

# NURSING CARE FOR PATIENTS UNDERGOING RADIOTHERAPY TREATMENT NURSING ASSISTANCE TO PATIENTS SUBMITTED TO RADIOTHERAPY TREATMENT

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## Summary

Thyroid cancer is the most common neoplasm of head and neck tumors in the world, and affects three times more women than men, being the fifth most common tumor in women in the Southeast and Northeast regions of Brazil. Iodine therapy has been used for more than 50 years successfully, and is indicated as a complement to other treatments, generally associated with surgical treatment or in the treatment of metastases of differentiated thyroid carcinoma. **Goal:** Identify in the scientific literature the main nursing care for patients undergoing treatment with radioiodine therapy.

**Material and method:** Descriptive, exploratory study, data were collected through a bibliographic survey in the Virtual Health Library (VHL) with the following selection criteria: articles published in Portuguese (Brazil), from January/2000 to December/2019.

**Results and discussions:** The search allowed the capture of 10 articles that made up the sample of this study. Among the main care provided by the nursing team, health education stands out; therapeutic communication and psycho-emotional support; technical procedures and therapeutic room care. **Conclusions:** Nursing is present, playing an important role in the treatment of patients undergoing radioiodine therapy and must always manage and provide care with a technical and scientific basis, contributing to the success of the treatment.

**Key words:** Oncology Nursing. Nuclear Medicine. Neoplasms of the thyroid gland. Iodine radioisotopes.

## Abstract

Thyroid cancer is the most common neoplasm of head and neck tumors in the world, and affects three times more women than men, being the fifth most common tumor in women in the Southeast and Northeast regions of Brazil. Iodotherapy has been used for more than 50 years successfully, and has an indication of a complementary character to other treatments, in general it appears associated with surgical treatment or in the treatment of metastases of differentiated thyroid carcinoma. **Objective:** To identify in the scientific literature the main nursing care for patients undergoing treatment with radioiodine therapy. **Material and method:** A descriptive, exploratory study, data were collected through a bibliographic survey at the Virtual Health Library (VHL) with the following selection criteria: articles published in the Portuguese language (Brazil), from January / 2000 to December / 2019. **Results and discussions:** The search allowed the capture of 10 articles that comprised the sample of this study. Among the main care provided by the nursing team, health education stands out; therapeutic communication and psycho-emotional support; technical procedures and care with a therapeutic room. **Conclusions:** Nursing is present, playing an important role in the therapy of patients undergoing radioiodine therapy and should always manage and provide care based on scientific technical support, contributing to the success of the treatment.

**Keywords:** Oncological Nursing. Nuclear Medicine. Neoplasms of the thyroid gland. Iodine radioisotopes.

## 1. Introduction

Thyroid cancer is the most common neoplasm of head and neck tumors in the world and affects three times more women than men, being the fifth most common tumor in women in the Southeast and Northeast regions of Brazil, with a total of 13,780 new cases per year, of which 11,950 are in women and 1,830 in men (INCA, 2020).

According to the National Cancer Institute (INCA, 2020), thyroid tumors can be classified according to the type of histological tissue, with differentiated carcinomas being the ones with the highest incidence in Brazil, among them are differentiated papillary carcinoma, which represents between 50% and 80% of cases; follicular, between 15% and 20% of cases; and Hurthie cell cells. There are also poorly differentiated and undifferentiated carcinomas, which together represent around 20% of tumor cases, related to the thyroid site.

Regarding treatment, thyroid cancer requires a complete therapeutic approach, as the "gold standard", surgery is the first treatment of choice, known as partial or total thyroidectomy (removal of the thyroid). Some specific histological types of tumor are indicated for total thyroidectomy associated with emptying the lymph nodes neighboring the gland, and therapeutic supplementation with radioactive iodine (INCA, 2020; CORDEIRO, 2013).

