**ABSTRACT**

**Aim:** The aim of the study was to assess the knowledge and implementation of radiation protection practices among radiographers in Jammu.

**Materials and Methods:** The study was a prospective cross sectional survey. Convenience sampling technique was used to select radiographers who work in the Department of radio diagnosis and imaging of SMGS Jammu and GMC Jammu, conducted during the period from August - October 2016, through self administered questionnaires.

**Results:** Average score on assessment of knowledge was 78.42%, and implementation of those practices was 56.5%. Communication to safe work and radiation protection practices mitigates the risks of somatic and genetic changes caused by ionizing radiation.1 It has been seen that about 3.6 billion imaging studies per year are carried out worldwide, which has led to an increase of 78% in worldwide collective effective dose for medical diagnostic procedures.5 Radiation protection is described as all activities directed towards minimizing radiation exposure of patients and personnel during x-ray exposure.6 Based on the understanding of these fundamental principles, only those individuals, who derive maximum benefits from such exposures to ionizing radiation (justification), should be exposed. It should be ensured that radiation doses resulting from exposure are only enough to achieve needed diagnoses (optimization).7

**RESULTS:** A total of 75 radiographers responded to this study, with the age range of 20 year and 60 years, with 41 males and 34 females. 41 of them were Diploma holders, 34 with higher degree. (Table 1). Regarding knowledge in this study, as seen in table 2 and graph 1, 74 of the respondents knew that doors and walls consist of isolated materials such as lead. 98.7% of the staff has periodic radiation dose check from their TLDs (wearing TLDs during their working hours). Respondents when asked about amount of annual dose limit for individuals and data analysis show that the majority of workers had correct answer (more than 75%). About 33 of them knew the radiation doses associated with commonly requested investigations (44%) answered with yes, while high proportion of respondents did not know about it (56%). Majority of respondents knew that Use of High KV Reduces Skin absorbed Dose i.e. about 78.6%. 50.6% of the radiographers had knowledge about justification and optimization. About 40% of the respondents knew that the operating procedures and local rules must be written down somewhere. 52% of the radiographers knew that quality analysis is an essential part of radiation protection and was conducted in these hospitals, every 3 years. All the radiographers made it sure to ask about pregnancy history in female patients of childbearing age. 74.6% of the radiographers knew that personnel and environmental radiation monitoring is indispensable. About 60% of the respondents gave explanation of procedures to patients or their attendants before exposure. All of the radiation workers sought patient consent before exposing them to the radiation. It was encouraging to observe that about 93.3% enquired about the origin of radiographic examination requests from the patients who came for the procedure. As far as implementation of the practices was concerned it was observed, as seen in table 3 and graph 2, that 93.3% of the study participants wore lead apron during work while 6.7% did not. The obtained results show 98.7%, of who participated in this study adhere to Radiation Protection Guidelines. Respondents Using light beam diaphragms and other protective devices (cone & grid) have percentage of 78.7%, while 61.3% were using wall shield during exposures, radiation signs during working hours with 57.3%, further, only 22.7% used lead gloves. In spite of excellent knowledge found among radiographers in this study, only 25.3% using gonad shields during work. Percentage of application shield for patients and themselves among the participants was significantly higher 78.9% and 83.1%. According to data analysis, there was no significant relation between awareness of Radiation safety, performance and work experience.

**DISCUSSION:** The level of the knowledge among the respondents can be assessed by the fact that 59 out of the 75 respondents answered at least 10 out of the 14 asked questions correctly. Knowledge was assumed to be poor if respondents' average score on fourteen questions used to assess knowledge is less than 50%. Since a respectable number of the radiographers i.e. about 78%, demonstrated sufficient knowledge.
Table 1 Demographic characteristics among participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
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<tbody>
<tr>
<td>AGE</td>
<td></td>
</tr>
<tr>
<td>18-25</td>
<td>13 (17.3%)</td>
</tr>
<tr>
<td>26-35</td>
<td>7 (9.3%)</td>
</tr>
<tr>
<td>36-45</td>
<td>51 (68%)</td>
</tr>
<tr>
<td>46-60</td>
<td>4 (5.3%)</td>
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CONCLUSION:

Within the limitations of study which includes citing an incidence of radiation induced ailments and small sample size, we came to conclusion that the radiographers in the hospitals demonstrated a good knowledge of hazards associated with diagnostic use of ionising radiation and also of protection mechanisms from such hazards. Their knowledge, however, impact of radiation protection practices which were found to be average, furthermore there is also a need for more monitoring of these facilities by the Regulatory bodies.

REFERENCES:

5. The International Commission on Radiological Protection; Annuals of the ICRP 2011. Draft report on radiological protection in fluoroscopically guided procedures performed outside the imaging department. Available from http://www.icrp.org/docs/Radiological protection in fluoroscopically guided procedures performed outside the imaging department.pdf.
