PROFILE OF PATIENTS WITH THYROID CANCER UNDERGOING RADIOIODINE THERAPY

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ABSTRACT: This descriptive study was performed using a quantitative approach with the aim to describe the profile of 650 patients with thyroid cancer and thyroidectomy, undergoing radioisotope therapy in the public health service of Florianópolis, from 2004 to 2009. Objectives were reached through the following variables: gender, age, occupation, marital status, origin, and detection of alterations in the thyroid. Most patients (88%) were women, 34.9% had incomplete primary education, and 27.2% had no work outside their home. The detection of the problem or palpation of the thyroid nodule was performed by the patients themselves in 62.9% of the cases, followed by the health professional (28%). In conclusion, although most patients have a low education level and financially underappreciated professions, more than half of them noticed changes in their thyroid.

DESCRIPTORS: Thyroid cancer. Radiotherapy. Oncologic nursing. Nursing care.

PERFIL DOS PACIENTES COM CÂNCER DE TIREOIDE SUBMETIDOS À RADIOIODOTERAPIA

RESUMO: Estudo descritivo, com abordagem quantitativa, que objetivou descrever o perfil de 650 pacientes com câncer de tireóide e tireoidectomizados, submetidos à terapia por radioisótopos nos serviço público da Grande Florianópolis, que passaram pela consulta de enfermagem no período de 2004 a 2009. Para alcance dos objetivos foram pesquisadas as seguintes variáveis: gênero, idade, profissão, estado civil, procedência e detecção de alterações na tireóide. Constatou-se que 88% são mulheres. Dos pacientes, 34,9% tem primeiro grau incompleto e 27,2% não trabalham fora. Quanto à detecção do problema na tireóide ou palpação do nódulo, em 62,9% foi o próprio paciente que percebeu as alterações, seguido do profissional de saúde (28%). Conclui-se que a maioria dos pacientes apresenta pouca escolaridade, profissões poucos valorizadas financeiramente, e mais da metade percebeu alterações na tireóide.

DESCRITORES: Câncer de tireóide. Radioterapia. Enfermagem oncológica. Cuidados de enfermagem.

PERFIL DE LOS PACIENTES CON CÁNCER DE TIROIDES SOMETIDOS A TERAPIA CON YODO RADIOACTIVO

RESUMEN: Estudio descriptivo, con enfoque cuantitativo, que tuvo como objetivo describir el perfil de los 650 pacientes con cáncer de tiroides e tiroidectomía, sometidos a tratamiento con radioisótopos en un servicio público de Florianópolis, que pasó por la consulta de enfermería en el periodo de 2004 a 2009. Para alcanzar los objetivos, se estudiaron las siguientes variables: sexo, edad, profesión, estado civil, origen y detección de cambios en el tiroides. Se encontró que el 88% son mujeres. De los pacientes, 34,9% tienen educación primaria incompleta, el 27,2% no trabajan. Con respecto a la detección de problemas en la tiroides o la palpación de los nódulos tiroideos, fue el propio paciente que se percató de los cambios (62,9%), seguido por el profesional de la salud (28%). Llegamos a la conclusión de que la mayoría de los pacientes tienen bajo grado de escolaridad, profesiones poco valoradas económicamente, pero más de la mitad detectó cambios en su estado de salud.

DESCRIPTORES: Cáncer de tiroides. Radioterapia. Enfermería oncológica. Cuidados de enfermería.

INTRODUCTION

Nearly 4% of the world population present thyroid nodules, which are more frequent in inhabitants from iodine-deficient areas. Morphology studies on thyroids removed in autopsy procedures demonstrated that this percentage can reach 40% in women older than 75 years. Thyroid cancer (TC) corresponds to approximately 1% of all malignant neoplasms.[1] Nevertheless, it is the most frequent malignant endocrinal tumor.[2] The most common type of thyroid cancers are those referred to as differentiated carcinomas of the thyroid gland (DCT) (papillary and follicular), accounting for 80% of cases worldwide.[2] If DCT is appropriately operated and treated, patients the survival period is of over thirty years, and patients have great quality of life.[2]

In Brazil, in the Unified Health System (SUS, as per its acronym in Portuguese), patients who present some type of thyroid problem are usually referred to an endocrinologist after going through the general practitioner in the primary health care unit. Many tests are required to provide an accurate diagnose regarding the type of thyroid pathologya patient has; including ultrasonography and, in case some type of suspicious malignant nodule is detected, and depending on the service protocols, the patient is referred to a Fine-Needle Aspiration (FNA), which consists of a thyroid puncture with the aspiration of the nodule and sending this piece for a clinical pathology or pathological anatomy service. If malignant features are confirmed in the cells, the patient may then be referred to the head and neck surgeon and, depending on the case, undergo a surgery for removing the thyroid (thyroidectomy). In surgery, the thyroid may be fully or partially removed, and the surgery piece must be sent to the pathology anatomy service in order to confirm the malignant diagnosis.[2]

