EPIDEMIOLOGY OF CANCERS IN DEPARTMENT OF ONCOLOGY AT UNIVERSITY HOSPITAL ANTANAMBAO TOLIARA. MADAGASCAR

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ABSTRACT

Introduction: In August 2016, the Antanambao Toliara University department of Oncology and Multidisciplinary Medicine was created. This is the first oncology department in the South West region of Madagascar. Our objective was to determine the number of cancer cases recorded in this department as well as their socio-demographic, clinical and therapeutic characteristics.

Methods: It was a retrospective descriptive study over 15 months from October 1st, 2016 to December 31st, 2017. Patients with cytologic or histological proof of theirs cancers were included.

Results: We have collected 50 cases of cancers. The age of patients ranged from 10 to 80 years with an average age of 49.5 years. Women accounted for 82% of patients. The Vezo ethnic group predominated with 18 patients (36%). Forty percent of patients came from the urban district of Toliara. Gynecological cancers were the most common (66%), including **cervix** (28%) and breast (26%) cancers, followed by cancers of the head and neck (16%). Patients were initially diagnosed at the locally advanced (70%) and metastatic (22%) stages. They were treated by surgery alone (46%), chemotherapy alone or combined (44%) and radiotherapy (4%).

Conclusion: Our study confirms the ubiquitous character of predominantly ethnic cancer according to the dominant population. The installation of a pathological laboratory in Toliara would increase the recruitment of cancers.

Keywords: Cancer, Epidemiology, Incidence, Pathology, Toliara

INTRODUCTION

Cancer is a DNA (Deoxyribonucleic acid) disease which is due to the process of immortality of one cell which gives birth to cancerous cells. The following colony does not match to the natural rules of cells (1). Cancer is becoming a worldwide problem and a major public health (2).

In 2012, 14.1 millions of new cases have been registered around the world with 8.2 millions of death. The incidence of cancer is increasing, consequently the death rate would increase more than 50 % and to be 15 millions by the year 2030 according to the World Health Organization (WHO) (2,3). Epidemiologic studies in Africa estimate about 1.2 millions of new cancer cases by 2030 with more than 970000 deaths if there are no adequate and rapid measures taken. In Ivory Coast, during 1984 to 2009, 12841 cancer cases were registered, with 493 cases in a year (4). In Niger, from 1992 to 2009, 7031 cancer cases have been registered within a significant increase of 186 cases in 1992 to 646 cases in 2009 (5). Concerning the situation in Madagascar, a study has been done between the years 2009 to 2010 at the oncology service of Joseph Ravoahangy Andrianavalona hospital (CHU/JRA) and revealed 1481 new cancer cases, an annual frequency of 740 cases (6).

Some cancer cases show a frequency decreased around the world, sex and age mixed up cancer of : lung, breast, colorectum, liver, bladder, esophagus, stomach, prostate and the cervix (7). In Africa, breast cancer and cervix cancer are the most frequent (5). The same case is noticed in Madagascar (8,9).

Some cancers are « avoidable » and many are curable. Fighting against cancer is then important and should be sustained. The major points in cancerology are : early screening, the diagnosis, the treatment as well as the prevention. Health system to facilitate the access of the treatment should be created (10). In 2016, the sixth Oncology service at CHU Antanambao Toliara was opened. It is the only one cancerology center in the southern part of Madagascar. The aim of our study was to determine the number of cancer cases registered in the service as well as the sociodemographic, clinic and therapeutic aspects.

METHODS

A retro-descriptive study between October 1st, 2016 and December 31st, 2017 has been done within the cancerology and the Multidisciplinary Medecine department at the CHU Antanambao Toliara, that is 15 months.

We have included all patients with pathologic diagnosis confirmed (cytologic and/or histologic) and the analysis done during the period of the study. All incomplete documents were excluded.

The main points to be considered were :

- Sociodemographic factors : incidence, age, profession, ethnic origin, geographic origin
- Clinical factors : first symptom, the time between the first clinical symptoms and a medical visit, the time between a consultation of a general practitioner and a specialist, tumor location, initial staging of the disease, diagnosis confirmation laboratory
- Therapeutic factor : treatment management

The data were collected through the existing or casual patients documents reduction within the period of the study. The collected data were exploited through Word and Excel, using code system.

