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Distribution and Evolution of Malignant Hemopathies of Adults at the Yaounde Central Hospital (Cameroon)

Distribution et évolution des hémopathies malignes chez les adultes à l'Hôpital Central de Yaoundé (Cameroun)

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ABSTRACT

Introduction. Hematological malignancies are a heterogeneous group of cancers of blood cells and their precursors for which there are not many studies in Africa due to diagnostic difficulties. It is with the aim of enriching the data on these pathologies in Cameroon that the present study was initiated. **Materials and methods.** We conducted a retrospective analytical study in the department of hematology and medical oncology of the Central Hospital of Yaounde in Cameroon for 10 years from January, 2008 to December, 2017. We have elaborated on a technical sheet where were found epidemiological, sociodemographic, clinical, therapeutic and evolutionary variables. **Results.** Among the 167 files selected, the average age of the patients was 52 +/- 16, with extremes of 21 years and 87 years. Lymphoproliferative syndromes were the most common group of hematological malignancies, represented at 52.7% (88 patients). Patients consulted mainly for "suspicion of hematological malignancy" (89.2%). Definite exposure factors were identified in 52 cases (31.1%). Agricultural pesticides and herbicides were the most commonly found exposure factors (25%). The chemotherapy protocols varied according to pathologies and stages. Toxic events were rare. The average survival rate after one year was 30% for all hematological malignancies and nearly 1% after 4 years. **Conclusion.** This work allowed to determine the extent of hematologic malignant disease, to identify the socio-demographic characteristics, the risk factors, the clinical characteristics and the fate of the patients.

RÉSUMÉ

Introduction. Les hémopathies malignes constituent un ensemble hétérogène de cancers des cellules sanguines et de leurs précurseurs pour lesquels il n'existe pas beaucoup d'études réalisées en Afrique du fait des difficultés diagnostiques. C'est dans l'optique d'enrichir les données sur ces pathologies au Cameroun que la présente étude a été initiée. **Méthodes.** Nous avons conduit une étude transversale rétrospective dans le service d'hématologie et d'oncologie médicale de l'Hôpital Central de Yaoundé au Cameroun sur 10 ans du 1er janvier 2008 au 31 décembre 2017. Nous avons élaboré sur une fiche technique où ont été relevées les variables épidémiologiques, sociodémographiques, cliniques, thérapeutiques et évolutives. **Résultats.** Parmi 167 les patients retenus, l'âge moyen était de 52 ans +/- 16, avec des extrêmes de 21 ans et de 87 ans. Les syndromes lymphoprolifératifs constituaient le groupe d'hémopathies malignes le plus fréquent, représenté à 52,7% (88 patients). Les patients consultaient surtout pour « suspicion d'hémopathie maligne » (89,2%). Des facteurs d'exposition ont été retrouvés chez 52 patients (31,1%). Les pesticides agricoles et herbicides étaient les facteurs d'exposition majoritairement retrouvés (25%). Les protocoles de chimiothérapie variaient en fonction des pathologies et des stades. Les évènements toxiques ont été rares. Le taux moyen de survie au bout d'un an était de 30% pour toutes les hémopathies malignes et de près de 1% au bout de quatre ans. **Conclusion.** Ce travail a permis de déterminer l'ampleur de la maladie maligne hématologique, d'identifier les caractéristiques sociodémographiques, les facteurs de risque, les caractéristiques cliniques et le devenir des patients.

INTRODUCTION

Hematological malignancies are an heterogeneous group of cancers of blood cells and their precursors [1]. On the one hand, there are myeloid hemopathies and, on the other hand, lymphoid hemopathies [2]. In Africa due to diagnostic difficulties, there are not many studies carried out on these pathologies. In Cameroon, some recent work focusing on the characterization of these diseases has been carried out. It is in order to enrich the data on these pathologies that the present study was initiated.

METHODS

We conducted a retrospective analytical study in the hematology and medical oncology department of the Central Hospital of Yaoundé (YCH), which is the reference hospital for the management of patients with hematological malignancies in the city of Yaounde, Cameroon's political capital.

