Original Article

Radiation and its awareness in nurses

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Abstract

The nursing staff is also working with doctors side by side in the diagnostic procedures requiring radiation. It is of paramount importance that the nurses are fully aware of harmful effects of radiation and the precautions to be taken to protect themselves. Ionizing radiation is a workplace hazard that cannot be detected by the human senses. Hence the nursing staff should be taught about the dangers of ionizing radiation and the ways to protect themselves.

Keywords: Radiation, Nurses and Radiation, Hazards of Radiation, Protection from Radiation

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INTRODUCTION

Marie curie died due to excess exposure to her discovery, the radium. Thomas Edison invented the fluoroscope, but stopped his work in this area when his assistant died of an x-ray overdose. Many years later, we have a better understanding of the dangers of radiation, and yet, we often fail to handle it safely. Doctors who work in the field of radiation are well aware of the dangers of radiation and so they take care of themselves. However, the most vulnerable in this field is the nursing staff who is also working side by side along with doctors. It is because of sheer ignorance about the radiation and its harmful effects that they are careless, take the things lightly and unknowingly become the victims of radiation. It is our effort to create awareness amongst nurses about this danger so that they can take care of themselves.

MATERIAL AND METHODS

A project was undertaken in the BVDU Medical College and Hospital, Sangli so as to know the about the knowledge of nurses and also the students of Bharati Nursing College, Sangli about radiation, about its harmful effects and ways to protect themselves from harmful effects. A PowerPoint presentation was prepared. Initially, a questionnaire was given to all the nurses and were asked to fill it. The questionnaire was an attempt to test the level of their knowledge before the actual teaching. Then the power Point presentation was done. The PowerPoint presentation contained all the basic information about the radiation and the various ways to protect themselves from its harmful effects. After the PowerPoint presentation, there was a lecture which was more of question-answer session so as to impress on their minds about the important points which were discussed in PowerPoint presentation. This was again followed by filling of questionnaire. The questionnaire was the same as given before the PowerPoint presentation. This was an attempt to evaluate if there was any improvement in their perception after the PowerPoint presentation and the interactive lecture.

Pre- Lecture	
Radiation is harmless	Radiation is harmful
80%	20%
X-ray machine is the only source of Radiation	
50 %	
Lead apron is the only source of protection	
30%	
Time-Distance-Shielding method OR “ALARA” Principle	
0%	

However, the PowerPoint presentation followed by lecture was listened with full attention when they heard about the harmful effects of radiation. The response to questionnaire that followed the PowerPoint presentation and lecture was quite rewarding. About 90% of participants could tell about the harmful effects of

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radiation and they had good knowledge about the means of protecting themselves.

Post- Lecture
Knowledge about harmful effect of radiation and the various ways to protect themselves.
90%

The basic objective of this project was to impart the knowledge about radiation, its harmful effects and ways of protecting was quite successful and it must be taken up as yearly activity so that this vulnerable lot can protect itself. Radiation is an important diagnostic tool, but it must be treated with respect. It has become apparent that there is significant room for improvement in radiation safety practices which can vary widely from institution to institution, and from clinician to clinician. All who work in hospital radiation environments, including technologists, nurses, physicians and others, must make commitment to the safer use of radiation, for the good of everyone.

DISCUSSION

Radiation exposure may be most insidious hazard in healthcare. It's invisible and odourless. You can't be sure whether you have not been exposed, so what is there to report? The effect may become apparent long after years of cumulative exposure, and impossible to connect with an occupational injury. The possible effect of radiation exposure can be acute (e.g. erythema, dermatitis, nausea, vomiting, diarrhea, weakness, death) or chronic (skin cancer, bone marrow suppression, congenital defects in offspring.) Ionizing radiation if misused could be a scourge to those on whom and by whom, it is used, and indeed to all mankind, present and future. Properly applied it is one of the greet boons, preventing or alleviating much suffering, bringing health where there was sickness, hope where there was despair. Hence it is very clear that despite knowing fully well that ionizing radiation is very dangerous, it is not possible to abandon its use completely as it is one of the most important tools in the hands of physicians and surgeons in their attempt to give healing touch to the mankind. And hence the use of ionizing radiation is bound to continue. And nurses are the most vulnerable group to suffer from the harmful side effects as the doctors are fully aware of side effects and hence they take all the care to protect themselves. Sources of radiation exposure include holding patients for portable radiography or fluoroscopy procedures and taking care of patients who are undergoing nuclear medicine therapy, such as brachytherepy. Nurses spend more time in close contact with patients than any other healthcare worker, so when radiation in present, nurses are likely to be exposed. Neonatal intensive care nurses often hold babies still during portable X-ray in the neonatal intensive care unit. A recent study that evaluated the radiography films of neonates for the presence of adult fingers found that of 230 radiographs audited, 30 (13%) contained adult fingers directly in the X-ray beam, representing a significant source of occupational exposure for these neonatal nurses. Cath Lab is one such place where ionising radiation is much in use. The cath Lab is a closed atmosphere where the working staff is at a potential risk to radiation exposure almost on a daily basis. Compared to other departments that also use X-ray equipment, the cardiac cath lab is generally considered an area where exposure to radiation is particularly high. Now a days, the use of C-arm in the operation theatres is a common phenomena and it is also a sources of radiation to nurses. IN OUR PROJECT, we first studied the answers given by the participants before the Power Point presentation followed by lecture. The answers were quite disheartening. Large number of participants (more than 80%) were of the opinion that radiation is harmless. Similar percentages of participants were of the opinion that nothing will happen if small dose of radiation is received. About half of participants were knowing X-ray machine in the X-Ray department as the only source of radiation. As far as radiation protection was concerned, they had very vague idea about protection and about 30% of participants wrote about lead apron as the only protection measure. Nobody was aware about the Time-Distance-Shielding method or about ALARA principle.

REFERENCES

1. The Risky Business of Nursing: Laura A. Stokowski, RN, MS, Jan.14. 2014.
2. The importance of Radiation Safety for healthcare workers: Jane Kiah, RN; Dick Stueve, RT; http://www:cathlabdigest.com.
3. General Procedures for nurses: West Virginia University, Robert C. Byrd Health Sciences Center, Radiation Safety Office
4. Radiation Exposure in Cath lab-Safety and precautions: Dr S M S Raza, Leeds Teaching Hospitals, NHS Trust, UK.
5. Radiation Safety for Nursinf Personnel: Carolinas HealthCare System, Stat Govt of North Carolina.
6. Russell J, Burbridge BE, Duncan MD, Tynam J, Adult Fingers visualised in neonatal intensive care unit chest radiographs: What you don't see. Can Assoc Radiol J. 2013; 64:236-239.

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