International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 01, 2020
ISSN: 1475-7192

Effectiveness of an Education Program on Nurses' Knowledge and practice toward Radioiodine therapy at Alamal Hospital in Baghdad city

[1] Shahlaa Suhear Jihad, [2] Khalida Mohammed Khudur

Abstract

Radioactive iodine (RAI) is treatment for overactive thyroid and certain types of thyroid cancer. Nurses caring for patients undergoing Radioiodine therapy require specialized knowledge and practice in order to ensure safety for patient's life. so, educational programs concerning this subject can be of imperative benefit for both patient and nurse.

Objective: *To assess the effectiveness of an educational program on nurses Knowledge and practice toward Radioiodine therapy*

Methodology: *A pre quasi-experimental design (one -group pretest-posttest) was used conducted in this. The present study was carried out at Alamal Hospital in Baghdad Governorate for the period 1^{5th} October of 2019 to22th of march 2020. A non-probability (purposive) sample of (30) nurses were selected. questionnaire for knowledge was constructed for the purpose of the study. Validity and reliability of the instrument were determined through a pilot study. Data were analyzed through the use of Statistical package for Social Sciences (SPSS) version. Descriptive and inferential statistical measures were employed.*

Results: *The study indicated that the knowledge and practice scores of participants were inadequate for study group in the pre-test, but the study group knowledge and practice scores have increased after introducing them to the education program. Thus, there were significant differences between study group. The study findings indicate that there are highly significant differences between (pre and post-tests) in the study group regarding nurse's knowledge and practice concerning radioiodine therapy.*

Conclusion: *The study concludes that the effectiveness of an education program concerning radioiodine therapy is positive at a high rate*

Key words: *Effectiveness, Education Program, Nurses ' Knowledge& practices, Radioactive iodine*

Introduction

Radioactive iodine 131I(RAI) is a nuclear medicine treatment for an overactive thyroid Radioactive iodine is swallowed and absorbed into the blood stream then concentrated by the thyroid gland iodine(1) therapy has been being a successful mode of treatment for hyperthyroidism since its use on 1941 in United Energy State of America. Former Institute of Nuclear Medicine, Bangladesh Atomic Energy Commission first started the RAIT on 1981 Thereafter other Nuclear Medicine Centers have been practicing RAIT on hyper thyroid ism nous(2) The main indications for RAI include non- toxic multi- nodular goiter, thyroid cancer and hyperthyroidism disorders(3) Nurses should give patient adequate instruction after receiving radioactive iodine because it was stays in patient body for a short time. Most of the radioiodine that will be eliminated from the body during the first few days after treatment. Radioiodine leaves body primarily through urine, but very small amounts can be found in saliva, sweat and bowel

[1] *University of Baghdad, College of Nursing.*
[2] *Adult Nursing Department, College of Nursing, University of Baghdad*

movements(4) Oncology nursing could be a specialty training which needs extra information and clinical abilities to back patients analyzed with cancer and their families(5) Specialists continue to evolve the Oncology nursing as response to advances in cancer to treatment, information and biotechnology, as new scientific and technological discoveries are integrated into cancer care, oncology nurses need to play a key role in the management of this patient population, the role of the oncology nurse(6) Radioactive iodine is utilized to analyze and treat thyroid illnesses, such as goiter or to crush thyroid cancer cells. It present in many forms such as in liquid or capsule forms. Radioactive iodine destroys thyroid cells and helps to get rid of any remaining thyroid tissue(7) RAI damages or destroys thyroid tissue, thus limiting thyroid hormone secretion. RAI has a delayed response, and maximum effect may not be seen up for three months. For this reason, the patient is usually treated with anti-thyroid drugs and ß blockers before and for up to three months after the initiation of RAI until the effects become apparent(8) Radioactive iodine improves the survival price of sufferers with papillary or follicular thyroid cancer (differentiated thyroid cancer) that has unfold to the neck or different body parts, and this remedy is now trendy practice in such cases(9) Thyroid carcinoma is the most common endocrine tumor with the largest annual incidence increase in the United States also due to the improvement of the diagnostic technologies. We forecast that thyroid cancer will be the third most common cancer in women by 2019, with a cost of $19–21 billion in the United States alone, and it will represent the fourth cancer diagnosis by 2030(10) The incident of thyroid cancer is greater in women than it is in men. The recent estimates by the American Cancer Society of thyroid cancer in the United States for 2018 are 53,990 new cases of thyroid cancer 40,900 in women ,and 13,090 in men(11)

Methodology

A pre quasi-experimental design(one -group pretest-posttest) was used conducted in this. The present study was carried out at Alamal Hospital in Baghdad. Governorate for the period 1^{5th} October of 2019 to22th of march 2020. . The sample involved All these nurses at Alamal Hospital in Baghdad**.** sample of (30) nurses were divided into one group; study group consisted of (30) nurses who were exposed to an education program A randomized sample (30) nurses was selected through probability sampling technique.