After thyroidectomy, according to consensus or protocol of the endocrinology services, the patient may be referred to the nuclear medicine service, where radioisotopes are used to perform radioiodine therapy treatment using iodine-131 (I-131). Radioisotopes have the property of emitting radiation and, when employed on patients, they emit radiation on a specific target organ, in this case, the thyroid area. Iodine-131 emits beta particles, gamma radiation and has a half-life of eight days. Radioactive or not, iodine is absorbed by the human organism, preferably by the thyroid gland, where it is concentrated. Radioactive isotopes or radioisotopes, due to their radiation-emitting properties, have many different uses. In Brazil, this therapy has been in use for more than 40 years.[2]

Patients receive an oral therapeutic dose of iodine-131, which varies according to pre-established protocols and medical consensus, and are mostly established between 100 and 250 mCi (milliCurie) of iodine-131. The β radiation, which can reach up to 10mm around the area, becomes useful in the destruction of the residue tissue and the neoplastic cells which might still be in the area.[1-3] Therapeutic doses use an amount of iodine-131 above 30mCi.[4]

With the purpose of controlling medical follow-up after treatment, every patient, after receiving the dose, must undergo a radionuclide whole-body imaging. The radionuclide imaging is scheduled around seven to ten days after the radioiodine dose and has the objective of demonstrating the presence of residual post-surgery tissue, in the anterior neck area.[1-3]

In Santa Catarina, public treatment is offered at the Nuclear Medicine Service of the Santa Catarina Cardiology Institute, which works under the Santa Catarina Health Department. In August of 2004, a therapeutic room, also denominated as radioiodine therapy room was officially opened at the Santa Catarina Cardiology Insitute to provide therapeutic doses to thyroid cancer patients. Regarding radioprotection care, the whole team follows the basic radioprotection guidelines, regulated by the technical regulation of the National Committee of Nuclear Energy. The nomenclature used for radioactive material is Curie (Ci) and Becquerel (Bq). In this present study, the milliCurie (mCi), used by the National Committee of Nuclear Energy, was utilized. In order to undergo radioiodine therapy, the patient must be previously scheduled by the Santa Catarina State Health Department and referred to the Nuclear Medicine Service, where the nursing and medical appointments occur. During the nursing appointment, the patient receives guidelines about the treatment, diet, radioprotection, admission preparation. After being prepared for the procedure, the patient returns to the hospital and stays in the radioiodine therapy room. A study regarding the nursing appointment pointed to the importance of acknowledging the health needs of patients as for their physical aspects but, mainly in terms

of observing affection and cultural, psychosocial and economic aspects, searching for a comprehensive action in the health care context.[8]

The nursing appointment works as an instrument to acknowledge patients' reported needs, in addition to being a moment for nurses and patients to exchange information, acknowledging their notions regarding the disease and their stigmas.[9]

The objective of this study was to understand the profile of patients undergoing radioiodine therapy in the referred Nuclear Medicine Service, who previously attended a nursing appointment, in the period between October of 2004 and December of 2009.

METHOD

This descriptive study, using a quantitative approach, was performed with a population of patients admitted to the referred Cardiology, who had attended a nursing appointment before being submitted to a therapeutic dose (one or more doses) of radioiodine, throughout the period between October of 2004 and December of 2009.

A secondary data collection was performed through the analysis of medical files to identify the following variables: gender, age, profession, marital status, origin, dose received (mCi) and detection, in other words, when and who noticed alterations in their thyroid for the first time.

The nursing appointment for thyroid cancer patients is based on the COFEN Resolution 159/1993, which recommends that during the appointment the nurse must use components of the scientific method to identify health/disease situations, prescribe and implement nursing measures to contribute for the promotion, prevention, protection of health, recovery and rehabilitation of the individual, family and community.[10:1]

Considering that women are more affected than men, the gender variable becomes more important for the confirmation of statistical data.

The age of patients was analyzed in the medical record, at the time of the nursing appointment, understanding that differentiated thyroid carcinoma may occur within any age range.

Marital status was classified as: single, married, common-law marriage, widowed and unknown. Origin was considered as the city that originated the referral and the residence at the time of the radioiodine therapy admission appointment.

Regarding perception, the authors aimed to identify those who observed alterations on their thyroid for the first time: the patient himself, mother-father, spouse, friends, uncle-aunt, others, health professional, or unknown.