An exhaustive consecutive sampling over 10 years, from January 2008 to December 2017 has been done. Included were the medical records of adult patients followed in this department who had been diagnosed with hematological malignancies on the basis of cytological and / or histological examinations. Data were encoded and processed using Epi-Info 7 and Excel 2007 software. They were analyzed using SPSS 20 software. Quantitative variables were presented in mean and standard deviation, and qualitative variables in numbers and percentages. The Kaplan-Meier survival analysis was used to determine the mean and median (with 95% confidence intervals) of the different delays for participants in the course of care.

RESULTS

Our inclusion criteria allowed us to retain 167 files. The average age of our patients was 52 years +/- 16, with extremes of 21 years and 87 years. Patients older than 65 years were the most frequently represented (22.2%). The sex ratio was 1.6 with a male predominance

The nationals of the region of West Cameroon were mainly represented (37.7% or 63 patients). The natives from the Center and the South followed at a rate of 36.5%. A strong representation of patients living in urban areas was observed (129 cases, 77.2%).

The concept of familial hematological malignancy was found in 1 patient (0.6%). In 2.4% of patients, there was a notion of consumption of traditional potions. The history of surgery was found in 18% of patients. Diabetes and hypertension were represented at 6.6% each, or 11 cases respectively. HIV infection was found in 4.8% of patients and infection with viral hepatitis C virus in 1.8%. We have listed the main exposure factors found in our population (Figure 1). We were able to identify 52 exposed patients, ie 31.1% of our sample. Agricultural pesticides and herbicides were the most commonly found exposure factors (25%).

Lymphoproliferative syndromes were the most common malignant hematological group, represented at 52.7% (88 patients). The group of acute leukemias and myeloproliferative syndromes followed at respective

proportions of 29.9% and 17.4%. These pathologies were distributed as in Table I.

Table I: Distribution of patients by type of hematological malignancy

Hematological malignancies	Nosological entity	N	%
Acute leukemia			
	Myéloïd Acute leukemia (MAL)	37	22,2
	Lymphoïde Acute leukemia (LAL)	13	7,8
	Subtotal	**50**	**29,9**
Lymphoproliferative syndromes			
	Non-Hodgkin's Malignant Lymphomas (NHL)	29	17,4
	Chronic Lymphoïd Leukemia (CLL)	22	13,2
	Hodgkin's Lymphom (HL)	1	0,6
	Multiple Myéloma (MM)	36	21,6%
	Subtotal	**88**	**52,7**
Myeloprolifératve syndromes			
	Chronic Myeloïd Leukemia (CML)	26	15,6
	MyéloDysplasic Syndrom (MDS)	1	0,6
	Polycythemia vera (PV)	1	0,6
	Essential thrombocythemia (ET)	1	0,6
	Subtotal	**29**	**17,4**
Total		**167**	**100**

Patients consulted mainly for "suspicion of hematological malignancy" (89.2%) then for anemia at 5.4%. Asthenia, leukocytosis, low back pain and impairment of general condition were respectively found as a reason for consultation in 1.8%; 1.8%; 1.2% and 0.6% of patients.

The patients in our sample were mostly referred (84.4%) by other physicians. The referring physician was a general practitioner in 71.9% of cases and a specialist in 28.1% of cases. Patients had various clinical presentations as described in Table II.

Table II: Distribution of patients by clinical presentation

Clinical Presentation	N	%
Syndrome tumoral	78	46.7
Alteration of the general condition	71	42.5
Anemic syndrome	69	41.3
Osteoarticular pain	33	19.8
infectious syndrom	32	13.8
hemorrhagic Syndrom	15	9.0
Other syndromes	25	15.0

The chemotherapy protocols used in the service were:
- Melphalan- Prednisone-Thalidomide (MPT); Melphalan- Prednisone (MP); Vincristine-Cyclophosphamide - Dexamethasone (VCD); Vincristine - Adriblastine - Dexamethasone (VAD) for multiple myeloma cases
- Chlorambucil for patients suffering from CLL;

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- Hydoxyurea prior to taking GLIVEC (Imatinib mesylate) in hyperleukocyte CML
- Cyclophosphamide-Doxorubicin-Vincristine-Prednisone (CHOP); Rituximab -CHOP; Cyclophosphamide-Vincristine-Prednisone (COP) in the case of NHL

Of the 128 patients who received a chemotherapy regimen, 4 of them had respiratory toxicity; the other complications were: renal (1.6%); digestive (0.8%); and hematological (0.8%).