Iodine therapy has been used successfully for over 50 years in the treatment of some malignant thyroid tumors. The application of this therapy takes into account the individual's clinical condition, laboratory tests, the anatomopathological study of the tumor, among other factors intrinsic to the disease. It is indicated as a complement to other treatments, generally associated with surgical treatment or in the treatment of metastases of differentiated thyroid carcinoma (SAPIENZA, 2009).

The use of radioiodine therapy, when well indicated and based on international treatment guidelines, results in high remission rates and increased life expectancy for patients. Aiming to obtain a better prognosis for the patient, radioiodine therapy emerges as an important line of complementary treatment, and consists of administering a radioisotope, with iodine-131, orally, which, after administered to the patient, begins to emit radiation into the target organ. specifically, in this case in the thyroid region. Iodine-131 emits a beta particle and gamma radiation, has a half-life of eight days, is absorbed by the human body preferably by the thyroid gland, where it is absorbed.

concentrates and becomes useful in destroying residual neoplastic cells that are still present even after surgery (CORDEIRO, 2013).

Regarding the role of nursing in this area, the Federal Nursing Council (COFEn) regulates, through resolution no. 211/1998, the role of the nursing team in the scope of radiotherapy, nuclear medicine and imaging; and provides that nursing professionals must be part of the multidisciplinary team ensuring nursing care for clients subjected to ionizing radiation, valuing safe care, free from harm. The nurse is responsible for planning, organizing and supervising nursing activities, whether in the care or administrative sphere, directing nursing care individually and dynamically for each patient, taking into account the particularities of the tumor and each organism. The nursing team, in particular, plays an important role in treating patients undergoing radioiodine treatment and who will be hospitalized under radioactive isolation, as this scenario presents major challenges in terms of management and provision of care. The time related to direct patient care also presents challenges, as it must be as short as possible, since after administration of the radiopharmaceutical, the patient becomes a source of radioactive emission (OLIVEIRA, 2009).

The room used for the elective hospitalization of the patient who will undergo iodine therapy, has its guidelines and specificities governed by the National Nuclear Energy Council (CNEN), the regulatory and supervisory institution for Nuclear Medicine services in the country, which highlights the obligation of radioactive isolation to the patient who receives iodine-131 dosage above 30 mCi  $\text{Na}^{131}\text{I}$ , with potential for radioactive emission (OLIVEIRA, 2017).

The nurse manages, through the systematization of nursing care (SAE), risks assistance and directs interventions in order to promote adequate management of symptoms, complications and possible reactions; to guide and direct self-care for patients, taking into account the characteristics of care for this specific patient profile, which tends to be less in person and more at a distance; in addition to resolving doubts and eventual anxieties and anxieties brought by patients and family members who are undergoing treatment (OLIVEIRA, 2009). Therefore, this study stands out for its importance in highlighting the scientific technical knowledge necessary for the nursing team to act effectively in the different phases of radioiodine therapy, whether from admission; with care during isolation, until the client's discharge, providing safe action and the development of humanized and quality assistance, taking into account the

scientific, ethical and legal aspects of the profession. The objective is to identify in the scientific literature the main nursing care for patients undergoing treatment with radioiodine therapy.

## **2 Material and method**

This is a descriptive, exploratory study that uses bibliographic research to collect data. Bibliographical research is developed from the systematic survey and evaluation of materials and theoretical references already published, whether in written form, such as printed periodicals, books, scientific articles, conference annals, or electronically, through databases and consultations with web sites. It provides support for all types of research, as it allows the researcher to observe all the material that has already been produced on the topic addressed and develop the problem to be studied (GERHARDT, 2009).

The data were collected through a bibliographic survey in the Virtual Health Library (VHL) with the following selection criteria: articles published in Portuguese (Brazil), from January/2000 to December/2019, with texts available in full, from online and free of charge.

The descriptors used to search for the material, according to the health descriptors (DeCS), were: "oncology nursing"; "nuclear medicine"; "thyroid gland neoplasms"; "iodine radioisotopes". After selecting the materials, the abstracts were read and those that met the inclusion criteria were read in full and a data collection form was filled out, containing the title, authors, year of publication, periodical, and research objective.