All medical records from those who attended the nursing appointment and later performed the radioiodine treatment were included. It is understood that every patient who attended the nursing appointment received guidelines regarding hospital admission and radioprotection care, comprising the following aspects: what nuclear medicine and radioiodine treatment consist of, and instructions regarding admission preparation, exams, and a low-iodine diet; what to bring when admitted to the hospital, the admission itself, radioprotection care, hospital discharge, radioprotection care at home, guidelines for the WBS, post–dose instructions and the clarification of occasional questions. Historical data of patients from the nursing appointment were used to answer the question: who noticed the thyroid alterations for the first time?

Data compilation and statistics analysis were performed using the EPI info software, version 3.5.1 of public domain, created by Centers for Disease Control and Prevention (CDC) and oriented to the health area, namely epidemiology. Categorical variables were established using the frequency of both absolute values and percentages. The resolutions n. 196 of 10/10/96 and n. 251 of 07/08/97 of the National Health Council were respected. The research proposal was analyzed by the Research Ethics Committee of the Institute of Cardiology, based on statement 019/2010, approved and forwarded to CONEP for registration, on 31/03/2010.

Data were collected in the period between April 2nd to August 31st of 2010, when all scanned medical records from the period between October 2004 and December 2009 were reviewed. All medical records from radioiodine therapy patients from the hospital were digitally scanned.

Initially, patients who attended the nursing appointment were surveyed, using the date of the appointment and admission, so as to learn the number of the medical record and to analyze it later. The dates of appointment and hospital

admission were searched based on the data stored in the Nuclear Medicine Service computer of the institution. This record contained the patient's full name, the date of the appointment, the date of admission, approximate age, city of origin and the amount of doses received.

Based on the full name of the patients and the date of admission, a search on the data software of the institution, called SAGMAX, was performed with the objective to locate the medical records through the registration number of the patient, created when the medical record was opened on the date of the first hospital admission.

This software provided the numbers of the medical records and some additional data included: medical record number, date of birth, marital status, gender, education level, city of origin. In addition, the previously collected data was double-checked.

A search in the database of the hospital was then performed with the medical record number, using a specific password to open the digitally scanned records, with the authorization of the Medical Record Service.

From all 774 patients who received care in the period between October 2004 and December 2009, 650 patients were included in the study, and the data from their digitally scanned medical records were compiled. Medical records were excluded if the patient concerned had not attended a nursing appointment, had received the therapeutic dose of neuroblastoma and if the scanned record was unreadable. For the records considered unreadable, a new digital scan was requested to the Medical Record Service. It is important to mention that the data from the nursing appointment, found in the already scanned medical records, were analyzed.

RESULTS AND DISCUSSION

The 650 medical record analyzed met the following inclusion criteria: patients who underwent a full thyroidectomy due to thyroid cancer, who attended a nursing appointment and received the radioiodine dose, whose data were digitally scanned, readable and within the period between October 2004 and December 2009.

A hindering factor that delayed data search was the difficulty in accessing the data due to loading flaws by the Information and Automation Center of Santa Catarina, the department responsible for managing the information system of the Santa Catarina State Health Department, which made the system run slowly. The deadline previously established for the project was postponed due to these difficulties.

The distribution of these patients, according to gender, is presented in table 1.

Table 1 - Thyroid cancer patients who have taken at least one dose of radioiodine throughout their lives, according to gender. São José-SC, 2010

