

# Cancer pathology in a Central Hospital in the 21<sup>st</sup> Century: New cases in the H.U.C. (Coimbra University Hospital)

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### Abstract

Cancer is an increasingly serious health problem, and it is essential to have means of furthering our understanding of this pathology. One of these means is the registry of cancer cases.

The main objective of this work is to observe the evolution of cancer in a main hospital.

Data were collected on cases of newly diagnosed or treated primary malignant tumours recorded in the database of the hospital's Oncology Register over a period of seven years, from 2000 to 2006.

Over the last four years there has been a gradual increase in the number of newly diagnosed cases.

The most commonly affected areas were the skin (more than 80% were squamous and basal cell carcinomas), followed by the prostate and the breasts. Colon and rectum cancers together made up the most frequent type. There was a significant increase in lung

cancer, particularly among men.

With the exception of breast cancer, all forms of cancer were diagnosed at an earlier age. All cases of malignant neoplasm were more frequent in men.

Lastly, it can be stated that this data makes a useful contribution to the preliminary diagnosis of the oncological situation of the hospital. Within this population group, breast, prostate and bowel cancers continue to be those that require greater attention. In order to better understand cancer in a hospital and assess the care provided, it is fundamental to have a reliable hospital cancer registry that can correctly describe the disease and enable its follow-up.

Key words: cancer, malignant diseases, neoplasms, hospital cancer registry.

### INTRODUCTION

In Europe as a whole, and particularly in Portugal, cancer is an increasingly serious health problem<sup>1</sup>, representing, overall, the second most common cause of death.<sup>2</sup> This scenario is the result of various factors, including an increase of average life expectancy and changes in lifestyle, such as the adoption of habits that are harmful to health.<sup>3-12</sup>

Assuming it is a priority problem for Public Health, it is fundamental to have means enabling a deeper understanding of cancer, while seeking to implement strategies to fight and control the disease. One of these means is to record cancer cases in populations for subsequent analysis and interpretation.<sup>13</sup>

In Portugal, the Regional Cancer Registry was set up for this purpose, according to Ordinance no. 35/88, at the Regional Centers of the Instituto Português de Oncologia Francisco Gentil, in Lisbon, Porto and Coimbra. Each health institution also has a Cancer Registry created by Ordinances no. 35/88 and 282/88. These also carry out systemic registration of new cancer cases and send all the data to the Regional Cancer Registry of their geographical area. The H.U.C. Cancer Registries, like their counterparts, seek to record, organize, analyze and interpret data relating to cancer patients of the hospital and transfer these data to the Regional Cancer Registry, making their contribution to its divulgation through the publication of the annual report prepared by the Center's Regional Cancer Registry, which collects data from the entire central region.

It is widely recognized nowadays that the best approach to the treatment of cancer patients is a multidisciplinary one, with the participation of various specialties. The H.U.C. receive a very high proportion of cancer patients at national level, and have practically all the necessary means (technical and human) to deal with diagnosis, treatment and rehabilitation

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of cancer patients.

All the professionals are interested in gaining an overview of cancer at the institution where they work, which will enable them to ponder more objectively, and to participate and/or organize plans for early detection of these pathologies and for treatment strategies and more focused follow-up.

The main objective of this work is to show the evolution of cancer in a central hospital, in order to raise awareness on the magnitude of this pathology and the importance of recording cases.

## MATERIALS AND METHODS

Data was gathered on cases of newly diagnosed or treated primary malignant tumours in the H.U.C., recorded in the database of the hospital Cancer Registry over a seven year period, from January 2000 to December 2006.

The cases included in this hospital Cancer Registry come from various sources, mainly physicians involved in the diagnosis and treatment of cancer in Oncology Clinical Services and Outpatient Hospitals, and from the Pathological Anatomy Service. These data are screened and all information compared centrally, before being definitively recorded in the automated, standardized database of the Regional Cancer Registry. The identifications of sources and patients are recorded, as well as the characteristics of the tumour. For the source, identification is done through the Service where the diagnosis was carried out and the name of the doctor responsible for the patient. The patient is identified by name, clinical procedure number, health system and number of beneficiary, gender, date and place of birth, address and date of diagnosis. The tumour is characterised by topographic location and histological essay (according to the International Classification of Diseases for Oncology, 3<sup>rd</sup> Edition – ICD-O/3), behavior, level of differentiation, laterality, TMN and stage (clinical presentation) and pTMN and stage (anatomical pathological presentation). Confidentiality of all the data kept in the registry is maintained.