## **3 Results**

The search allowed the capture of a total of 41 articles in the Virtual Health Library (VHL) that relate to the researched topic. After complete screening, the final sample was structured by 10 articles, as exemplified in the following table.

We highlight the scarce number of articles and/or scientific materials found on the subject of radioiodine therapy during the search for material to compose this research project, and mainly articles that describe or direct nursing care and practice for patients suffering from such treatment.

**Table 1**–Distribution of articles captured according to the database and application of inclusion criteria described. São Paulo, 2020

Basis of data	Total articles found using the exclusion criteria	Discard after reading the summary	Discard after reading in full	Final
	Identified in the search	Excluded	Excluded	Selected
VHL	41	26	5	10
Total	41	26	5	10

Source: survey data, 2020

From the articles listed that make up the sample of this research, a table was prepared with the characterization of the studies in terms of authors, year of publication, periodical, title and objectives.

**Table 1** -Characterization of the articles selected as a sample of the project. São Paulo, 2020

Authors	Year of Publication	Magazine	Title	Goals
LAMB, EAK, <i>et. al.</i>	2013	Text and Context Nursing	Profile of patients with thyroid cancer subjected to radioiodine therapy	Know the profile of patients undergoing Radioiodine Therapy in the Service of Nuclear Medicine ICSC/SES-SC, which underwent a nursing consultation during the period between October from 2004 to December 2009.
FONSECA, FL, <i>et. al.</i>	2012	File Brazilian from Ophthalmology	Obstruction of tear ducts associated with treatment radioiodine therapy thyroid carcinoma	Describe a series of patients with system obstruction tear associated with radioiodine therapy for carcinoma treatment
MORESCO, CH; <i>et. al.</i>	2017	Magazine UNINGÁ	Radioiodine therapy: a study about nursing care in assistance to the cancer patient	Analyze the nursing care provided to patients undergoing radioiodine therapy
OLIVIERA, ACF; <i>et. al.</i>	2009	Magazine of Nursing UERJ	Nursing in Radioiodotherapy: focusing on help needs to customers	Describe the needs of help expressed by clients subjected to radioiodine therapy and analyze the nursing care required to meet the identified needs
OLIVIERA, ACF; <i>et. al.</i>	2015	Available online	Care Management of Nursing in Radioiodine therapy for Cancer differentiated from Thyroid	Understand customers' perception of the actions carried out by the team nursing in Radioiodine therapy

OLIVEIRA, MM; <i>et. al.</i>	2017	Magazine Scientific of Nursing	Contributions to the assistance to patients with thyroid cancer undergoing to radioiodine therapy: review of literature	Identify and analyze the production of knowledge related to thyroid cancer patients undergoing radioiodine therapy, aiming to contribute to a nursing care with quality and safety
RISSATO, M. L.; <i>et. al.</i>	2009	Magazine Institute Adolfo Lutz	Iodine therapy: critical assessment of procedures for precautions and handling of radioactive waste	Investigate the procedures used in iodine therapy, during the period of hospitalization and discharge from hospital, in three hospitals, and compare them with the requirements and recommendations current
ROLIM, AE H.; <i>et. al.</i>	2011	Radiology Brazilian	Repercussions of radiotherapy in the orofacial region and its treatment	Clarify the action of radiotherapy on lesions oral neoplastic diseases, their indications, describe the biological mechanisms, the adverse effects, the current treatment protocols, and promote better clinical conduct by the dental surgeon, when faced with these irradiated patients
ROSINI, I.; <i>et. al.</i>	2013	Magazine gaúcha from Nursing	Health education in the radiology service: puncture guidelines breast aspiration and thyroid	Know expectations and customer questions subjected to puncture Fine Needle Aspiration breast and thyroid
SALES, O. P.; <i>et. al.</i>	2010	The Journal of the Health Sciences Institute	Nurses' role in a Diagnostic Center by Image	Understand the role of nurses who work at the Diagnostic Center by Image