Gender	(n)	Percentage
F	572	88.0%
M	78	12.0%
Total	**650**	**100.0%**

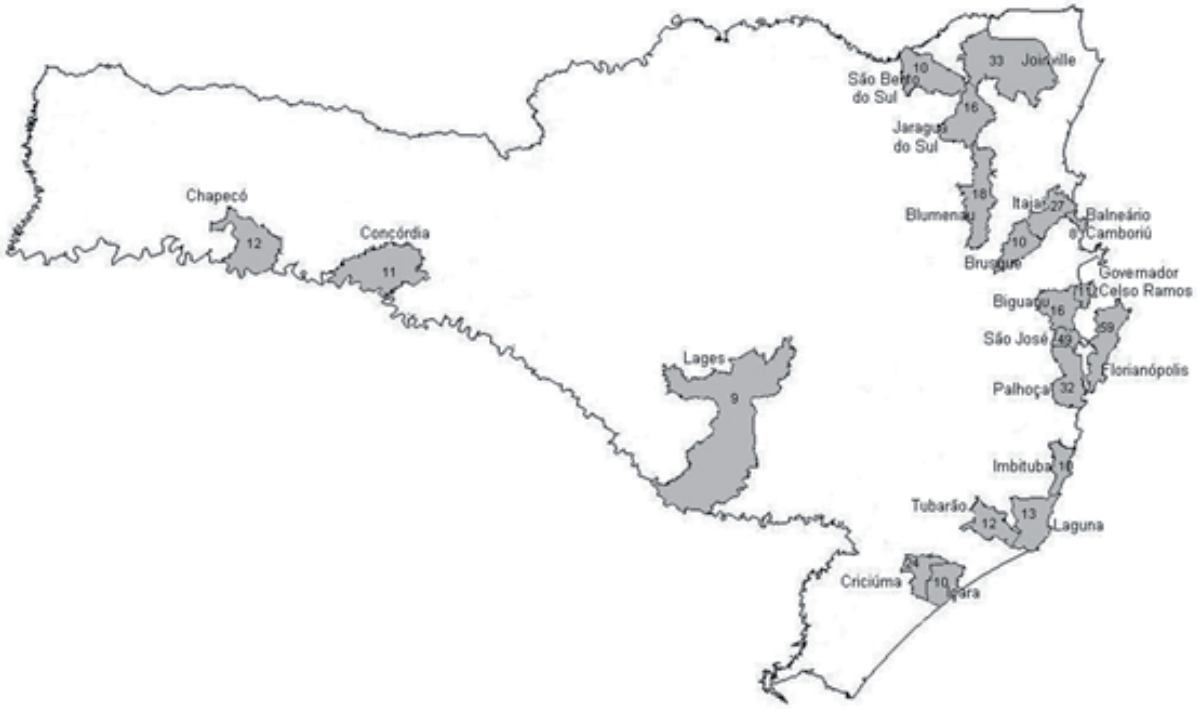
A prevalence of the female gender is observed, in agreement with other studies performed in other reference centers across the world,[4] thus showing that thyroid cancer is more frequent in women. In this study, the ratio between women and men who received radioiodine was of one man for every seven women (1:7). These data are higher than the data mentioned in the Brazilian Society of Endocrinology and Metabolism Guidelines.[4]

Table 2 - Thyroid cancer patients who underwent radioiodine therapy, according to their marital status. São José-SC, 2010

Marital status	(n)	Percentage
Common-law marriage	31	4.8%
Married	415	63.8%
Divorced	50	7.7%
Unknown	14	2.2%
Single	87	13.4%
Widowed	53	8.2%
Total	**650**	**100.0%**

According to table 2, most patients with thyroid cancer who underwent radioiodine therapy are either married or in a common-law marriage (68.6%), followed by single individuals. Accord-

ing to the guidelines of the Brazilian Society of Head and Neck Surgery[11] and other researchers,[1-3] the most frequent age range for thyroid cancer is between 30 and 50 years, a stage of life when most people have already built a family. Follicular carcinoma presents the highest incidence among women and it is found within a more advanced age range, between 40 and 50 years. This type of carcinoma (follicular) is presented in the form of slow-growing and painless nodules.[2-4]



Source: Nuclear Medicine Service of the Santa Catarina Cardiology Institute, Santa Catarina, 2010.

Figure 1 - Map of the state of Santa Catarina showing the geographic regions that originated most patients who underwent radioiodine treatment, in the period between October 2004 and December 2009. São José-SC, 2010

Regarding the distribution of patients who were admitted to the hospital, according to the city of origin, most are from coastline regions, with predominance in areas where food is rich in iodine, for instance seafood. For this reason, it is important to provide orientations during the nursing appointment regarding food intake in the pre-treatment period, as it must be iodine-free so that the treatment proposed has good results. Another study developed in Brazil, regarding nursing appointments with patients undergoing iodine therapy demonstrated patients feel safer when guided and embraced in the nursing appointments, making the whole process less stressful.[12]

These results can be used as support for public health programs, in strategies for early detection of thyroid alterations in areas where these cases are more frequent. Moreover, knowledge regarding cancer and self-examination should be encouraged in health education programs, through means of communication in a very accessible way to the entire population.

Regarding the value of the doses, most patients have received one dose throughout their lives (46.4%), of 100 mCi. Doses of 150 mCi were administered to 34.7%. The remaining patients (18.9%) received an initial dose lower or higher than this value.

On average, 20% of patients needed a second dose throughout their lives.[3-4] From the medical records analyzed in the period between 2004 and 2009, 10% of women and 18.6% of men received a second dose of radioactive iodine. The dose value is based on the results of the clinical pathology exam and depends on many specifications of the

ongoing cancer. A macro and microscopic study sets forth a traditional analysis format in pathology for the investigation and diagnosis of diseases, and cytological exams are well-used to investigate malignant neoplasms and occurring injuries.[1] These data are also consistent with the results found in other thyroid cancer treatment centers.[4]

Table 3 shows the level of education of patients who underwent radioiodine therapy.