The patients' identity and personal information were kept confidential.

RESULTS

We have analyzed 578 documents ; 485 of them were from non-cancer disease and 93 documents were from those who are highly cancer suspicious, 50 were included in the study.

The monthly incidence was about 3.3 cases. The patients' age were 10 to 80 years old. People between 35 and 54 years old were the most concerned, they represented 34 % of the cases. The average age was 49.5 years old. There were 41 women and 9 men with a sex ratio of 0.22. More than the half of the patients were liberal workers (52%). Unemployed people represented 32 % of the patients and 16 % were salaried employees (public and private sector). The Vezo ethnic groups were mostly represented 18 patients (36%), followed by the Antandroy and the Masikoro ethnic groups about 12 %. Forty percent of our patients came from the city of Toliara and 22 % were from the rural areas.

The main reasons of medical consultation were the existence of swelling part or mass in 28 % of the patients, bleeding (26%), and pain (16%). Over the half of the patients (58%) have seen a general practitioner following the 12 months of the first symptom of the disease with an average time limit of 18 months and the highest frequency in the 12th month. The majority of the patients (82%) came for a specialized consultation 30 weeks after consultation by a general practitioner and 12 % one week after. The average time limit consultation was 7 weeks. Gynecological cancers represented 66 % of our study (cervix 28 %, breast 26 %, uterine body 8 % and ovary 4%). The head and neck cancers were 16 %. Table n°1 shows the patients' repartition according to their tumor location, age and gender mixed up.

Table I : Estimation of cancer cases.

RANK	CANCER	NUMBER (n=50)	POURCENTAGE (%)
1	Cervix uteri	14	28
2	Breast	13	26
3	Head and neck	8	16
4	Corpus uteri	4	8
5	Colon	2	4
6	Ovary	2	4
7	Hemopathy	2	4
8	Kidney	1	2
9	Skin	1	2
10	Rectum	1	2

11	Stomach	1	2
12	Lung	1	2

The tumor location found mostly in men was the head and neck with a rate of 55 %. The three main cancer cases in women were cervix cancers (34%), breast cancers (32%) and uterine body cancers (8%). They represented 74 % of the female population of our study.

The cancers were diagnosed in locally advanced stages in 60 % of the cases, metastatic in 22 % and in early stages in 18 %. Figure 1 shows the patients' repartition according to the stage of cancers.

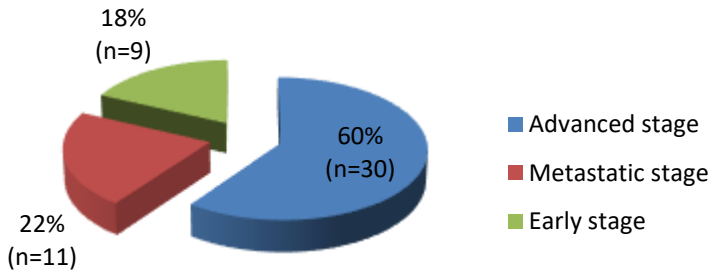

Figure 1 : Staging patient repartition

Pathologic diagnosis has been done at the CHU Andrainjato Fianarantsoa laboratory for 90 % of our patients. The others came from Antananarivo.

Forty-six percent of the patients received a surgery treatment first. Four percent got a radiotherapy and 26 % a symptomatic palliative care. Figure 2 shows the patients' repartition according to the initial care.

