

KNOWLEDGE, ATTITUDE AND BEHAVIOUR REGARDING EXPOSURE TO IONIZING RADIATION AMONG FERTILE AGE WOMEN IN ROMANIA

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Abstract: Descriptive transversal study aiming at identifying the knowledge, attitude, and practices related to ionizing radiation exposure to fertile age women in Romania. The CAPI questionnaire results reveals rather good knowledge on radiation exposure effects despite the limited understanding of what, when and why should be avoided. Conclusions support that it is necessary that the appropriate information to be accessible and easily understandable in order to support informed decision related to pregnancy and radiation exposures.

INTRODUCTION

In the actual context of increasing the number of medical equipments and procedures using ionizing radiation (1,2,3) making radiation exposures exams easy available in recent years in Romania, patient radiation protection issue and especially radioprotection for women of fertile age is more and more an actual issue of public health.

Current dilemmas are related to the fact that some of these procedures bring high dose, exposures may be repeated and the recording and keeping of patient doses remain inadequate, despite the existing legislative framework. In addition, recent studies confirm that practitioners are still hesitant in relation to unjustified refusal examinations.(4) Thus, ensuring adequate protection of patients in use of medical examinations and keeping a balance between regulation, control and individualized decision taken by professionals become a topical issue.(5)

Finding the optimum ratio between self-regulation, regulation and control as a means to ensure the patient's right to information, respect for individual autonomy and while protecting against the danger of unfair medical exposures should be done from knowing the real situation of knowledge, attitude and behaviour regarding exposure to ionizing radiation among fertile women in Romania.(3,6,7)

PURPOSE

In the context of an increasing availability of radio diagnostic techniques, some of them with high doses (4,6,8), assessment of population knowledge, attitudes and practices as instruments of shared responsibility for reducing exposure is more than necessary.(4,6,8) One of the most sensitive population groups in relation with ionizing radiation exposure is represented by fertile women.(9)

Assessing their level of awareness, knowledge and practices in order to elaborate appropriate informative materials was the aim of the study.

Objectives:

- Assessment of knowledge, attitudes and practices regarding the exposure to ionizing radiation among fertile and

pregnant women in Romania.

- Identifying the main information sources and gaps related to ionizing radiation techniques.

MATERIALS AND METHODS

The study is based on a descriptive approach. The evaluation of the perception of ionizing radiation among child bearing age women was carried out through a quantitative method, by analysing the answers to a self-completed questionnaire, administrated via internet.

The questionnaire “Knowledge, attitude, and behaviour regarding exposure to ionizing radiation among fertile woman” was designed to highlight the level of awareness and knowledge regarding the hazard posed by ionizing radiation, among Romanian women.

The questionnaire was anonymous and confidential, and the statistical analysis was done with no personal reference. It was a self-administered type - computer assisted, personal interviewing (CAPI) questionnaire applied on-line only, by the “snowball” method.

Specialists of the national network for health promotion within Public Health Directorates contributed to questionnaire dissemination.

The questionnaire consisted of closed questions with single or multiple answers, and it was applied for a period of 45 days (August 15 through September 30, 2015).

RESULTS AND DISCUSSIONS

The total number of respondents, women aged between 16 and 58 years, was 463, of which 452 questionnaires were validated. Respondents with medical background were excluded.

The main socio-demographic characteristics of the respondents, influenced by the internet availability and use were: mean age - 34 years old, majority from urban areas (74.6%); married 62.3%, mostly, (52.4%) graduating high school. Over 75% of the respondents were employed, 40.8% in the private sector, and 36% in the public sector. Related to X-ray practices, most of the respondents reported they had not have an

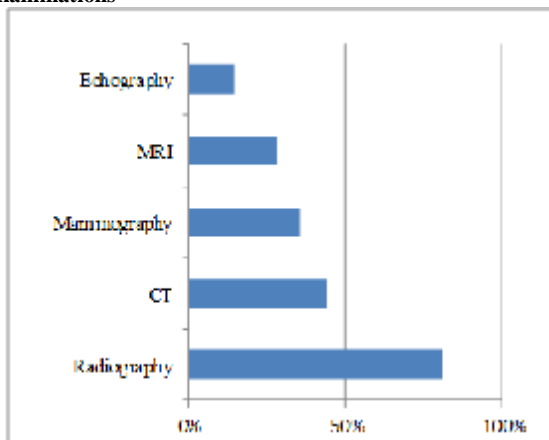
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X-ray examination during the last year lately (47.6%), and 20% reported that they last had an X-ray more than 2 years ago.

