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Perfil histopatológico de pacientes com diagnóstico de tumores malignos assistidos em um hospital de referência do Agreste Pernambucano

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ABSTRACT

Cancer is considered a public health problem and is commonly known because of its high mortality rate worldwide. The histopathological evaluation is a fundamental requirement to determine the nature of the lesion, thus it is considered the gold standard examination for diagnosis of neoplasia. The present study aims to evaluate the histopathological profile of patients with malignant tumors diagnosed at a reference hospital in the Agreste Pernambucano. A cross-sectional, descriptive study of a quantitative documentary survey was conducted using the database of the clinical analysis laboratory of the referred Hospital in the field of pathology in the year 2016. A total of 74 cases were selected, and the male gender was the most affected. The age group of patients with the highest prevalence was between 50 and 70 years of age. Clinical characteristics: The most prevalent anatomical location with tumors was both the colon/rectum (30%) and skin (30%). The most common histological type was adenocarcinoma (47.2%). The pathological profile of cancer patients in the region studied were characterized, which served as a database for future epidemiological studies and as a subsidy for the implementation of preventive public policies for the population of this region.

Key words: cancer; staging of neoplasms; histopathological changes; TNM; epidemiology.

RESUMO

O câncer é considerado um problema de saúde pública e é comumente conhecido devido ao seu alto índice de mortalidade no mundo. A avaliação histopatológica é fundamental para determinar a natureza da lesão, sendo considerada o exame padrão- -ouro para o diagnóstico de neoplasias. O presente trabalho tem como objetivo avaliar o perfil histopatológico dos pacientes com diagnóstico de tumor maligno assistidos em um hospital de referência do Agreste Pernambucano. Foi conduzido um estudo transversal, descritivo de levantamento documental de natureza quantitativa, utilizando o banco de dados do laboratório de análises clínicas do referido hospital, no setor de anatomopatologia, no ano de 2016. Foram selecionados 74 casos, sendo o sexo masculino o mais acometido. A faixa etária de maior prevalência foi dos pacientes entre 50 aos 70 anos de idade. Característica clínicas: a localização anatômica mais prevalente com tumores foi cólon/reto (30%) e pele (30%); o tipo histológico mais comumente encontrado foi adenocarcinoma (47,2%). Caracterizou-se o perfil patológico dos pacientes com câncer na região estudada, o que serviu como base de dados para estudos epidemiológicos futuros e como subsídio para a implementação de políticas públicas preventivas para a população dessa região.

Unitermos: câncer; estadiamento de neoplasias; alterações histopatológicas; TNM; epidemiologia.

RESUMEN

El cáncer es considerado un problema de salud pública y es comúnmente conocido por su alta tasa de mortalidad en el mundo. La evaluación histopatológica es fundamental para determinar la naturaleza de la lesión, siendo considerada el examen estándar para el diagnóstico de neoplasias. El objetivo de este trabajo es evaluar el perfil histopatológico de los pacientes diagnosticados con tumor maligno atendidos en un hospital de referencia del Agreste de Pernambuco. Se llevó a cabo un estudio transversal, descriptivo de observación documental de naturaleza cuantitativa, utilizando el banco de datos del laboratorio de análisis clínicos del dicho hospital, en el sector de anatomopatología, en el año de 2016. Se eligieron 74 casos, siendo el sexo masculino el más afectado. El grupo de edad con mayor prevalencia fue el de 50 a 70 años. Características clínicas: la ubicación anatómica más frecuente de los tumores fue colon/recto (30%) y piel (30%); el tipo histológico más comúnmente encontrado fue el adenocarcinoma (47,2%). Se caracterizó el perfil patológico de los pacientes con cáncer en la región estudiada, lo que sirvió de base de datos para estudios epidemiológicos futuros y como subsidio a la implementación de políticas públicas preventivas dirigidas a la población de esa región.

Palabras clave: cáncer; estadificación de neoplasías; alteraciones histopatológicas; TNM; epidemiología.

INTRODUTION

The World Health Organization (WHO) estimates that by 2030, 27 million new cases of cancer will emerge. In Brazil, cancer is a public health concern, since neoplasia are becoming increasingly prominent, presenting the second place in morbidity and mortality in Brazil[1].