Patients have evolved in several ways and their fate is described in Table III; the mean and median of their survival are presented in Table IV.

Table III: Patients outcome

outcome	Effectif	Pourcentage
Relapse	55	32.9
Dead	93	55.7
Alive	42	25.1

Table IV: Mean and median survival of patients according to different time periods in days

Time	Mean	CI at 95%	Médian	CI at 95%
Symptoms–diagnosis	214	161 - 267	106	72 -140
Diagnosis – treatment	20	1 -38	3	1 -5
Treatment – relapse	374	167 -581	117	58 -176
Diagnosis – death	316	216 -417	118	16 -220

The average survival rate after one year was 30% for all hematological malignancies and nearly 1% after 4 years.
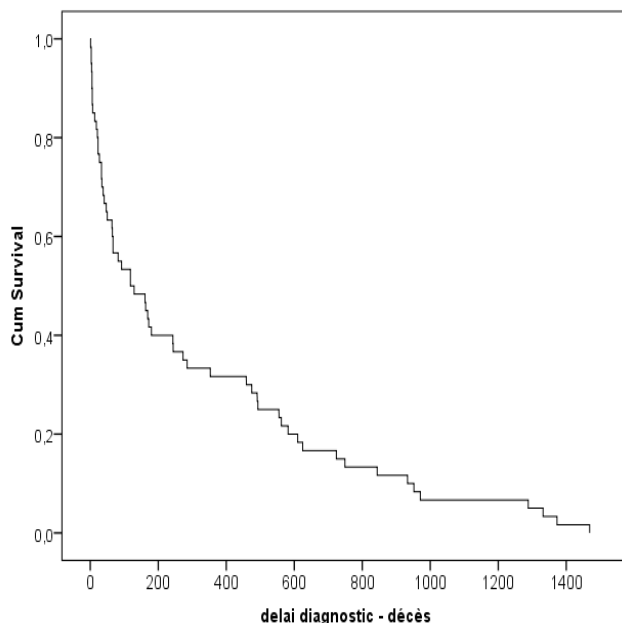

Figure 2 : Kaplan Meier survival curve for all hematological malignancies.

DISCUSSION

The average age of our patients with hematological malignancies was 52 years old for extremes ranging from 21 to 87 years old. This value is close to that of Ouedraogo et al. in Burkina Faso in 2016 [3]. Indeed, they had found for patients aged over 15 years an average age of 47.37 years. For extremes ranging from 2 to 90 years, Hossain MS. et al. in Bangladesh reported an average age of 42 years; In 2011, Luma et al. at the General Hospital of Douala for extremes of 1 to 86 years had an average age of 45 years [4]. In the 2000s in Japan, China and India, the average age was between 65 and 70 years old [5].

Our study showed a male predominance with a sex ratio of 1.6. The work of Luma et al in 2011 [4] and Dapa Aly Diallo et al. in Bamako in 2003 [6] also had this male predominance. Mohammad Sorowar Hossain et al. stated in 2001 that under-reporting of female cases related to the socio-economic status of families may explain this result and stated that "in low-resource settings, men are more often given priority to receive medical care" [7].

The majority of patients were from West Cameroon (37.7% of cases). This is in agreement with Luma et al. who reported a predominance of western-born patients among cases of hematological malignancies in the coastal region (45.16%). This would be due to the high exposure of these residents to risk factors for hematological malignancies, including exposure to agricultural pesticides and herbicides; in addition, the volcanic environment of western Cameroon could also explain this result.

The majority of patients lived in urban areas (77.2%). This is consistent with the work of Steyn et al. in South Africa, which reported in 2009 a major urban exposure in all chronic diseases in general and hematological malignancies in particular: those who have spent a greater part of their lives in urban areas tend to have more unhealthy lifestyles and a higher risk of chronic disease, hematologic malignancies compared to less urbanized [8,9]. This urban predominance of cases could also be due in our context to under-diagnosis of hematological malignancies in rural areas probably because of the financial difficulties of the populations.