The knowledge assessment revealed that: identifying the exposure associated with an ionizing radiation examination was correct for radiography (81%), followed by computer tomography (44.5%), and mammography (35.8%). Still, almost one third of the respondents, 28.2% were considering MRI as exposure to ionizing radiation and other 13.8% considered the ultrasounds examination as using ionizing radiation (figure no. 1).

Figure no. 1. Exposure to ionizing radiation during examinations



The perception of related hazard, even when speaking about a diagnosis, is seen as hazardous: most of the respondents (72.9%) believe that ionizing radiation is detrimental to their health, while 18.7% do not know whether ionizing radiation is harmful or not.

The main effects associated to ionizing radiation for human health were: harmful for target organs such as thyroid, gonads, and bone marrow (61%), and promotes cancer (47.1%). Specific for women, the main effects identified were: sterility (53%), cancer (39.8%), and nausea, vomiting and weakness (30.3%).

The knowledge on the effects of exposure during pregnancy was quite good, pointing most frequently the fetal malformations (64.3%), and miscarriage (39.7%). Related to effects of exposure on the fetus, most answers were related to: congenital malformations (75.7%), abnormalities of the central nervous system (31.3%), and delayed fetal growth (29.1%).

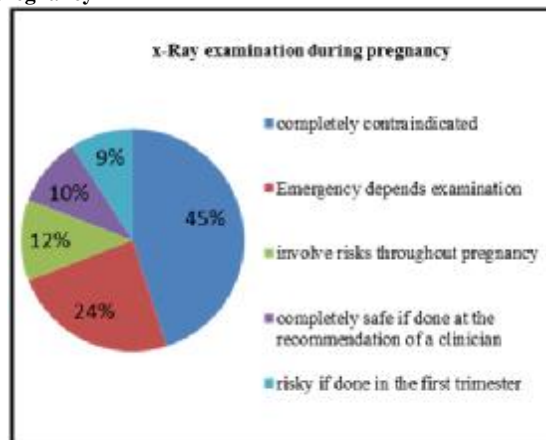
Similarly, the 1 to 5 scale-type question (1 = lowest risk, 5 = highest risk) "To your knowledge, which of the following exposures to ionizing radiation are less harmful to the fetus?" provides a picture of good knowledge on hazard associated with different examinations. Respondents identified ultrasonography as the safest investigation, 73.7% of the respondents graded this exposure as 1, the lowest risk; it was followed by MRI, considered as lowest risk by 25.8%. At the opposite pole, radiography and computer tomography examinations were graded with the highest risk by 53.1%, and 49.6% of the respondents.

The safest time interval for a woman of child bearing age to undergo a medical examination involving exposure to ionizing radiation was not known to the respondents, most of them answered "I don't know" (52.6%), "last trimester of the pregnancy", and "first 10 days of the pregnancy" elicited similar numbers of answers: 17.7%, and 17.9%, respectively.

The following knowledge /attitude question, related to the option of performing/having an X-ray examination during

pregnancy, reflects the perception influenced behaviour; most respondents (45.1%) answered that it is strictly forbidden, while only 24% appreciated that it depends on the clinical recommendation (figure no. 2).