For this work, not only the number of cases of cancer annually diagnosed in the H.U.C. was used, but also the cases diagnosed in the same year in other institutions, and which were later referred for treatment at the H.U.C. (designated as “active”). The topographic location of tumours, gender, and age of patients on the date of diagnosis were also taken into

consideration.

As it is only a descriptive exposition of the data, no statistical study of incidence was carried out, which was done in the most encompassing way and is published in the annual publications of the Center Regional Cancer Registry, where these cases are also included.

## RESULTS

*Fig 1* shows the numbers representing new cases of diagnosed cancer, by year of analysis, followed-up at the H.U.C. (right column - active). The left hand column shows the cases diagnosed in the institution, validated by the Regional Cancer Registry (ROR).

In the last four years, a gradual increase in newly diagnosed cases was observed, both in general and at the hospital.

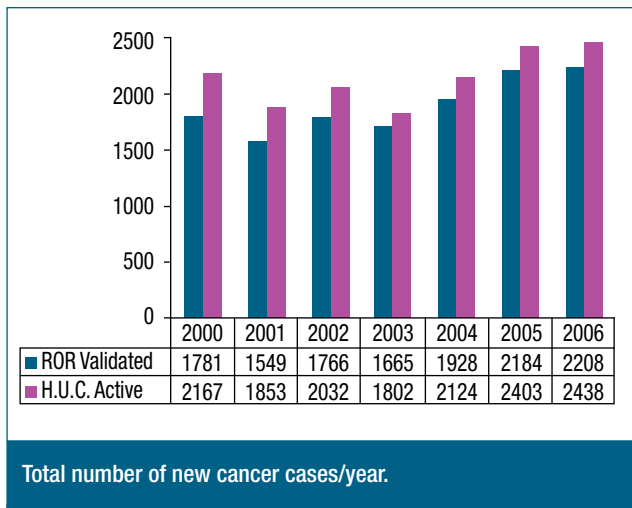
The most frequent topographic location (*Table I*) was the skin (except for 2002 and 2003), followed by the prostate and breast, particularly in the last four years of study. Separation of skin neoplasms into four main groups: squamous cell carcinoma, basal cell carcinoma, malignant melanoma and others (*Table II*) showed that in 2002-2003, the decrease in the total number of these neoplasms was caused by a smaller number of squamous cell carcinoma, basal cell carcinoma and other types, excluding melanomas. Squamous cell and basal cell carcinomas represented more than 80% of all cases of skin cancer.

With the exception of skin neoplasms, prostate and breast cancers are the most frequent types of cancer in our hospital registry, although in 2000 and 2001 there were more records of malignant neoplasm location in the colon. Together, diagnosed cases of cancer of the colon and rectum make up the most frequent type, with a percentage of around 12%.

Age at diagnosis (in this sample) did not show noticeable variations during the seven years of the study (*Table III*). However, it is observed that for all topographic locations, there was a reduction in the average age at diagnosis (about four years on average, although this figure was 1.3 years for lung cancer), except for patients with breast neoplasm.

In the distribution by gender (*Table IV*), it was verified that male patients always present more diagnosed tumours than female patients, both globally and by topographic record.

As shown in *Fig. 2*, cases of prostate cancer increased gradually over the seven year period, and



Total number of new cancer cases/year.

FIG. 1

in women, breast cancer showed variations with no identifiable pattern. Cancers of the colon and rectum, the most frequent form in male patients, increased annually.

## DISCUSSION AND CONCLUSIONS

According to the Instituto Nacional de Estatística (National Institute of Statistics) (INE), from 2001 to 2006, there was a decrease in the population (-0.53%)

in the area of the H.U.C., which does not seem to be reflected in the number of malignant cases followed up by the hospital, which has increased since 2003. It is evident that this fact may simply reflect variations in the internal registration of cases. The ageing of the population and, therefore, the increase of cases of cancer, or the mobility of the population in the search of healthcare, may also have contributed to this fact.