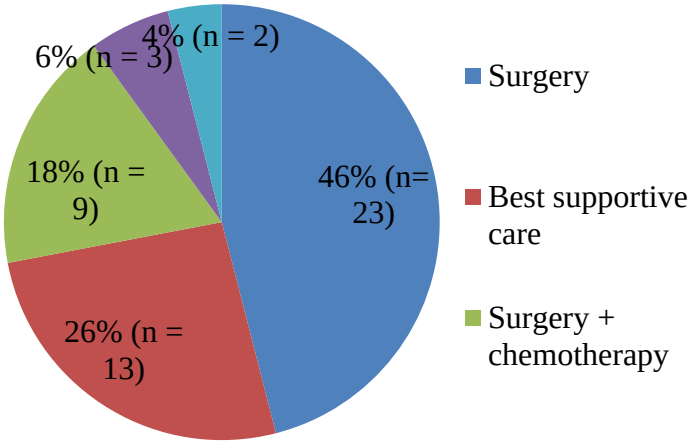

Figure 2 : Initial treatment of patients

DISCUSSION

We have registered 50 cancer cases within 15 months. For RAMAHANDRISOA, she has collected 151 cancer cases within 10 months at the oncology unit inside the Medical Centre of Soavinandriana (CENHOSOA) in 2014 (11) ; whereas RANAIVOMANANA registered 1481 new cancer cases between the years 2009 and 2010, this with an annual frequency of 740 cases in the oncology service at CHU/ JRA (6). In Ivory Coast, EFFI has registered 12841 cancers in 26 years between 1984 and 2009 and the annual frequency was 494 cases (4). In France, the incidence rate has increased from 56.3 cases to 88 cases for 100.000 between the years 1980 and 2012 (12). Cancers frequency varied from one service to another and for one country to another.

In our study, the patients' average age was 49.5. The highest frequency was between 35 and 54 years old, which represented 36 % of the patients. The same situation was found in RANAIVOMANANA's study at CHU/JRA between the years 2009 and 2010, with an average age of 49.19 years old and a highest frequency for the same age range (6). As for RAMAHANDRISOA (11), she has found 54 years **old** as the average age at CENHOSOA in 2014. These results were similar to those of GARBA in Niger and d'AHOUA in Ivory Coast. They have respectively found an average age of 43 and 51 years old (5,13). However in France in 2015, the median age of the diagnosis was 67 years old (14). This contrast with the african countries would be due to the aging of the population in developed countries. In Madagascar in 2012, the average life expectancy of Malagasy people would be 62.5 years old for women and 59,6 years old for men. Only 3 % of Malagasy population would be over 65 years old (15).

The female population was the most concerned with cancer in our study, it represented 82 % of the cases registered with a 0.22 sex ratio. This predominance was noticed at the oncology service of the CHU/JRA according to PIGNON (16) and RANAIVOMANANA (6) studies, they respectively reported 64.72 % and 73 % of the cases. But in HASINIATSY's study at the medical oncology unit of CENHOSOA, it was low 54.14 % (9). In all cases, this female predominance was seen in other african countries like Burkina Faso with a rate of 54.9 % (17), Ivory Coast 52 % (13) and Niger with sex ratio of 0.40 (5). This would be linked with the frequency of gynecological cancers in those countries. On the other hand, in developed countries, the predominance was masculine due to the frequency of lung cancers (3).

The Vezo ethnic group led our study with 36 % and 40 % of the patients were from the city of Toliara. RANAIVOMANANA (6) and HASINIATSY (18) reported the predominance of the Merina ethnic group during their studies in Antananarivo. RAMAHANDRISOA has noticed that more than 69 % of the patients lived in the capital city of Antananarivo (11). This

can be explained by the fact that the patients were native of the area and they were near of the medical center.

Sixty-two percent of the patients have seen a general practitioner in 12 months after the first symptom of the disease. The average time limit of consultations was 18 months. According to the study of RANDRIAMANOVONTSOA at the oncology service of CHU/JRA, 90 % of patients came for a medical consultation at least three months after the first symptom of the disease (19). On the other hand, RAZAFIMAHAZO, in his study at CENHOSOA in 2016, noticed that 38.63 % of patients have directly consulted a doctor after the first clinical signs (20). In Bamako, TOGO has found an average time limit of consultation between 10 to 24 months (21). The delay of the first consultation depends on the patient himself, but other factors can be considered such as financial problems, the ignorance of the medical center as well as the geographical distance (19). In Madagascar for any disease, people are used traditional practice which can delay the diagnosis. Indeed, as shown in the study of RABENOAVY about gastric cancers in 2007, the first reflex of sick people is to consult a traditional practitioner and it's only after a failure that they came to see doctors (22). In the study of HASINIATSY in 2014, 60.83 % of cancerous patients have already been managed by alternative medicine (23).

