



(RESEARCH ARTICLE)



Epidemiology of cancer in Antsiranana, northern Madagascar, 2021: First study in the oncology department

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Abstract

Introduction: In Madagascar, the heavy costs related to cancer generate a burden for the family and society. The only medical oncology service in the north of Madagascar has been operational since January 2021. Our objective was to describe the epidemiological and clinical aspects of cancers in northern Madagascar.

Patients and methods: A descriptive retrospective study from January 01, 2021 to December 31, 2021. Newly deceased patients with histological evidence were included in the study.

Results: Sixty cases of cancer were collected. The average age was 53 years old. Patients between the ages of 45 and 65 reached 53%. The sex ratio was 0.27. The Sakalava ethnic group predominated in 40% of patients. The majority (56%) lived in the city center. Gynecological cancers were the most frequent 61.5% (cervix 26.6%, breast 23.3%, uterus 8.3% and ovary 3.3%). Prostate cancer was the first cancer in men and represented 10% of our patients. No lung cancer was recorded during the study. All the anatomopathology results came from the Antananarivo laboratories. The mean time to diagnosis was 16 months. The cancer evolved in 83%. Patients requiring radiotherapy were referred to Antananarivo.

Conclusion: improving cancer care requires awareness-raising and screening. The establishment of an anatomopathology unit and bronchial fibroscopy increased the number of cancers in Antsiranana.

Keywords: Epidemiology; Cancer; Antsiranana; Developing country

1. Introduction

According to World Health Organization estimate, the new case of cancer in 2020 globally was 18.3 million and 845,946 in Africa. In Madagascar the national cancer registry is only at the beginning stage. The Malagasy data available comes from various studies carried through a cancer diagnosis and treatment units [2, 3]. The population of Antsiranana was to 2.01 million inhabitants in 2018 and accounts for 7.8% of the Malagasy population [4]. The only medical oncology department at the Tanambao Antsiranana University Hospital Center had been operational since January 2021. The objective of the study was to describe the epidemiological and clinical aspects of the cancers recorded in the department. it is expected these data as a benchmark for assessing quality of cancer care.

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2. Methods

Descriptive retrospective study from January 1, 2021 to December 31, 2021. All patients with newly diagnosed histological evidence were included in the study. Recurrences, incomplete files and cases treated on a cluster of arguments were excluded from the study. Socio-demographic parameters such as incidence, gender, age, ethnicity, geographical origin and clinical parameters including tumor location, time to diagnosis, pathological result, stage of the disease. The data was collected and exploited via the Excel® 2007 system.

3. Results

Among the 72 files, we excluded 12 files and included 60 for the study. There were 13 men and 47 women. The sex ratio was 0.27. The average age was 54 years with extremes of 15 years to 85 years. Young subjects under 65 represented 71% of patients with a predominance of age between 45 and 65 years (53.5%). The sakalava ethnic group were the most frequent in 40% followed by tsimihety 15%. Patients who lived in the city center were 56%. Thirty two percent of patients lived in surrounding districts and must travel a distance of at least 120 km for treatment.

The mean time to diagnosis was 16 months. Patients diagnosed less than 6 months ago accounted for 35%.

Gynecological cancers accounted for 61.5% of cases. Cervical cancer was the most common in 26.6% followed by breast cancer 23.3%. Prostate cancer accounted for 10% of cases. Colon cancer accounted for 8.3% of cases. No lung cancer was recorded during the study. Table 1 represents the distribution of cancer cases by organ classification.

All the histological results came from pathological laboratory of Antananarivo. According to the extension of the tumor, the advanced forms represented 83% of the cases including the metastatic forms 49% and locally advanced 21%. Localized forms accounted for 17% (Figure 1).

Table 1 Distribution of cancer cases by tumor site

Cancer type	Women	Men	Total, n (%)
Cervix	16	0	16 (26.6)
Breast	14	0	14 (23.3)
Prostate	0	6	6 (10)
Uterus	5	0	5 (8.3)
Colon	2	3	5 (8.3)
Skin	2	1	3 (5)
Ovary	2	0	2 (3.3)
Head and neck	1	1	2 (3.3)
bladder	1	0	1 (1.6)
Testis	0	1	1 (1.6)
Brain	1	0	1 (1.6)
Non Hodgkin lymphoma	2	1	3 (5)
Hodgkin's lymphoma	0	1	1 (1.6)
Lung	0	0	0 (0)
Total	47	13	60 (100)