Source: survey data, 2020

**Table 2** -Nursing care for patients undergoing radioiodine therapy. São Paulo, 2020

Health education: disposal of waste and supplies, hospital admission routine, self-care and radioprotection measures
Therapeutic communication and psycho-emotional support
Technical procedures: vital signs routines, medication administration, physical examination
Assessment and prophylactic and therapeutic management of side effects
Food routine dispensing
Therapeutic room care

Source: survey data, 2020

#### 4 Discussions

Treatment with radioiodine therapy demonstrates effective remission and cure rates for thyroid cancer, as evidenced in extensive literature and clinical practice, and by

particularities arising from the treatment, scheduled hospital admission is necessary. Thus, as in all care instances, nursing is present in this scenario, in providing care (CORDEIRO, 2013).

The role of the nuclear medicine nursing team, together with the other members of the multidisciplinary team, is extremely important for successful treatment with radioiodine therapy, therefore it is extremely important that the nursing team seeks to specialize daily in new routines, treatments and protocols. The nurse, as an educational member of the team, has an important responsibility in seeking, organizing and managing aspects of continuing and permanent education within their workplace, providing and stimulating the search for scientificity in their practice and in other members of their team (SALES, 2010).

The pre-admission nursing consultation proves to be an important tool to evaluate and guide the patient who will undergo treatment with radioiodine therapy. In this space, the nurse can identify doubts, desires and fears of patients and family members, and thus intervene positively and clarify and solving concerns through concise and scientific guidance. At this moment, the focus of the nurses' guidance is to guide the patient regarding self-care and the radioprotection measures necessary during hospitalization (MORESCO, 2017).

To this end, even during the consultation, the nurse can use support materials, such as folders, leaflets, and other items he deems necessary, always evaluating the socio-cultural and cognitive issues of the patient and family, in order to provide clear content, according to scientists. and prompt subsequent consultation for the patient at another time, or even during hospitalization (CORDEIRO, 2013).

Among the specific competencies of the nursing team within the hospital setting, the fact that the team monitors the patient for 24 hours in the hospital routine stands out, thus, nurses and nursing assistants/technicians provide care for all the patient's needs, whether in demand for technical procedures, in dispensing with the eating routine, and in psycho-emotional support due to the necessary isolation scenario (OLIVEIRA, 2015). Still in the hospital admission scenario, another demand inherent to the nursing team is related to the care of the therapeutic room, the role of the nursing team concerns the care of the physical part of the room and radioprotection standards such as covering contact surfaces, such as door handles and supporting furniture; and in terms of comprehensive care for the patient under treatment, developing all

technical demands necessary for contact with the patient under isolation (MORESCO, 2017).

The humanization of the health care process is a key factor for the patient to feel better during the hospitalization period, and due to the need for isolation, there is a major limitation in providing humanized care to the patient, thus, it becomes a great challenge for everyone, managing and providing humanized and individualized care for this patient profile. Nursing care in this scenario transcends the physical barrier, and here the skills inherent to communication and affection on the part of the team towards the patient are valued (MORESCO, 2017).

In this aspect, it is up to the nursing team, which accompanies the hospitalized patient, to provide emotional support through therapeutic communication, offering patients opportunities to express their feelings and desires, and explain what type of support they need. It is essential, in this sense, to reinforce the guidelines inherent to the importance of radioprotection, correct adherence to treatment and non-pharmacological measures for the success of therapy and consequent hospital discharge. (OLIVEIRA, 2017)

During the systematization of nursing care, it is up to the nurse to include in their guidance to the patient non-pharmacological care that assists in the treatment process and delays side effects, such as the importance of water intake of three liters of water per day to increase the rate of renal filtration and accelerate the process of elimination of the radiopharmaceutical via the kidneys, in addition to advising the use of sublingual lemon juice to reduce the radiation dose to the salivary glands (OLIVEIRA, 2009).