Figure no. 2. Undergoing an X-ray examination during pregnancy

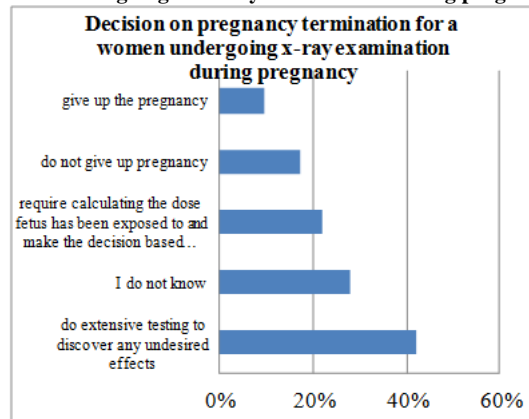


The question "If you were pregnant and were to have a medical problem that required an X-ray examination, which of the following procedures would you consider safest for the fetus?" was the second closed question with scale-type answers (1 = the safest procedure, 5 = the least safe). The answers pointed out that the safest procedures would be the X-ray examination of teeth and forearm (53.4%, and 46.1% of the answers, respectively), and the most harmful procedures would be the X-ray examination of the pelvis, and lumbar spine (70.7%, and 51.3%, respectively).

It is noteworthy that one third of the respondents (30%), appreciated that an X-ray examination of the skull during pregnancy would be harmful for the fetus.

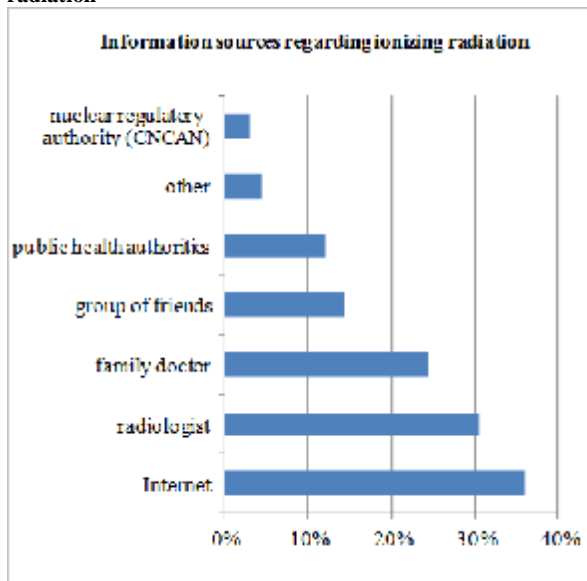
The last question of the questionnaire was designed to analyze the decision regarding the pregnancy made by a pregnant woman who undergoes an X-ray examination. Most respondents chose the answer according to which they would have detailed tests in order to diagnose possible harmful effects (41.9%); 27.8% of the respondents answered they did not know what decision to make, and 22.2% would have the dose to which the fetus was exposed calculated, and would make a decision accordingly.

Figure no. 3. Decision on pregnancy termination for a woman undergoing an X-ray examination during pregnancy



Regarding the source of reliable information on ionizing radiation, most answers mentioned the Internet (36%), the radiologist (30.6%), and the general practitioner (24.4%) (figure no. 4).

Figure no. 4. Information sources regarding ionizing radiation



Regarding the presence of information materials on the effects of ionizing radiation at the sites where X-ray examinations were performed, the respondents noticed they existed in one quarter of the offices (25.6%), while most of them answered they did not notice such materials (41.3%), or they do not know (33.2%).

Despite the legislative provisions on compulsory release of the dose bulletin (10), most of the respondents (80.8%) have never received a record of the doses they had been exposed to during the examination, but they have been asked (74.9%) whether they were pregnant, prior to the examination.

CONCLUSIONS

The analysis of the information collected identified the following aspects:

- Relative good knowledge on the ionizing radiation examinations hazard and the less hazardous exams as ultrasonography or MRI.
- An overall perception that ionizing radiation is harmful for health (72.9%) that might influence the use of exams although indicated by the clinician. There has been also identified a gap of knowledge related to contraindicated timing, dose exposure relation and abortion indication.
- The predominant role of the Internet as main information source regarding ionizing radiation, associated with not always reliable and understandable information for laic person, identified the paths were things could be improved in the future.
- A limited understanding of risks related to doses and the importance of record keeping.

Consequently, in order to transform women in active and responsible players related to ionizing radiation examination, clear, accessible and trustful information should be made available by the public health specialists and clinicians.

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