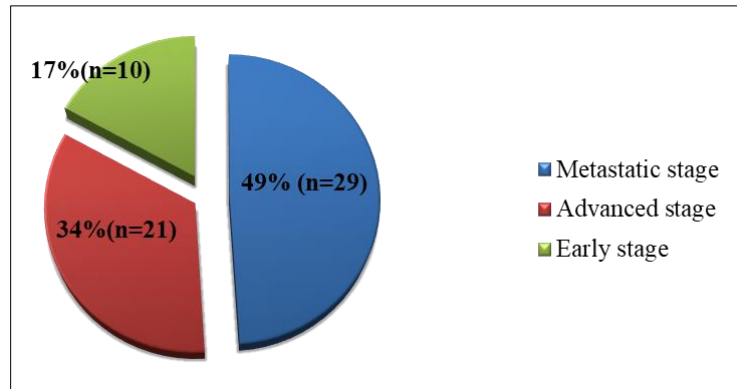


Figure 1 Distribution according to stages of tumor extension

4. Discussion

We recorded 60 cases of cancer in 12 months. These data does not necessarily reflect the number of new cases of cancer for the population of Antsiranana. This low incidence shows population's reluctance to be treated in hospitals for lack of financial means. Randriamalala's study in southern Madagascar revealed 50 cases of cancer in 15 months from October 1, 2016 to December 31, 2017 [3]. Hasiniatsy's study in the capital showed 181 cases during 2013 [2]. This variation would be related to the number of the population. In our study, the sex ratio was 0.25%. This result is comparable to various Malagasy and African studies [2,3,5]. They would be linked to the predominance of gynecological cancers. In Madagascar in 2018, 50.7% of the population was female [4]. Concerning the age of the patients, 71% of the patients were under 65 years old with a predominance of age between 45 and 65 years old (53.5%). The average age was 54 years old. In Africa, it is a young population that is affected, unlike in developed countries [6]. The sakalava ethnic group predominated in 36% followed by tsimihety 15%. The majority of patients (56%) lived in the city center. It should be noted that a third of the patients come from the surrounding districts (Ambilobé, Ambanja, Sambava, Andapa). These patients must travel a distance of at least 120 km for treatment and medical follow-up. This geographical distance sometimes constitutes a constraint to the care realization

In our study cervical cancer was the most common 26.6%. Our result agrees with that of Randriamalala in southern Madagascar [3]. The human papilloma virus (HPV) is a necessary but not sufficient cause of cervical cancer. Important co-factors including certain sexually transmitted infections, smoking, higher number of childbirth play a role in the development of cancer. In Madagascar, the HPV vaccine was evaluated in 2012 and 2015 but it stopped for economic problems. At the Tanambao Antsiranana University Hospital Center, the screening method available consists of performing a visual inspection with acetic acid (VIA).

Breast cancer was the second cancer found 23.3%. In a low-income country like Madagascar. organized breast cancer screening is not feasible. Raising the awareness of the population concerned is therefore essential to promote the early detection of cancer. In the city of Antsiranana, there is a mammography center in a private sector and an ultrasound in the public sector for screening.

Prostate cancer was the first cancer in men and accounted for 10% of patients. Worldwide, prostate cancer is the most frequently diagnosed in men in more than half of the countries (112 out of 185 countries) [1]. In Canada, prostate cancer was the most common in men [7]. This similarity could link to improved diagnosis in older men with urinary symptoms and the availability of the prostate-specific antigen (PSA) test in laboratories. We did not find bronchopulmonary cancers in our study. In Antsiranana there is no pulmonology department or thoracic surgery department and bronchial fibroscopy is not available. All patients presenting with a pulmonary or mediastinal mass are sent to Antananarivo.

The mean time to diagnosis was 16 months. It should be noted that there is no Pathological laboratory in Antsiranana and all the histological evidence came from Antananarivo laboratories at a distance of more than 1200km. In the study Rafaramino in 2001, the time to diagnosis of breast cancer in Antananarivo was 9.4 months [8]. The average time to diagnosis of breast cancer in Marrakech, Morocco was 8.7 months [9]. This significant diagnostic delay is due to several factors such as financial problems, geographical remoteness, and ignorance of the oncology department and the use of traditional medicines. In our study the metastatic stage predominated in 48% followed by the locally advanced stage in 22%. The delay in initial diagnosis allows the tumor to progress and therefore impact the treatment and prognosis of

the disease [10]. Note that there is no radiotherapy service in Antsiranana. Patients who should have benefited from radiotherapy were transferred to Antananarivo, making treatment difficult.

5. Conclusion

Young subjects were the most affected with a predominance of gynecological cancers. Prostate cancer was the first cancer in men. The delay in initial diagnosis would lead to tumor progression. The establishment of pathological laboratory and bronchial fibroscopy in the northern region would increase the number of cancer cases. Strengthening awareness-raising and screening improved the quality of care.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

The authors have no conflict of Interest to declare for this study.

Statement of informed consent

Owing to the fact that study was retrospective and data was from records and not directly from the patients.

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