Patients identified as having an exposure accounted for 31.1% of the total, or 52 patients. Agricultural pesticides and herbicides were the primary factors of exposure (in 13.8% of cases). They were followed by paint, hydrocarbons and benzene respectively at 7.7%; 5.9% and 3.5%. The results of the work of Luma et al. also reported to Douala General Hospital in 2011 a high exposure to agricultural pesticides and herbicides (5.24%) [4].

We found 17 cases of haematological malignancies per year. This data is much lower than that of N'Dhatz et al. who had worked over a period of 9 years and reported in 2012 in Cote d'Ivoire 81 new cases of hematological malignancies per year [8]. Thiam et al. in Dakar in 1996 reported 30 cases per year for a period of 6 years [9]; Luma et al. reported to the General Hospital of Douala 35 cases per year over a period of 7 years [4]; Diallo et al. in Bamako reported 33 cases per year over 6 years

[10]. The observed difference would be related to our smaller sample, limited to adults. We can therefore say like other authors that the number of diagnosed hematological malignancies increases over the years.

Of our study, 84.4% of patients were referred. The majority of referrals were made by general practitioners (71.9%) and the minority by specialist physicians (28.1%). The others, 5.6% of the cases came to directly consult the hematologist. This is in agreement with Diallo A D et al. who reported in 2013 that medical referrals accounted for the majority of admissions (69.3% of cases) [6].

The most common clinical presentation in our series was tumor syndrome in 46.7% of cases. The deterioration of the general state and the anemic syndrome respectively followed at 42,5% and 41,3% were the following ones. These data corroborate those of Luma et al. who reported 37% of patients with a tumor syndrome and 26.27% with anemic syndrome [4]. We identified 128 patients (76.6%) who had received a chemotherapy protocol. Hence about 3 out of 4 patients. This ratio is similar to that of Diallo A D et al. who reported to Mali that 2 out of 3 patients were receiving chemotherapy.

The protocols were numerous, varied according to the diagnosis and the stage of the disease. The most found were: MP-THAL (17.2%); Chloraminophen (14.1%); Hydrea + Zyloric (10.2%); MP (7%); CHOP (6.3%); R-CHOP (6.3%); Imatinib (3.1%); COP (2.3%); VCD (2.3%); VAD (1.6%). This result agrees with N'Dhatz et al. And Luma et al., Who reported the same protocols in the management of patients in their respective series [4; 8].

Of the 167 patients who met the inclusion criteria, 93 had died, representing 55.7% of the cases. This observation is far superior to that of F.Z. Mahboub et al. in Casablanca, Morocco, who reported 14 out of 132 (10.6%) deaths between 1989 and 2014 [11]. E. Andres et al. in Strasbourg, France, there was a favorable trend in more than 97% of cases of hematological malignancies (3 deaths out of 106) from 1990 to 2010 [12]. This would be due to earlier and more standardized care in developped countries.

In our series, 55 patients had at least one relapse or 32.9%. This is a huge number when compared to F.Z. Mahboub et al. who observed 8 cases of relapse only, ie Six percengt [11]. The high rate in our context of these cases of relapse is due to the non-standardization of the different protocols of care in our patients, probably related to a financial deficit because patients must buy their own drugs.

Nevertheless, 74 patients were still alive and under management protocol, ie 44.3% of the cases. By contrast, in Morocco F.Z. Mahboub et al. reported remission in 69 cases and 20 live cases still undergoing treatment [11].

The survival rate was 30% in 1 year for all hematological malignancies and 1% in 4 years. This agrees with Sine Bayo et al. who reported to Bamako Point G Hospital 65% of deaths in the year following diagnosis and a survival of not more than 4 years in patients with hematological malignancies [10].

CONCLUSION

This work allowed to determine the extent of hematologic malignant disease, to identify the socio demographic characteristics, the risk factors, the clinical characteristics and the fate of the patients. We can remember that hematological malignancies are equally present here and that the number of new cases diagnosed increases over the years. The problem of hematological malignancies is therefore serious and worrying. Good prevention requires special attention from groups at risk, concrete actions aimed at reducing risk factors and strengthening protective factors, including environmental protection. Nevertheless, prospective studies on the subject that take into account risk factors and evolution could help to understand the peculiarities observed during this work and the development of prevention and treatment strategies.

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