



PATIENT PERCEPTION ON PHYSICIAN PRACTICE WHILE PRESCRIBING FOR RADIOLOGY EXAMINATION

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ABSTRACT

Patient perception on physician practice while prescribing for radiology examination .our objectives is to assess the patient perception of physician practice and to assess the patient's perception on radiologic examination. The study was conducted from February 2014 to April 2014 in South Kanara District of Karnataka (rural 65.2%, n-326 and urban 34.8%, n-174). The patient referred from the department of orthopedists and medicine to the radiology department are considered for the study. The selections of the patients are based on the convenience sample. The prospective study design approach was considered for the study. In this study i had developed 15 items forming two domains using frequency four point scales with nine items and Likert five point scales with six items, to assess the patient perception of physician practice and the patient perception on radiologic examination.to analysis the data obtained from our questionnaire study we considered the descriptive static analysis and Pearson chi square test. The descriptive static analysis used to analysis the demographic chart of the patient and items. The Pearson chi square test was used to determine the association between the (a) educations of the patient and radiation awareness, (b) previous radiology examination and knowledge about radiation, (c) previous radiology examination and protective device used in radiology examination, (d) previous radiology examination and signage's used in radiology department. The outcome of our study shows that referring physician follows poor justification of practice. The majority of the physicians (75.0%) do not explain the importance of radiology examination to the patient. Only 1.2% of research population had agreed that the referring physician always explains or discuss the relevance of radiology examination prescribed to the diagnosis of the patient specific condition.The majority of the research population had reported that referring physician does not explain the risk (91.4%) and benefit (87.4%) associated with the radiology examination were radiation is used. Minority of research population had strongly agreed that they were comfortable when referring doctors informing about the risk (12.6%) and benefit (11.6%) from radiology examination. The most interesting outcome of the study shows that 88.2% of the referring physician never resists the patient wish to undergo the radiology examination when it is not necessary. In present study there is a poor communication between the medical practitioner and patient while prescribing for the radiology examination. The outcome of the study also shows that Patient who were undergoing the radiology examination had poor knowledge about the radiation and get very less or no information about the benefit, risk and dose involved in radiologic examination from the prescribed doctors.

KEYWORDS: Radiation , Patient Perception ,Physician Practice Radiology examination.



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INTRODUCTION

The Justification and optimization of radiation protection for the radiological examination are increased concern in recent research. The patient prescribed for the radiology examination should secure the information about the risk and benefit involved in the study. The patient participation in the decision making process required knowledgeable physician and radiology health care professional. Proper information should be given and explained to the patient regarding the risk of their diseases condition against the long term effect of the radiation involved in the radiologic procedure. The patient should be empowered by a physician about the decision making skill of their examination using ionizing radiation¹. However in actual practice the patient is unaware and not informed regarding the risk involved in the radiology examination by the physician or radiology professional which barrier the decision making skill of the patient⁽²⁾⁽³⁾. Even though it is estimated that the benefit of procedure using the ionizing radiation are clear and well established⁽⁴⁾⁽⁵⁾, due to the advanced development of the computer tomography and certain nuclear medicine examination result in the radiation related cancer induced in the patient⁽⁶⁾. The most concerned in recent research, shows that the physician who are prescribing patient for radiology examination have poor knowledge and awareness about radiation dose involved in the examination⁽⁶⁾⁽⁷⁾⁽⁸⁾⁽⁹⁾⁽¹⁰⁾⁽¹¹⁾⁽¹²⁾. The primary principle of justification is the benefit of the patient should always overshadow by the radiation risk⁽⁵⁾⁽¹³⁾. Due to the improper justification of radiology examination by a physician and a professional of radiology, it was estimated that around 50% of imaging examination may not be necessary⁽⁴⁾. Many study result shows, even the small radiation dose of 10 to 50 mSv associated with the risk of cancer⁽¹⁴⁾. Since the small dose examination also cause the long term effect of cancer, by keeping the radiation dose in mind proper justification of high dose radiology examination such as computer tomography

should be considered⁽¹⁵⁾. The studies from the other part of the world shows nearly 97% of practitioners undervalue the radiation dose imparted during the examination⁽⁷⁾. The purpose of the first ever prospective questionnaires based study among the patients referred for the radiology examination was to get the opinion about the practice of physician while prescribing for radiology examination. The questionnaires included in this study assess the physician explanation about the radiation dose involved in the examination, risk and benefit associated with dose, explanation of relevance and importance of radiological examination.

Aim

Patient perception on physician practice while prescribing for radiology examination

Objectives

- To assess the patient perception of physician practice
- To assess the patient's perception on radiologic examination.