Table 3 - Thyroid cancer patients submitted to radioiodine therapy, according to educational level. São José-SC, 2010

Educational level	Frequency	Percentage
Complete primary education	69	10.6%
Incomplete primary education	226	34.8%
Complete secondary education	109	16.8%
Incomplete secondary education	28	4.3%
Complete higher education	23	3.5%
Incomplete higher education	10	1.5%
Illiterate	12	1.8%
Unknown	173	26.6%
Total	**(n) 650**	**100.0%**

The educational level is considered an important factor for understanding the orientations provided during the nursing appointment. The educational level of patients influence the way the nursing appointment is performed, as nurses can take this into consideration and use more visual language or written information as a way of helping patients understand the preparation and the care involved in food intake and radioprotection. The ability to read and understand is important, so that patients can understand the great amount of information needed and delivered in writing at the time of the nursing appointment, allowing them to review it more frequently at home.

Nursing care for radioiodine therapy patients is delivered at the moment the physical barrier is overcome, when affection and the ability to communicate within a technical-scientific knowledge are valued.[13]

During the nursing appointment in the SMN of ICSC, photographs taken by the Nuclear Medicine Service of the radioiodine therapy room are shown to patient and family members in the computer. Seeing the photographs allows the patient to learn about the environment that they will share for approximately 48 hours. This action makes it easier to understand the needed orientations .

As for noticing thyroid alterations, 54.6% of the patients were the first to notice the change (n=355), followed by the health professional (n=158), 24.3%. The physical exam stands out as an important factor in medical and nursing appointments in primary health care, a service that is frequently sought by patients in the Unified Health System (Brazilian NatiSUS).

The most evident symptoms and signs of thyroid alterations reported by patients during the nursing appointment and described in the digitally scanned medical records were: palpation of the nodule in the neck, pain while palpation, difficulty breathing, difficulty swallowing, insomnia, hair loss, irritability, sadness, weight gain or loss, weak fingernails. Moreover, during the nursing appointment, patients reported alterations on the neck such as volume increase and/or nodules while taking a shower, when combing their hair and looking at the mirror. Detection by family members usually occurred when talking with the family member and when swallowing food and being observed by them.

CONCLUSION

The analysis of patients undergoing radioiodine therapy in the Nuclear Medicine Service of the Cardiology Institute enabled the understanding of the geographic origin, social profile, personal and professional features and educational degree of patients. The knowledge regarding these characteristics may provide the health team with instruments, especially the nurse, to plan care actions indicated for the period before radioiodine therapy, during the therapeutic room stay and during outpatient control on therapeutic post-dose procedures.

People who underwent the treatment live, predominantly, in coastline areas of the state of Santa Catarina, which allows to establish a re-

lationship of more contact with iodine, mainly through food, and the frequency of thyroid alterations. These data also allow professionals and the services of these regions, where cases are more frequent, to be warned regarding the importance of the thyroid exam during medical appointments, enhancing early diagnoses.

The social profile allows to understand that most patients are married; which means a higher support from partners in the care needed, such as: care and support at the time of admission, care regarding the restricted diet, and care regarding radioprotection at home after hospital discharge.

These patients also demonstrate higher levels of self-care, as they look in the mirror, touch themselves, demonstrate and take care of their body, and the consequent unexpected discovery of the nodule on the neck. Noticing alterations occurs above the limit of normality and leads, in over half the cases, patients to notice thyroid changes themselves, providing subsides for more effective interventions.

Furthermore, results also emphasize the need to train health professionals, especially those from the primary health unit, for completely examining patients, including thyroid gland palpation.

A low educational level requires an educational support by the health team using diversified educational strategies to enhance their knowledge on therapeutic procedures, clarifying doubts by offering enhanced listening and sharing the anxieties and questions regarding the radioiodine therapy treatment process. Moreover, the team needs to be aware of the challenge of performing humanized embracement, respecting each person's dignity, comforting and delivering comprehensive health care.

Results demonstrate the importance of the work by health care professionals in the service, especially nurses, in guiding patients, valuing communication and relation technologies as instruments to obtain compliance to pre, trans and post-dose procedures of radioiodine, fundamental for an effective treatment.

A few factors defined limitations for the conclusion of the present study: delay on verifying data due to unreadable digitally scans of many medical records and errors in the information system loading. Nevertheless, it was possible to alert the involved sectors regarding these limitations, which eliminates this obstacle for future researches.

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