For Brazil, during the 2018-2019 biennium, 600,000 new cases per year is estimated. Excluding the non-melanoma skin cancer cases, there will be 420,000 new cases of cancer; the most frequent types among men are prostate tumors, followed by tumors of the lung, intestine, stomach and oral cavity; for women, cancers of the breast, intestine, cervix, lung and thyroid are highlighted[2].

The cancer diagnosis uses several parameters, including clinical and histopathological evaluation. In the clinical evaluation, the evidences appear through physical and imaging examination, endoscopy, serological measurement of tumor markers and other relevant and primordial exams, such as histopathological analysis, also known as anatomopathological examination[3].

Histopathological analysis is considered the gold standard for the confirmatory diagnosis of malignant tumor, prognostic evaluation and therapeutic targeting for many tumors[4]. This diagnosis consists of gross and microscopic evaluation of the surgical specimen and/or biopsy. The gross analysis consists of the evaluation of the anatomical specimen, such as color, size and appearance of the region, while the microscopic analysis uses established scores to investigate the different abnormal anatomopathological aspects, evaluates the histological origin of the tumor, and classify it as epithelial, mesenchymal and/or embryonic tumor, as well as enables the evaluation of tissue protein expression through immunohistochemistry[5].

Faced with the presence of malignant tumors, we use staging systems. The TNM staging system is commonly used for the most diverse malignant tumors, and was advocated by the Union for International Cancer Control (UICC)[6]. Using of this system allows to perform the pathological staging, to evaluate the tumor extension, represented by the letter T – size of the primary tumor; presence of lymph node metastasis (locoregional metastasis) – characterized by the letter N; and distant metastasis – letter M[5]. There is also an evaluation of degree of tumor differentiation, which differentiates the tumor from the original tissue. Neoplasms that are poorly differentiated according to the tissue of origin are generally more aggressive and tend to grow faster compared to well-differentiated tumors (better prognosis). Histological grades of tumors can be classified as grade I (well-differentiated), grade II (moderately differentiated), grade III (slightly or poorly differentiated) or grade IV (undifferentiated or anaplastic)[7].

The surgical margin is also verified in the laboratory of pathological anatomy after surgery. For a more detailed and reliable evaluation, it is recommended to identify their limits individually; the sample is "painted" with nankin paint. The ink outside the tissue withstand the processing and is visible under a microscope during the microscopic evaluation of the tissue, so that it is possible to verify if there is tumor left in the margin[8]; if there was a tumor in the patient, the surgical margin is said to be compromised. There are studies that seek to identify factors associated with impairment of surgical margins, which contributes to decrease the rates of reoperations by local recurrence, for this reason their analysis is so important[9]. This information is essential for the development of studies, planning and evaluation of cancer control programs.

Cancer incidence data are restricted to the Brazilian National Institute of Cancer [Instituto Nacional do Câncer (INCA)] estimation, which include general data from each state and its capital, therefore, more specific data on the incidence of tumors are needed in the municipalities of Agreste Pernambucano. In view of this scenario, the objective of this work is to analyze the histopathological profile of patients with malignant tumors treated in a reference hospital in the Agreste Pernambucano.

MATERIAL AND METHODS

This is a descriptive cross-sectional study of a quantitative nature based on the evaluation of histopathological reports with diagnosis of malignant tumors of patients attending an emergency hospital in the Agreste Pernambucano, during the period between January and December 2016. The sample used included the histopathological reports with complete pathological staging data of the patients, excluding those with doubtful diagnosis or insufficient sample. The variables analyzed were: age, sex, histological type, tumor location, TNM staging, degree of differentiation and surgical margins. Data were tabulated and analyzed using the Microsoft Excel® software version 2016. The study was approved by the Ethics Committee for Research in Human Beings of the Centro Universitário Tabosa de Almeida (Asces-Unita), under the protocol number 2.206.837. Exemption for the Free and Informed Consent (FIC) was requested because the research does not involve contact with individuals, following the ethical aspects contained in Resolution 466/12 of the Brazilian National Health Council.