The study instrument is composed of three parts: Part I: demographic characteristics of the nurses such as (age, gender, and years of experience, educational level, and training courses, update in formation) . Part II: knowledge of nurses about radioactive iodine therapy ,it consists of (20) multiple choice questions in two Axes. Each question was composed of (4)) items in alternative form of a multiple choice and given the correct answer score (2) and the incorrect answer scored (1). About (25-30) minutes are given for the test completionPart III: The practices checklist for nurses (Observation checklist), is composed of (17) items. The time practice check list of each nurse for each episodes took about (120_180) minutes.

The educational program consists of five sessions and is implemented for five weeks period in medical department. Time required for each session was (60) mints, teaching materials which are used during these sessions include (class-rooms, White board, compute data-show, note books and Brochures .

Results

Table (4.1): Discussion of the Socio-Demographic Characteristics of the Study Sample

Characteristics

No.	Demographic Characteristics of Nurses	Results	
1	Gender	F	%
	Male	8	26.7
	Female	22	73.3
	Total	30	100
	$\bar{x} \mp SD$	1.733 + 0.449	
2	Age	F	%
	21-25	4	13.3
	26-30	10	33.3
	31-35	0	0
	36-40	3	10
	41-45	1	3.3
	46 and over	12	40
	Total	30	100
	$\bar{x} \mp SD$	3.766 + 2.06	

3	Educational Attainment	F	%
	Nursing Secondary School Graduate	13	43.3
	Nursing Institute Graduate	13	43.3
	Nursing College Graduate	4	13.3
	Total	30	100
	$\bar{x} \mp SD$	1.7 + 0.702	
4	Years of Experience	F	%
	1-5 years	10	33.3
	6-10 years	7	23.3
	11 years and over	13	43.3
	Total	30	100
	$\bar{x} \mp SD$	2.1 + 0.88	
5	Sharing in Training session	F	%
	Yes	4	13.3
	No	26	86.7
	Total	30	100
	$\bar{x} \mp SD$	1.86 + 0.345	
6	Updating Information	F	%
	Yes	14	46.7
	No	16	53.3
	Total	30	100
	$\bar{x} \mp SD$	1.53 + 0.5	
7	Source of Updating Information	F	%
	Internet (official websites)	9	30
	Internet (unofficial websites)	3	10
	Libraries	0	0
	Books and references	0	0
	Attending symposium	0	0
	Not present	18	60
	Total	30	100
	$\bar{x} \mp SD$	4.1 + 2.38	

Freq.= frequency, % = percentage, P=P.value,$\bar{x} \mp SD$ = arithmetic Mean ($\bar{x}$) and Standard Deviation (S.D.).

Table (4.2): Comparison between Pretest- Posttest Nurses' Knowledge toward patients receiving radio-iodine therapy

Items	Pre-test				Post-test			
	F		Total MS	Ass.	F		Total MS	Ass.
	False	True			False	True		
1- The iodine used in diagnostic atomic scanning is	20	10	1.33	M	8	22	1.73	M
2- Refrain from food and drink when the patient takes a radioactive iodine dose for a period of time	26	4	1.13	L	7	23	1.76	H
3- There are different types of radioactive iodine	28	2	1.06	L	7	23	1.76	H
4- Referred to as radioactive iodine treatment	17	13	1.43	M	4	26	1.86	H
5- It is one of the foods that should be avoided before treatment with radioactive iodine	13	17	1.56	M	2	28	1.93	H
6-Aspecial diet should be followed before radioactive iodine treatment for a period	25	5	1.16	L	5	25	1.83	H
7- It is considered one of the foods that can be eaten before treatment with radioactive iodine	19	11	1.36	M	7	23	1.76	H
8- Pregnant radioactive iodine treatment is given to pregnant women	16	14	1.46	M	3	27	1.9	H
9- Radioactive iodine treatment is given in thyroid activity in cases	23	7	1.23	L	12	18	1.6	H
10- It is one of the necessary medicinal preparations before radioiodine treatment	26	4	1.13	L	8	22	1.73	M

F = Frequency, MS = mean of score, Ass. = Asymptomatic significant; H. = High (1.75 - 2); M. = Moderate (1.25 – 1.75); L. = Low (1. – 1.25)

HS: Highly Sig. at P<0.01non-significant at P>0.05, S= significant at P<0.05

Table (4.2) showed there were significant differences in the mean of study sample between the pretest and posttest, which revealed that there was a high improvement in the participants' knowledge.