The analysis by topographic location showed that malignant skin neoplasms were the most frequent form of cancer at the hospital, except for the years 2002 and 2003. However, it was verified that in these years, the tumours with the highest potential for malignancy in relation to prognosis, melanomas, were stable, more than doubling after 2004. The smallest number of other skin tumours in 2002 and 2003 can be attributed to a weakness of the internal records in this area during these years, as the classification was being updated at this time, to bring it in line with the IDC-O/3 classification.

The number of cases of breast, prostate, colon and rectum cancer diagnosed is in line with the estimates of evolution for the cancer scenario in the Southern and Western Europe (according to estimates given in the publication of the American Cancer Society, Global Cancer Facts and Figures 2007), although in these

TABLE I

Most frequent topographic locations/year (percentage relates to total cancer cases diagnosed this year)

Location	2000		2001		2002		2003		2004		2005		2006	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Skin	462	21,3	425	22,9	157	7,7	90	5,0	373	17,6	369	15,4	473	19,4
Prostate	146	6,7	145	7,8	183	9,0	175	9,7	220	10,4	229	9,5	283	11,6
Breast	137	6,3	141	7,6	252	12,4	197	10,9	188	8,8	230	9,6	200	8,2
Colon	148	6,8	146	7,9	170	8,4	171	9,5	177	8,3	205	8,5	192	7,9
Hematological	173	7,9	111	5,9	165	8,1	126	7,0	91	4,3	125	5,2	98	4,0
Stomach	143	6,6	102	5,5	115	5,6	112	6,2	123	5,8	123	5,1	96	3,9
Lung	96	4,4	72	3,9	95	4,7	123	6,8	137	6,4	123	5,1	173	7,1
Rectum	90	4,2	93	5,0	89	4,4	103	5,7	90	4,2	103	4,3	98	4,0
Sub-total	1415	64,4	1235	66,6	1226	60,4	1987	60,9	1399	65,9	1507	62,7	1613	66,2
Total cases	2167	100	1853	100	2032	100	1802	100	2124	100	2403	100	2438	100

TABLE II

Most frequent skin histological types/year (percentage related to total skin tumours diagnosed this year)

Type	Year		2000		2001		2002		2003		2004		2005		2005	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Basal cell	255	55,2	223	52,5	68	43,3	28	31,1	221	59,2	167	45,3	216	45,7		
Squamous cell	106	23,0	99	23,3	37	23,6	18	20,0	70	18,8	62	16,8	89	18,8		
Melanoma	14	3,0	18	4,2	18	11,5	16	17,8	12	3,2	26	7,0	34	7,2		
Others	87	18,8	85	20,0	34	21,6	28	31,1	70	18,8	153	30,9	134	28,3		
Total cases	462	100	425	100	157	100	90	100	373	100	369	100	473	100		

estimates, lung cancer appears as the most frequent form of cancer for Southern Europe. In fact, in our hospital, lung cancer showed a significant increase of 77 cases during these seven years, of which 49 were male patients. It is also worth mentioning that although there were very few cases, breast cancer in men also increased.

According to data from the INE (Instituto Nacional de Estatística), in the region of the area of influence of the H.U.C., in the sampling period, population aging was 39% above the average level for the country, reflecting an increase of average life expectancy and certainly leading to an increase in the search for treatments needed for the elderly population. In the

cases presented during these seven years at the hospital, it was verified, on the other hand, that there was a reduction in the age on diagnosis, which might mean that malignant neoplasms are affecting individuals at an increasingly younger age, or in the case of this population, diagnoses are taking place earlier, which can be assessed in a future analysis of the data for this sample, verifying the stage of the disease of these diagnosed patients and comparing it with previously published data for the hospital.<sup>14</sup>

A study on the incidence of cancer in Portugal<sup>15</sup> indicated that colorectal cancer is the most frequent form among men, with 3173 new cases, followed by prostate cancer (2973), lung cancer (2611), stomach