RESULTS

Seventy-four histopathological reports were included in this study. Regarding gender, it was observed that male represented 51% of the cases (38), and was mildly the most affected when compared to female, which presented 49% (36), with predominance of the age group between 50 and 70 years (47.2%).

In the **Figure**, the main anatomical sites affected by malignant tumors are presented in the analyzed reports. The variable gender is correlated with the location of the tumor.

The histological type of the biopsies studied presented 35 (47.2%) of the reports with adenocarcinoma; the second most frequent type was carcinoma, with 34 (46%) cases. Lymphoma and sarcoma presented two cases (3%); melanoma, one (1%) (**Table 1**).
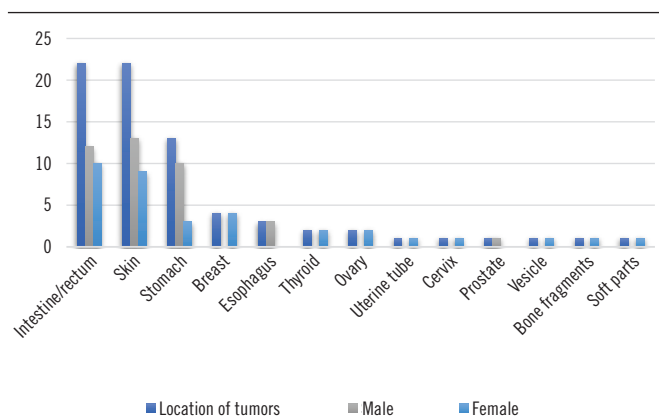

FIGURE – *Distribution of the anatomical location of malignant tumors and gender comparison*

TABLE 1 – Determination of histological types according to the anatomical sites of the malignant tumors

Anatomical site	Adenocarcinoma		Carcinoma		Lymphoma		Sarcoma		Melanoma	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Intestine/rectum	19	26	3	4	-	-	-	-	-	-
Skin	-	-	20	27	1	1.3	-	-	1	1.3
Stomach	12	16	-	-	1	1.3	-	-	-	-
Breast	-	-	4	6	-	-	-	-	-	-
Esphagus	-	-	3	4	-	-	-	-	-	-
Thyroid	-	-	2	3	-	-	-	-	-	-
Ovary	2	3	-	-	-	-	-	-	-	-
Uterine tube	-	-	1	1.3	-	-	-	-	-	-
Cervix	-	-	1	1.3	-	-	-	-	-	-
Prostate	1	1.3	-	-	-	-	-	-	-	-
Vesicle	1	1.3	-	-	-	-	-	-	-	-
Bone fragments	-	-	-	-	-	-	1	1.3	-	-
Soft parts	-	-	-	-	-	-	1	1.3	-	-

The pathological staging of cancer, manifested in 43% of the cases, was pT1; 11% was pT2, and 27% of cases with extension in the pT3 region; 18% had compromised all extension at the time of pT4 diagnosis; only 1% was tumor *in situ* (TIS). Regarding lymph node invasion, pN0 represented 9% of areas where, histologically, there is no lymph node metastasis, with involvement of pN1 (15%), pN2 (6%) and pN3 (6%), this represents increasing levels of compromised lymph nodes. On the other hand, pNI (64%) are the lymph nodes whose areas cannot be evaluated. Distant metastasis cannot be assessed in pMx (92% of cases), and 8% of cases presenting distant metastasis in pM1 (**Table 2**).

Analyzing the degree of cell differentiation by histological graduation, we established: G1 – well-differentiated; G2 – moderately differentiated; G3 – poorly differentiated; and G4 – undifferentiated. From these, the moderately differentiated was highlighted, with 66% of the patients. Table 2 groups the lesions according to their size. The majority of the studied sample (68%)

presented lesions greater than 1 cm in diameter in extension. Surgical margins were free of neoplasia in 47 (64%) of the lesions, and compromised in 27 (36%).