Methodology

The study was conducted from February 2014 to April 2014 in South Kanara District of Karnataka (rural 65.2%, n-326 and urban 34.8%, n-174). The patient referred from the department of orthopedists and medicine to the radiology department are considered for the study. The selections of the patients are based on the convenience sample. The prospective study design approach was considered for the study. The ethical clearance for the study was obtained from the Institutional Ethical Committee and informed consent was obtained before collecting the data. Patient aged above 18 years, referred for the radiography, CT scan and special radiography procedure^s are considered for the study and patient referred for the magnetic resonance imaging and ultrasonography are excluded. In our study we had developed 15 items forming two domains using frequency four point scales with nine items and Likert

five point scales with six items, to assess the patient perception of physician practice and the patient perception on radiology examination. To analysis the data obtained from our questionnaire study we considered the descriptive static analysis and Pearson chi square test. The descriptive static analysis used to analysis the demographic chart of the patient and items. The Pearson chi square test is used to determine the association between the (a) educations of the patient and radiation awareness, (b) previous radiology

examination and knowledge about radiation, (c) previous radiology examination and protective device used in radiology examination, (d) previous radiology examination and signage's used in radiology department.

Sample size

For our study we had considered sample size of n = 245. The sample size for the study was calculated based on the estimate proportion sample size calculator.

$$n = \frac{Z^2 p q}{d^2}$$

Z= (1.96) 95% confidence interval from normal distribution table.

p = 80%

q = 1-p

RESULTS

Demographic characteristics of patient and physician

In our study we had collected the data from 500 patients (male 62.8%, n - 314 and female 37.2%, n - 186) who had visited radiology department. The mean age of male (41.45±15.39) and female (39.73±14.97) were determined using descriptive static analysis. The educational status of the research population participated in this study are showed in the table I. Near 61.0% of research population had undergone previous radiology examination (table II). There is a poor awareness of radiation used in radiology examination (Ref table III). The patient prescribed by a physician from department of medicine (58.8%, n-30) and orthopedic (41.2%, n-21) specialization were considered for the study (Ref table IV). The Designation of physician who prescribed the radiology examination includes professor (medicine-11, orthopedic - 5), Associate Professor (medicine-5, orthopedic - 5), Assistant Professor (medicine-6, orthopedic - 5) and Senior Resident (medicine-8, orthopedic - 6) as shown in table V.

Opinions on patient perception of physician practice and Radiology examination

The outcome of this study shows that the referring physician follows poor justification of practice. The majority of the physicians (75.0%) does not explain the importance of radiology examination to the patient. Only 1.2% of research population had agreed that the referring physician always explains or discuss the relevance of radiology examination prescribed to the diagnosis of the patient specific condition. The majority of the research population had reported that referring physician does not explain the risk (91.4%) and benefit (87.4%) associated with the radiology examination where radiation is used. Minority of research population had strongly agreed that they were comfortable when referring doctors informing about the risk (12.6%) and benefit (11.6%) from radiology examination. The most interesting outcome of the study shows that 88.2% of the referring physician never resists the patient wish to undergo the radiological examination when it is not necessary. Using the chi square test we calculated the association between the previous radiology examination with knowledge about radiation ($\chi^2_{(1)} df = 9.626, p = 0.02$), knowledge about lead protective

device($\chi^2_{(2)} df = 3.037, p = 0.219$), knowledge about pregnancy sign($\chi^2_{(1)} df = 4.598, p = 0.03$) and knowledge about radiation sign($\chi^2_{(1)} df = 7.932, p = 0.05$).we also calculate the association between education and knowledge about radiation($\chi^2_{(3)} df = 1.025, p = 0.00$)From out study result shows that there is a significant association between the previous radiology

examination with knowledge about radiation, knowledge about lead protective device and knowledge about radiation sign among the patient. But there is no association between the previous radiology examination and knowledge about lead protective device used in the radiology department.

Table I
Education Status of the Research Population Participated In the Study

Sl.nos	Education	Frequency	Percent	ValidPercent	CumulativePercent
1.	University or college or equivalent	84	16.8	16.8	16.8
2.	Intermediate between secondary level and university	79	15.8	15.8	32.6
3.	Secondary school	135	27.0	27.0	59.6
4.	primary school only	202	40.4	40.4	100.0
	Total	500	100.0	100.0	

Table II
Population Who Had Undergone Previous Radiology Examination

Previous radiology examination	Frequency	Percent	Valid Percent	Cumulative Percent
NO	195	39.0	39.0	39.0
YES	305	61.0	61.0	100.0
Total	500	100.0	100.0	