TABLE III

Age (years) at diagnosis by topographic location

Location	Year		2000		2001		2002		2003		2004		2005		2005	
	Average	máx/min	Average	máx/min	Average	máx/min	Average	máx/min	Average	máx/min	Average	máx/min	Average	máx/min	Average	máx/min
Skin	68,8	93-9	62,6	98-18	62,6	94-18	65,2	95-19	65,4	96-11	63,0	95-19	64,4	99-14		
Prostate	71,3	96-44	68,4	96-41	65,5	88-48	63,3	96-45	62,7	84-50	66,5	93-45	68,0	93-18		
Breast	58,0	95-31	62,2	91-28	62,2	88-27	61,7	91-31	61,5	87-24	61,2	92-19	62,9	93-25		
Colon	70,2	89-33	63,3	92-27	64,4	96-31	65,9	92-30	61,9	95-20	64,8	95-19	65,8	93-23		
Hematologic	62,9	90-12	63,4	89-18	62,5	97-6	63,2	88-13	64,9	89-15	66,4	96-17	63,0	88-20		
Stomach	69,2	98-35	69,9	91-36	69,3	95-37	63,7	98-38	65,8	97-28	67,0	95-31	62,3	90-18		
Lung	64,4	88-30	62,3	83-25	67,2	91-27	65,7	91-33	61,1	88-41	66,7	87-36	63,1	91-35		
Rectum	68,3	93-31	62,8	94-30	65,7	99-41	66,9	89-38	65,1	91-21	65,7	95-29	63,9	94-29		
Sub-total	66,6	98-9	64,4	98-18	64,9	99-6	64,5	98-13	63,6	97-11	65,2	96-17	64,2	94-14		
Total cases	64,9	98-6	65,0	98-0,5	64,0	101-6	63,24	98-0,2	64,5	97-0,5	66,8	96-3	64,9	101-4		

TABLE IV

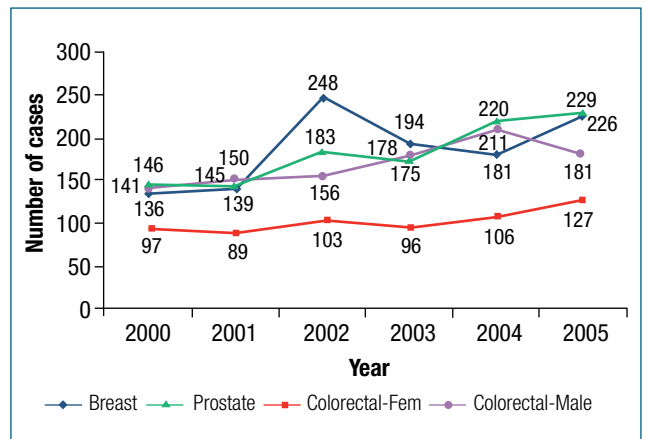
Distribution of most frequent malignant neoplasm diagnosed by sex /year

Sex	2000		2001		2002		2003		2004		2005		2005	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Skin	230	232	213	212	68	89	46	45	211	162	185	184	261	212
Prostate	0	146	0	145	0	183	0	175	0	220	0	229	0	283
Breast	136	1	139	2	248	4	194	3	181	7	226	4	195	5
Colon	63	85	56	90	71	99	68	103	65	112	88	117	77	115
Hematologic	78	95	41	70	59	106	52	74	31	60	43	82	42	56
Stomach	59	84	32	70	42	73	44	68	51	72	46	77	43	53
Lung	21	75	12	60	23	72	34	89	43	94	39	84	49	124
Rectum	34	56	33	60	32	57	28	75	41	49	39	64	39	59
Total	621	774	526	709	543	683	466	632	623	776	666	841	706	907

cancer (2206) and bladder cancer (1360), in 2000. For female patients, the most frequent neoplasms were breast cancer (4358), colorectal cancer (2541), stomach cancer (1494) and uterine cervical cancer (1083). In this sample, the order of frequency of malignant neoplasms overlaps that of the study for the first three locations, by gender. It should also be mentioned that hematologic neoplasms were very frequent in this sample, particularly in the first years, probably reflecting the specific characteristics of the hospital, which is an institution of reference, receiving many patients in this area.

Taking into account the objective of this sampling, as explained above, this may be another factor contributing to a preliminary “diagnosis” of cancer at the hospital. The data needs to be included in national and European statistics, so that global strategies can be created in the fight against this pandemic that has yet to be controlled. In this population group, as for the population in general, cancers of the intestine, breast and prostate continue to be the forms of cancer that require more financial resources.

Increasingly reliable and accurate hospital records, giving all the characteristics of the disease and the follow-up data, will enable an ongoing assessment of quality of the healthcare provided, and multidisciplinary planning to support cancer patients. ■



Distribution of most frequent malignant neoplasm diagnosed by gender/year.

FIG. 2

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