

KNOWLEDGE, ATTITUDE, PRACTICES IN MEDICAL EXPOSURE PROCEDURES USING IONIZING RADIATION

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Abstract: Epidemiologic descriptive study, based on self administrated questionnaire with 15 questions and 47 items related to patient protection in medical practices aiming to assess the attitudes, practices and knowledge of different professional specialities was performed on trainees of one of the RP trainings. The results show good and acceptable scores mainly for other specialities, radiologist and dentists. The conclusions sustain the necessity of a continuous educations system for patient protection in medical ionizing radiating procedures.

Cuvinte cheie: expunere medicală, radiații ionizante

Rezumat: Studiu epidemiologic descriptiv în abordare transversală bazat pe administrarea unui chestionar cu 15 întrebări și 47 de itemi privind cunoștințele, atitudinile și practicile personalului medical în domeniul radioprotecției pacientului în expunerea medicală la radiații ionizante derulat la începutul unuia din modulele de instruire de radioprotecție. Rezultatele au evidențiat în general scoruri bune și acceptabile mai ales pentru medici de alte specialități, radiologi și medicii dentiști. Concluziile susțin necesitatea implementării în continuare, poate cu periodicitate crescută a sistemului de educație continuă privind radioprotecția pacientului, specific diverselor categorii de practici cu radiații ionizante.

INTRODUCTION

Medical exposure using ionizing radiation as radio diagnostic, radiotherapy, interventional medicine or nuclear medicine became in present daily medical practice. Even specific related examination doses is relatively low, in a range of 1 mSv for a chest radiography to 10 mSv for a computer tomography, in the condition of a frequent use, they constitute an important population radiation source, consequently representing an actual public health issue. According to CNCAN 2008(1) Report, the medical exposure counts for about 31% (1,10 mSV) of the total mean annual dose for population, being the component of the exposure that could be influenced and prevent the excess of exposure, case not possible for the rest of 70% of exposure associated with natural radiation. Additional arguments for the topic interest are the national health services characteristics represented by an intensive utilization of radiological examination about 2 millions radiological examination and more than 200 000 computerized topographies (2), according to 2008 statistical available data. If we add the fact that most of the in use equipments (more than 59%) are older than 10 years, the mean normal time of utilization, it is more obvious that a close survey of characteristics and condition of radioprotection principle enforcement in all medical examination in order to keep the ration benefit/risk in the acceptable, recommended, limits, is necessary. In this respect the national legislative requirements issued for transposition and enforcement of 97/43 Directive (4) set up principles, directions and measures both for radiologists and other medical practitioners, prescribing physicians and administrative responsibilities. The results of those rules is monitored by a reporting mechanism of patient exposure procedures and doses (5) that allows tracking and recording of

doses at individual and population level. Additionally, a continuous education system was established for all the physicians working with ionizing radiations, requiring a periodical, 5 years interval, examination.

The aim of the study was to assess the knowledge, attitudes and practices of ionizing radiation practitioners related to patient protection rules in order to improve and adjust the content of the training courses.

MATERIAL AND METHOD

Descriptive transversal study based in a self administrated questionnaire, with 15 questions and 47 items, applied on a lot of 50 physicians at the beginning of a training course, during 11-13 December 2009. The questionnaire was structured in 4 sections: personal, factual data, knowledge attitude and practice questions. It provides information on personal characteristics of respondents (age, experience, specialty, work place, didactical activities) but also on interest on informational sources. The answers related to knowledge have being evaluated on a scale with 3 possible answers: agreement/disagreement/ don't know. The answers related to attitudes and practices were recorded on a gradual scale with 5 grades from total agreement to total disagreement for attitudes and from very rare to very frequent for practices. A descriptive statistical analysis was performed.

RESULTS

The sample included a number of 15 radiologist specialists (34%), 25 dentist (42%), 4 specialist in radiotherapy and 6 physicians with other specialties (endocrinology, pneumology, nuclear medicine or clinic laboratory), from the total of 50 interviewed specialists. The gender distribution

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ESSAYS

reveals a lot dominated by women: 34 de respondents, 68% from the total. Age group structure shows a distribution dominated by young physicians. The respondents profile is illustrated in table 1.

Table no. 1. Respondent profile

Subjects characteristics		Radiology	Radioterapys	Dentists	Other
No subjects		15	4	25	6
Mean age (year)		40.4	45.2	37.0	38.66
Gender (%)	M	33.33	100	24	16.66
	F	66.66	0	76	83.33
Professional grade (%)	Primary	33.33	100	28	50
	Specialist	20	0	24	33.33
	Resident	46.66	0	48	16.66
Didactical activity (%)	Yes	0	0	12	16.66
	No	100	100	88	83.33
Courses within the last 5 y(%)	Yes	46.66	100	32	16.66
	No	53.33	0	68	83.33

The responsibilities related knowledge, those assessing the different specialties legal duties understanding, reveals that about half, 51,6 % of respondents identified correctly the responsibilities related to: optimization, justification, dose assessment or final decision on radiological examinations. The best scores were recorded the other specialties representatives, 61.11%, followed by radiologists (56.67%), dentists 49% correct answers, the last place being occupied by radiotherapy specialists, with only 35.42% correct answers from the total.

The specific technique knowledge's related to level of energy, filtration, collimation, and responsibilities related to registration, analysis and reporting of doses shows a situation even less favorable, only 32% of respondents identifying the correct answers. The best scores hierarchy is the same: other specialties (43%), radiologist (35%), dentists (31%) radiotherapy specialist (9.3%).

The attitudes results related to subjective appreciation of accessibility, knowledge, usefulness of trainings, use of practice protocols, ethical commissions existence and factors of influence in dose assessment and dose registration, recorded appropriate answers for 36% respondents, the first places being occupied by radiotherapy specialist (46%) radiology specialists (42%), dentists (36%) and other specialties (21%).

Concerning knowledge practical application the answers are situated in the positive practices side for 53% from the total, with the same hierarchy as for knowledge's. The summary of findings is indicated in table 2:

Table no. 2. Summary of responses by specialties

Correct answers (%)	Radioterapyspecialists	Dentists	Radiology specialist	Other specialties
Legal responsibilities knowledge	35	49	56	61,11
Technical knowledge	9.3	31	35	43
Desirable attitudes	46	36	42	21
Frequency of correct practices	39	55	60	68

CONCLISIONS

The study constitutes a signal on low level of

knowledge both for legal responsibilities and their practical application, negative factors from the patient protection and public health perspective, that justify an improvement and diversification of specialty targeted trainings, as instrument for practitioners involvement in radiological protection of patients. .

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