The three first tumor locations were cervix, breast, head and the neck. Gynecological cancers represented the 66 % of cases, age and gender mixed up. RANAIVOMANANA, in her study in the oncology service at CHU/JRA between 2009 and 2010 stated that the most encountered cancers, age and gender mixed up, were breast cancers followed by cervix cancers and lymphomas (6). In Mali, LY found a predominance of breast cancers followed by cervix and prostate cancers in 2010 (24). In the world, lung cancers followed by breast cancers and the colorectal cancers were mostly seen, age and gender mixed up (3). The gynecological cancers predominance, mainly cervix cancers in our series, would be due to the mass screening of cervix cancer done in the CHU Antanambao in partnership with foreign social action. The head and the neck cancers would probably be due to the arrival of a specialist in maxillofacial surgery.

Sixty percent of patients in our study were diagnosed in locally advanced stages of the disease, 22 % in metastatic stages of and only 18 % in localized or early stages. These results were consistent with the study of RAMAHANDRISOA (11) at CHU/JRA in 2014 which showed that 78.14 % of patients were in advanced stages (locally advanced and metastatic stages). It is the same for HASINIATSY in his study in 2013 who showed that 17.70 % of cervix cancers were diagnosed in early stages (18). On the other hand, that of TIKA realized in 2016 at the CHU/JRA about skin cancers revealed that 61.7 % of patients were in early stages (25). In Morocco, MELLOUKI's study done in 2014 about gastric cancers has shown that the metastatic figures in the diagnosis time was over 50 % (26). The initial tumor stage depends on the tumor location and/or the histological type.

Almost 90% of the pathological diagnostic have been done at the CHU Andrainjato laboratory. Currently, there is no pathological laboratory in the city of Toliara. A partnership has been started between the CHU Antanambao Toliara and the pathological laboratory of the CHU Andrainjato Fianarantsoa. The results were delivered to the physician by email.

For the therapeutically aspect, surgery was the initial treatment for the 46 % of patients, symptomatic palliative care for the 26 %, chemotherapy associated or not with surgery for the 24 % and radiotherapy for the 4 % of patients. In TIKA's study about skin cancers, 74.19 % of patients had a surgical treatment and 9,68% a radiotherapy (25). In that of HASINIATSY's study about cervix cancers, 5.20% of patients received a surgery alone, 20.80% didn't receive any specific treatment and 55.21% received a chemotherapy alone. Radiotherapy followed by surgery has been done to 48% of patients (18). In RANDRIAMANOVONTSOA's study about cancers of the upper aerodigestive tract, 11.24% of the patients were treated only by surgery (19). Those discordance would be explained by the fact that the first treatment is chosen

according to the tumor location, the histological type, the stage of the disease, the general state of patients and the availability of therapeutic means, particularly the radiotherapy which exists only in Antananarivo.

CONCLUSION

This study has shown the epidemiology of cancers at the cancerology service of CHU Antanambao Toliara. Actually, 50 patients were registered, almost young and with gynecological cancers predominance. Our study confirms the ubiquity of the cancer with an ethnical predominance according to the most representing ethnic population.

Ninety percent of the pathological examinations have been done at the pathological laboratory of the CHU Andrainjato Fianarantsoa. Only 4% of patients were treated by radiotherapy. Setting up a radiotherapy center and a pathological laboratory would be a great help for a better and adequate care of cancers. The existence of a pathological laboratory would increase cancer recruitment in the southern regions of Madagascar.

The installation of a national cancer registration would let to have an epidemiological profile of cancers all over the country. A more spread study should be done to determine the real incidence of the cancers. Our results will serve as reference for a future follow-up of cancers in this part of the Island.

Interests conflict: None

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