Table (4.3): Comparison between Pretest -Posttest Nurses' Knowledge Concerning Instructions that should be followed for Patients receiving radio-iodine therapy

	Pre-test				Post-test			
	F		Total MS	Ass.	F		Total MS	Ass.
	False	True			False	True		
1- It is considered one of the instructions that the infants should follow when receiving radioiodine treatment	22	8	1.26	M	5	25	1.83	H
2- Treatment with radioactive iodine by	8	22	1.73	M	1	29	1.96	H
3- The patient must be isolated after radioactive iodine treatment for a period of	23	7	1.23	L	3	27	1.9	H

4- It is considered one of the side effects of radioiodine treatment	24	6	1.2	L	1	29	1.96	H
5- Radioactive iodine treatment as a risk factor for the following occurrence	24	6	1.13	L	3	27	1.9	H
6- After treatment with radioactive iodine, a woman can become pregnant	19	11	1.36	M	4	26	1.86	H
7- The most sensitive age group is not thyroid disease after radioactive iodine treatment	26	4	1.13	L	3	27	1.9	H
8- The important advice provided by the nurse when the patient is discharged from the hospital is the following	18	12	1.4	M	3	27	1.9	H
9- The nurse must avoid any of the following paragraphs to maintain the safety of the patient receiving radioactive iodine	28	2	1.06	L	5	25	1.83	H
10- It is considered the most risky employee while working in the hospital in the field of radioiodine treatment	12	18	1.6	M	3	27	1.9	H

F = Frequency, MS = mean of score, Ass. = Asymptomatic significant; H. = High (1.75 - 2); M. = Moderate (1.25 – 1.75); L. = Low (1. – 1.25)

HS: Highly Sig. at P<0.01significant at P>0.05, S= significant at P<0.05

Table (4.3) showed there were significant differences in the mean of study sample between the pretest and posttest, which revealed that there was a high improvement in the participants' knowledge

Table (4.4): Comparison between Nurses' Practice (pre-post) test toward Patients receiving radio-iodine therapy

	Never	Sometimes	Always			Never	Sometimes	Always		
1- Wearing big film	17	9	4	1.56	S	5	2	23	2.6	A
2- Use plastic gloves when dealing with body fluid	23	5	2	1.3	N	2	1	27	2.83	A
3- Wearing medical gloves when dealing with patents	17	11	2	1.5	S	2	2	26	2.8	A
4- Wearing a face mask when caring	25	4	1	1.2	N	16	2	12	1.86	S
5-Wearing Nursing Uniform in the hospital	17	4	9	1.73	S	4	3	23	2.63	A
6- wearing bullet – proof jacket when entering radioiodine lounge	27	2	1	1.13	N	22	6	2	1.33	N
7- Recording the treatment and dosage	11	11	8	1.9	S	0	2	28	2.93	A
8- measuring the patents temperature	21	5	4	1.43	N	14	7	9	1.83	S
9- measuring the patents pulse	24	6	0	1.2	N	23	4	3	1.33	N
10- measuring the patents blood pressure	16	7	7	1.7	S	0	4	26	2.86	A
11- placing all contained materials in the yellow container	12	5	13	2.03	S	0	0	30	3	A
12- The contamination advice is used to confirm the patents health after the entering radioactive iodine hallway	20	6	4	1.46	N	13	4	13	2	S
13- wearing along sleeved white bra when dealing with patients	7	11	12	2.16	S	0	1	29	2.96	A
14- Replacing the patents bed sheets daily	24	4	2	1.26	N	18	6	6	1.6	S
15- Do Not allow the patient to visit the isolation hall	18	7	5	1.56	S	3	4	23	2.66	A
16- Monitoring the patents receiving radiation therapy during the treatment	24	3	3	1.3	N	9	1	20	2.03	S

period										
17- giving instructions to the patent with radioiodine	28	1	1	1.1	N	23	6	1	1.26	N

Ass. = Asymptomatic significant; A. = Always (2.5 - 3); S. = Sometimes (1.50 – 2.5); N. = Never (1. – 1.50)
HS: Highly Sig. at P<0.01significant at P>0.05, S= significant at P<0.05