Table III
Awareness of Radiation Associated In Radiology Examination

Awareness of radiation used in radiology examination	Frequency	Percent	Valid Percent	Cumulative Percent
NO	381	76.2	76.2	76.2
YES	119	23.8	23.8	100.0
Total	500	100.0	100.0	

Table IV
Patient Prescribed By a Physician from Department Of Medicine and Orthopedic Specialization

	Medicine Specialization		Orthopedic specialization	
	Frequency	Percent	Frequency	Percent
Professor	11	36.7	5	23.8
Associate Professor	5	16.7	5	23.8
Assistant Professor	6	20.0	5	23.8
Senior Resident	8	26.7	6	28.6
Total	30	100.0	21	100.0

Table V
Designation of Physicians Prescribed for Radiological Examination

Designation	N	% of Total Sum
professor	16	29.2%
Associate Professor	10	20.8%
Assistant Professor	11	22.2%
Senior Resident	14	27.8%
Total	51	100.0%

DISCUSSION

This was the first ever prospective questionnaire based survey to know patient perception of physician practice and radiology examination. The radiation protection of patient unit of International Atomic Energy Agency is more concerned about the effectiveness of justification and practice of diagnostic medical exposure. As per the report of an international atomic energy agency emphasis more on poor patient and medical practitioner communication⁽¹⁶⁾. The patient undergoing the radiology examination have the right to decide on examination after considering the risk and benefit of the examination explained by the medical practitioner. In our study it is highlighted that there is a poor communication between the patient and practitioner while prescribing for radiology examination. The two possible reasons for the poor communication are due to the poor literacy and awareness of the patient about the radiology examination and knowledge of medical practitioner in dose related benefit and risk. The multifarious study among the medical student and practitioners shows poor awareness about the risk associated with the diagnostic ionizing radiation⁽¹⁷⁾⁽¹⁸⁾⁽¹⁹⁾⁽²⁰⁾⁽²¹⁾⁽²²⁾. In our

questionnaire based survey, the medical practitioner never explains the importance of radiological examination (75%) and also discuss the relevance of radiological examinations prescribed to diagnosis of patient specific condition (87.8%). Some study state the literacy level of the patient has an important role in discussing the relevance of radiology examination with the medical practitioner which was reflected in our study⁽²³⁾. In our study the awareness of radiation is more among the sample who had completed university level education than as primary school (refer table V). The safety of the patient should consider whenever the patient is coming to radiology department. In order to caution the patient and hospital employees in the area of radiation, displaying the signs and symbols about the radiation and hazards will protect the patient from being exposed to the radiation. The outcome of the study shows that patient has poor awareness about the radiation signage (81%) and pregnancy signage (79.8%) displayed in the radiology department (ref table VI).

Table VI
Radiation Awareness With Respect To Educational Level

Education status	Heard about Radiation			
		No	Yes	Total
University	Count	34	50	84
	% Within Heard About Radiation	8.9%	42.0%	16.8%
Intermediate	Count	47	32	79
	% Within Heard About Radiation	12.3%	26.9%	15.8%
School	Count	117	18	135
	% Within Heard About Radiation	30.7%	15.1%	27.0%
Primary School	Count	183	19	202
	% Within Heard About Radiation	48.0%	16.0%	40.4%
Total	Count	381	119	500
	% within heard about radiation	100.0%	100.0%	100.0%

Table VII
Patient's Awareness Regarding Radiation Signage and Pregnancy Signage
Displayed In The Radiology Departmen

Radiation sign				
	Frequency	Percent	Valid Percent	Cumulative Percent
NO	405	81.0	81.0	81.0
YES	95	19.0	19.0	100.0
Total	500	100.0	100.0	
Pregnancy sign				
	Frequency	Percent	Valid Percent	Cumulative Percent
NO	399	79.8	79.8	79.8
YES	101	20.2	20.2	100.0
Total	500	100.0	100.0	

Limitations

The output of the study shows that there is poor communication between the patients while sending the patient for the radiology examination, there are few limitation to be considered. The study was conducted to the patient of south Kanara District of Karnataka. Further study has to be conducted to the in the other part of the India. The questionnaire used in this study should be translated into the other language in India to find the Patient Perception on Physician Practice While Prescribing for Radiology Examination in other part of the century.

CONCLUSION

The aim of the present study is to Patient Perception on Physician Practice While Prescribing for Radiology Examination. In the present study there is a poor communication between the medical practitioner and patient while prescribing for the radiology examination. The outcome of the study also shows that Patient who are undergoing the radiology examination had poor knowledge about the radiation and get very less or no information about the benefit, risk and dose involved in radiologic examination from the prescribed doctors.

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