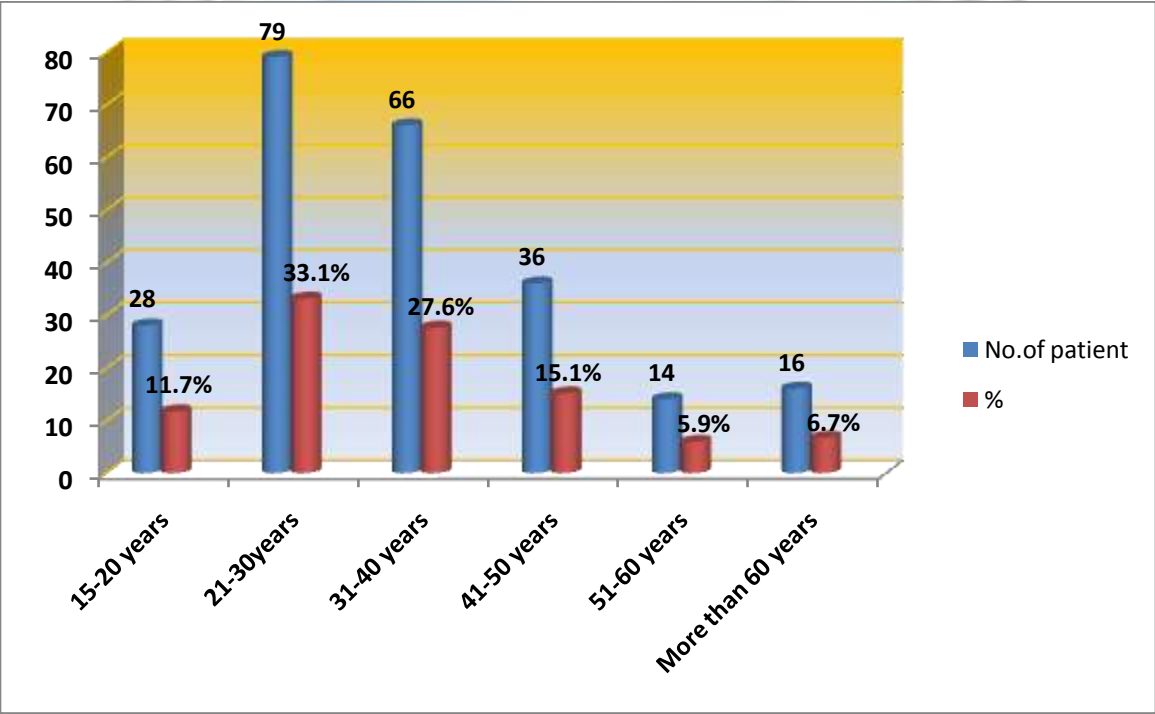


Figure (2): Number of patients and % with different ages.

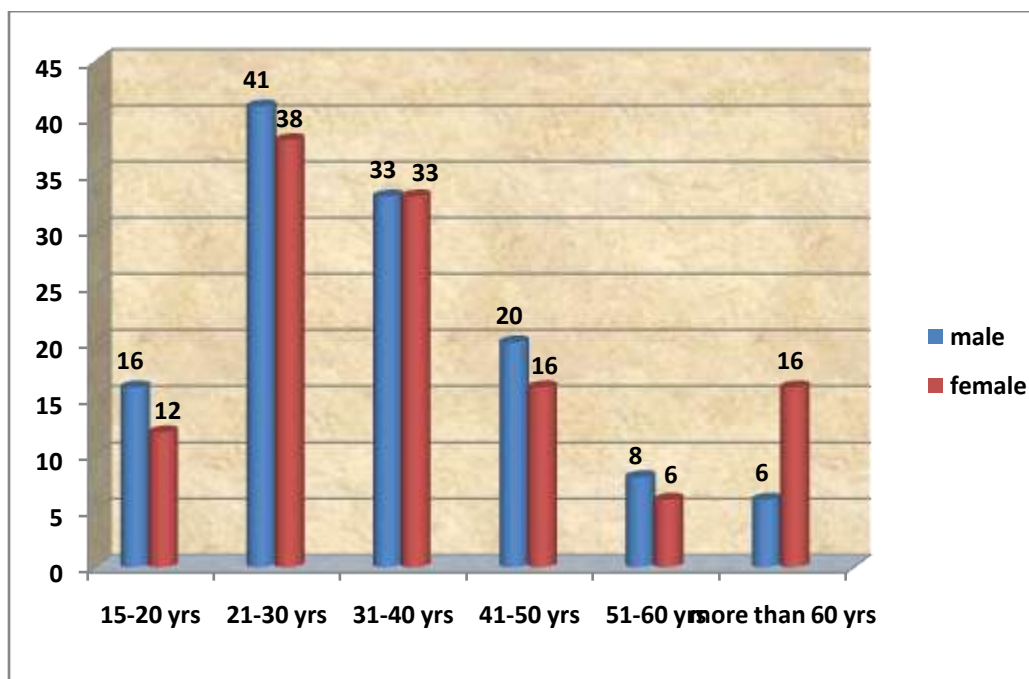


Figure (3): Number of patients and % with different sex.

Table (1): Awareness and knowledge of patients on ionizing radiation warning sign.

Qualification	knowing radiation warning sign				Total	
	yes		no		No.	%
	No.	%	No.	%		
Primary School	11	14.1	49	30.4	60	25.1
Secondary School	14	17.9	40	24.8	54	22.6
Institute (diploma)	27	34.6	38	23.6	65	27.2
University	24	30.8	15	9.3	39	16.3
High degree	1	1.3	0	.0	1	.4
Irritate	1	1.3	19	11.8	20	8.4
Total	78	100.0	161	100.0	239	100.0

Table (2): Number and percentage of patients wish knowing about radiation advantage.

Gender	wish knowing about radiating advantage	Age												Total	
		15-20yrs		21-30yrs		31-40yrs		41-50yrs		51-60 yrs		more than 60yrs			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Male	yes	14	87.5	34	82.9	28	84.8	17	85.0	5	62.5	6	60.0	104	81.3
	no	2	12.5	7	17.1	5	15.2	3	15.0	3	37.5	4	40.0	24	18.8
	Total	16	100.0	41	100.0	33	100.0	20	100.0	8	100.0	10	100.0	128	100.0
Female	yes	9	75.0	30	78.9	27	81.8	13	81.3	3	50.0	1	16.7	83	74.8
	no	3	25.0	8	21.1	6	18.2	3	18.8	3	50.0	5	83.3	28	25.2
	Total	12	100.0	38	100.0	33	100.0	16	100.0	6	100.0	6	100.0	111	100.0

Table (3): Qualifications and repeat X- ray of patients.

Gender	Repeat X-ray	Qualifications						Total
		Primary School	Secondary School	Institute (diploma)	University	High degree	Irritate	
Male	yes	18	20	21	12	1	7	79
	No	14	6	6	3	0	1	30
	Hesitate	3	3	8	4	0	1	19
	Total	35	29	35	19	1	9	128
Female	yes	13	14	18	12		10	67
	No	6	3	4	5		0	18
	Hesitate	6	8	8	3		1	26
	Total	25	25	30	20		11	111