Table (4.4) reflected that there were significant differences in the mean between the pretest and posttests of the study sample, which reveal that there was a significant improvement in their practice

Discussion

Table (4.1) Findings in indicated that the majority (73.3) percent of the study sample were female and the remaining were male. Moreover, the highest percent of the study sample (33.3) were within age group (26 - 30) years old. In a study which was conducted by Babaloui and others in (2018) in Iran to evaluate the awareness of 85 nurses toward radiation in ICU, the researchers found that (69.4) percent of the study sample were females and the remaining were males(12)

Also conducted a study to determine nurses' knowledge and attitude toward ionizing radiation therapy in Maiduguri metropolis and found that among 188 nurses, most of the participant were female and the majority of them (74) percent were below age of forty years(13)

Corresponding to the Level of education of the study sample, results in Table (4.1) indicated that the highest percent (43.3) were within nursing secondary school graduate. In relation to the years of experience, results shown in table (4.1) also presented that the highest percent of the study sample (43.3) had (11 years and over) of experience in the work field. Luntsi (2016) also found that most of the study sample (36.2) percent of 188 nurses have diplomain nursing. In a cross sectional study, which was conducted by Alzubaidi and others in 2017 on 300 nurses in Jeddah city to examine their knowledge about radio ionizing diagnosis and treatment modalities, and the authors found that (43) percent of the study sample have bachelor degree in nursing and (39.3) percent were presented with less five years of experiences in the work field(14)

Findings in Table (4.1) also showed that (86.7) percent of the study sample were not sharing in any training sessions. Moreover, the majority of the study sample (53.3) percent were not updating their information. Concerning updating self-information, results in table (4.1) indicated that (30) percent of the study sample were used official websites in internet to update their information; while, the highest percent (60) were not use any source to update their information. According to the aforementioned evidences that shown in table (1), most of the study sample were females between age group 26 – years old, and they vast number of them were working in nursing field for more than 11 years; but, significant number of the study sample were not sharing in training sessions and not updating their information, which might have an impact on their knowledge and practices in the working area and reveals their need for training courses and educational program to improve their capabilities

Table (4.2) showed there were significant differences in the mean of study sample between the pretest and posttest, which revealed that there was a high improvement in the participants' knowledge toward patients receiving radio-iodine therapy. The researcher of this present study declared that the used educational program has a positive impact on improving nurses' knowledge (the study participants) toward patients who receive iodine therapy. Nurses' knowledge should be improved and updated to minimize the risk of iodine therapy for patients with thyroid diseases or cancer. Nurses' knowledge should be improved and updated to minimize the risk of iodine therapy for patients with thyroid diseases or cancer. Results in showed that there was a highly significant difference of the knowledge (Nurses' Knowledge toward Patients Receiving Radio-Iodine Therapy) of the whole study sample between pre-test and post-test score at p value(.000).(15)

Table (4.3) showed that there were significant differences in the mean of study ample between the pretest and posttest, which revealed that there was a high improvement in the participants' knowledge concerning instructions that should be followed for patients receiving radio-Iodine therapy. Monica (2015) presented the significance of increasing nurses' knowledge toward guiding and instructing patients who received iodine therapy to decrease the consequences of this treatment. It was evidenced that the knowledge of the participated nurses were improved to have the required knowledge base that enables them from providing instructions for patients receiving iodine therapy (the researcher). In a study which was conducted by Mohamed and others at 2019 to evaluate nurses role in assisting patients receiving radio-iodine therapy, and they found that improving nurses' awareness toward instructing patients about radio-iodine therapy can assist in decreasing the side effects of this treatment. Presented a highly significant difference of the knowledge (Nurses' Knowledge Concerning Instructions that should be followed for Patients Receiving Radio-Iodine Therapy) of the whole study sample between pre-test and post-test score at p value (.000).(4)

Table (4.4) showed that there were significant differences in the mean between the pretest and posttests of the nurses' practices, which reveal that there was a significant improvement in their practices toward Patients Receiving Radio-Iodine therapy. Results of the present study showed an increase in the perfection of nurses' practices (the study participant) toward patients receiving iodine therapy, which would help in providing active and effective

nursing care for such stakeholders (the researcher). Monica (2015) mentioned that increasing nurses' knowledge is essential in increasing their competencies, including practices, toward providing care for patients receiving radio-iodine therapy and decreasing the expected risk of this therapy. This result also came in a comparison with Alzubaidi et al. (2017) who presented that nurses had good knowledge toward radio-iodine therapy, but with ineffective and poor practices toward iodine therapy. Presented a high significant difference among the whole study sample pre-test and post-test practices (Nurses' Practices toward Patients Receiving Radio-Iodine Therapy) a at p value (.000).(14)