In this context of action, we can notice a greater challenge in relation to the assistance provided by health teams, therefore, it is important to build strategies and protocols that support and regulate, in a scientific technical nature, care measures, and for the success of such care, it is essential for the team to have vast knowledge about therapy, adverse symptoms and complications, in order to adequately manage the care process, transmitting security and confidence to the patient and family. (OLIVEIRA, 2009)

Health education is the core of the nursing team's performance for the success of this therapy, as previously reported, the nursing consultation is one of the main spaces for dispensing guidance on therapy, thus, it is up to the nurse to systematize and focus their guidance, appropriate and individualized for each patient evaluated (ROSINI, 2013; OLIVEIRA, 2015).

Another space for reorientation by the nursing team is during the patient's admission to the inpatient unit, revisiting the concepts and information that

were waived during the consultation, resolving any doubts and encouraging the concepts inherent to self-care. During treatment and upon hospital discharge, it is also important to reinforce possible adverse effects and correct management and clinical support (ROSINI, 2013).

The disposal of radioactive inputs and waste resulting from patient care is the direct responsibility of care teams in terms of adequate disposal. The segregation of this waste must attract the attention of teams who must know the appropriate locations and supports for disposal and storage. of these wastes (RISSATO, 2009).

The management of these waste must meet biosafety standards within health services at national level, in order to guarantee precautionary and safety standards in the application of procedures regarding the segregation process and destination of waste generated during the hospitalization period, also ensuring the quality of the assistance provided (RISSATO, 2009).

Another aspect that all team members must pay attention to is the undesirable effects that the treatment entails, known as side effects. Side effects are generally mild and concentrated in the head and neck region, and are related to the use of cumulative doses of radiopharmaceutical (FONSECA, 2012; ROLIM, 2011). The main side effects resulting from the treatment may include pain and edema in the cervical region, sialodentitis, lacrimal duct obstruction, gastritis, change in taste and xerostomia; other symptoms may include: nausea, vomiting and constipation, lumbosacral pain and headache (OLIVEIRA, 2015).

The appropriate management of side effects is closely related to the patient's treatment experience and the success of therapy as well. Therefore, they should be advised to communicate as soon as possible the emergence of such effects and their intensity, and describing worsening factors and other associated conditions (ROLIM, 2011; OLIVEIRA, 2015). The nursing team, as they accompany the patient during hospitalization, must pay attention to adverse effects during the patient's physical assessment process and during bedside visits, and work on the aspect of prophylactic and therapeutic management of such effects, whether through pharmacological or non-pharmacological routes as described above (CORDEIRO, 2013; MORESCO, 2017).

## Final considerations

Radioiodine therapy emerges as an important line of treatment in the oncological scenario, and its use aims to bring a better prognosis for thyroid cancer. Even with possible associated toxicities, its benefit in the treatment of thyroid cancer is indisputable and is evidenced by the good clinical evolution of patients who undergo it, increasing quality of life and disease cure rates.

It is known that the core of the nursing team's performance in this context is based on the issue of health education, and is of paramount importance for the success of therapy. During the guidance spaces, important information regarding the treatment is provided, clarifying doubts and concerns. , in addition to enabling the patient to see the importance of self-care for the treatment they undergo.

Nursing is present, as in so many other health care scenarios, playing an important role in the treatment of patients undergoing radioiodine therapy and must always manage and provide care with a technical and scientific basis, contributing to the success of the treatment.

We highlight the scarce number of articles and/or scientific materials found on the topic during the search for material to compose this research project, and mainly articles that describe or direct nursing care and practice for patients undergoing such treatment. In this way, we highlight the importance of producing and disseminating scientific articles on the topic studied, in order to provide greater discussions on the topic in the field of nursing, in order to structure protocols and care strategies by care teams in different services. of health.

Regarding the limitations of this study, we can once again observe the scarce number of articles and scientific production on the subject, making it impossible to deepen and understand the routines related to radioiodine therapy that are developed in various health care services in Brazil and around the world.

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