TABLE 2 – Distribution of neoplasms according to TNM staging and degree of differentiation of tumors and distribution of studied population according to lesion size

Staging (TNM)		n	%
	T0	0	0
	T1	31	43
	T2	8	11
Extent of the tumor (T)	T3	19	27
	T4	13	18
	TIS	1	1
	N0	7	9
	N1	11	15
Lymph nodes invasion (locoregional metastasis)	N2	4	6
	N3	4	6
	NI	46	64
	Mx	66	92
Distant metastasis	M1	6	8
	M0	0	0
Degree of differentiation		**n**	**%**
Grade 1		8	11
Grade 2		49	66
Grade 3		12	16
Grade 4		5	7
Lesion size			
< 0.5 cm		17	23
0.5-1 cm		7	9
> 1 cm		50	68

TIS: tumor in situ*; NI: indeterminate lymph nodes; Mx: distant metastasis cannot be assessed.*

DISCUSSION

The results obtained after the data review allow us to observe similarity, in most cases, related to age distribution. However, we observed the predominance of cancer risk for men in the main tumors evaluated. The observation of individuals older than 60 years of age corroborates the justification that the increase in life expectancy is an influential factor in the maintenance of the incidence of cancer[10, 11].

Evaluating the occurrence of main anatomical sites of the tumors, it was observed that colon and rectum cancer overlapped the other tumors, except for skin cancer, which presented the same arrangement, indicating similar epidemiological behavior as estimated by the INCA[2].

Among histological types, adenocarcinoma was the most frequent, followed by carcinoma. This study showed 19 cases of adenocarcinoma in the tumors present in the colon/rectum region,

corroborating the findings of other literature[12, 13]. Colorectal carcinoma is the third most frequent malignant neoplasm in men and the second most frequent in women worldwide. This neoplasm is typical for elderly individuals, representing an important cause of morbidity and mortality in this age group[14].

Skin cancer is the most prevalent neoplasm in Brazil, and is more common in individuals older than 40 years of age, affecting male mostly. Basal cell carcinoma is the most common type of skin carcinoma. These data are similar to those of our study, since the major involvement occurred in men, with basal cell carcinoma being identified in all cases, except for one case of melanoma cancer[15].

In our series, we showed that the third neoplasm affected the stomach region, presenting adenocarcinoma as the most prevalent histological type, affecting mostly men. According to the INCA[2], stomach cancer among men is the fourth most incident; it is the sixth among women; its incidence increases moderately with age, and the risk is slightly higher for males than for females. According to the study by Oliveira *et al*. (2016)[16], adenocarcinoma is the histological type of stomach cancer responsible for 95% of tumors.

In relation to other regions affected by the malignant tumors identified in this study, they presented values below those estimated by the INCA, since we could not determine these data properly due to the lack of information in the medical records.

The tumor stage was determined through the internationally used TNM staging, which takes into account the depth of tumor invasion, lymphatic spread (incasion) and distant metastasis[17]. In the study at issue, the most common initial staging was staging I, representing 45%, followed by staging III (21%) and stage IV (15%). Staging is the most important prognostic factor, since the earlier the diagnosis, the greater the survival[18].

Regarding the evolution and aggressiveness character of the lesion, the degree of differentiation was evaluated. About 66% of the tumors were moderately differentiated and 16%, poorly differentiated, this last result demonstrating a tumor in advanced evolution finding[19]. In order for the treatment to be appropriate and to make sure that any lesions have been removed, careful analysis of their margins is important. According to a study by Búrigo *et al*. in 2014, 34.8% of the analyzed reports presented lesion involvement. Their data are similar to those found in our study, in which 36% of the lesions were compromised[20].

Tumor size is described as one of the lesion recurrence factors observed mainly in more extensive lesions (generally greater than 2 cm). In the present study, 68% of the lesions were greater than 1 cm in diameter[21]. Although some studies indicate that lesions greater than 1 cm are predictors for poor prognosis, further studies are needed for better results.

CONCLUSION

In this research, we observed the clinical and epidemiological profile of cancer patients attending an emergency hospital in the Agreste Pernambucano allowing us to establish similarities with studies carried out in other regions of the country. Our results show the need for investments in early detection and in the adoption of educational measures in order to promote actions that make the population aware of the importance of self-care and health. Health promotion and prevention can be better achieved if the population is properly informed and able to understand the risks and methods of disease prevention.

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