Conclusions:

There is strong effect for applying education program in study group on nurses' knowledge and practice concerning radioiodine therapy. There is no relation between nurses' knowledge and their age groups, gender, Educational Level, Number of years of service in health institutions, Number of years work in oncology wards, Training courses, update information in the field of radioiodine therapy at (pre and post-tests) for study regarding education program at

Recommendations

Specific training courses for nurses with exam to get the benefit and to have effect on the oncology nurses knowledge. Nurses should be encouraged to attend specific meeting, program, workshops and seminars concerning radioiodine therapy to be acquainted with the most recent advances and skills in the field. Participate in training sessions for nurses before working in the field of radiation and nuclear medicine.

References:

1. Wazir M., Faaruq, S., Hussain A., Basim K M., and Shahab, F. (2009). radio-active iodine therapy for hyperthyroidism treatment protocol ,Handbook of Hyperthyroidism, Etiology, Editor; Lionel Mertens and Jeremy Bogaert , Nova Science Publishers, Inc.

2. Begum, F., Sultana, S., Nahar, N., Alam, F., Hasan, M., Hussain, R., ... & Moslem, F. (2015). Protocol for management of hyperthyroidism by radioactive iodine (RAIT)-SNMB guidelines. Bangladesh Journal of Nuclear Medicine, 18(1), 85-88

3. Jönsson, H., & Mattsson, S. (2004). Excess radiation absorbed doses from non-optimised radioiodine treatment of hyperthyroidism. Radiation protection dosimetry, 108(2), 107-114.

4. Mohamed, S. H., Mohamed, M. G., & Salem, F. A. (2019). Impact of Implementing Nursing Guidelines on Knowledge and Habits of Patients Receiving Radioactive Iodin e. Thyroid, 61.

5. Princess Margaret cancer center. (2015). Oncology Nursing Practice. Available at: https://www.ons.org/

6. Quinn, A. (2008). Expanding the role of the oncology nurse. Biomedical imaging and intervention journal, 4(3).

7. National Institutes of Health Clinical Center, 2016. Iodine I-131 Therapy Inpatient Unit 5NW. https://www.cc.nih.gov/ccc/patient_education/pepubs/iodine131_therapy.pdf

8. Barone J., & Castro M.,. (2017). USMLE step 1 lecture notes 2017: pathology, ch25, Endocrine pathology, Simon and Schuster, New York, Pp. 259

9. American Cancer Society, 2016. Radioactive Iodine (Radioiodine) Therapy for Thyroid Cancer. https:// www.cancer.org/cancer/thyroid-cancer/ treating/radioactive-iodine. Html

10. Nettore, I. C., Colao, A., & Macchia, P. E. (2018). Nutritional and environmental factors in thyroid carcinogenesis. International journal of environmental research and public health, 15(8), 1735.

11. Cabanillas, M. E., Ryder, M., & Jimenez, C. (2019). Targeted therapy for advanced thyroid cancer: kinase inhibitors and beyond. Endocrine Reviews, 40(6), 1573-1604.

12. Babaloui, S., Parwaie, W., Refahi, S., Abrazeh, M., & Ardekani, M. A. (2018). Awareness assessment of nurses in the OR, ICU, CCU, and PICU about radiation protection principles of portable radiography in hospitals of Bandar Abbas, Iran. Journal of Radiology Nursing, 37(2), 126-129.

13. Luntsi, G., Ajikolo, A. B., Flaviuos, N. B., Nelson, L., Nwobi, C., Hassan, J. M., & Malgwi, F. A. (2016). Assessment of knowledge and attitude of nurses towards ionizing radiation during theatre/ward radiography. J Nurs Care, 5, 1-5.

14. Alzubaidi, M. A., Mutairi, H. H. A., Alakel, S. M., Al Abdullah, H. A. S., Albakri, I. A., & Alqahtani, S. F. A. (2017). Assessment of Knowledge and Attitude of Nurses towards Ionizing Radiation During Radiography in Jeddah City, 2017. The Egyptian Journal of Hospital Medicine, 69(7), 2906-2909.

15. Monica Beck MSN, R. N. (2015). Radiation safety in the management of patients undergoing radioactive iodine ablation therapy. Clinical journal of oncology nursing, 19(1), 44.