EPIDEMIOLOGICAL PROFILE OF CHILDHOOD BRAIN TUMOURS IN MAURITANIA

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ABSTRACT

Childhood brain tumors are the most common pediatric solid tumors, it is the second leading cause of cancer death after leukemia. Extremely high levels of curability have been achieved, particularly for medulloblastoma, in developed countries, however, in sub-Saharan Africa, the prognosis for childhood brain tumours remains poor.
In the paediatric haematology and oncology department of the National Oncology Centre (CNO), a reference structure at the national level for the management of childhood cancer, 17 cases of primary pediatric brain tumors were recorded, This retrospective research work aimed to describe the epidemiological profile of childhood brain tumors in Mauritania. Despite satisfactory access to conventional therapeutic means for brain tumors at the level of the capital's hospitals, the prognosis of this cancer remains poor in children.

keywords : child, brain, tumor, Mauritania

1.Introduction

Childhood brain tumours are the most common paediatric solid tumours [1]. They are the second leading cause of cancer death after leukemia. Primary tumors predominate and histological types are very varied [2]. They are distinguished from those of adults by a particular topographical and histological distribution [6].
The overall incidence of central nervous system tumors varies from 15 to 22 / 100,000 inhabitants/year [3].
Infratentorial tumors represent between 50 and 55% of all childhood brain tumors, if we consider only infant tumors, we see a clear predominance of supratentorial locations [7].
Histologically, there are essentially 3 types representing almost all infratentorial tumors: Astrocytoma, Medulloblastoma and ependymoma [8].
Overall survival and quality of life have been seen to increase and some histological types have reached extremely high levels of curability, including medulloblastoma [9].
Their management involves a multidisciplinary approach between neurologists, neuroradiologists, neurosurgeons, anatomical pathologists, oncologists, radiotherapists and psychologists [10].
In sub-Saharan Africa, few studies have been done on brain tumors [5].
The objective of this research work was to describe and analyze the epidemiological profile of brain tumors in children in Mauritania.
Mauritania's membership of the GFAOP in 2011 has made it possible to improve the management of childhood cancers thanks to the continuous training of the healthcare team and the opportunity for exchanges with the various member colleagues.

2.Population and method

This is an observational descriptive study with an analytical aim with a retrospective collection of 17 cases of primary pediatric brain tumors diagnosed over a period of 10 years from 2011 – 2021 within the pediatric hematology and oncology department of the National Center for Oncology (CNO).

The National Oncology Center is a structure dedicated to the diagnosis and management of all cancer cases occurring on the national territory, the pediatric hematology and oncology department of the National Oncology Center welcomes patients under 17 years of age from the different regions of Mauritania with benign and malignant hematodiseases and solid tumors. It was created in 2010.
All patients aged 0 - 16 years whose CT results were in favour of an intracranial expansive process (IPC) were included.
The data was collected from patient records based on a survey sheet, entered and analyzed with the spss 2020 software.
The main objective of this study is to establish the epidemiological profile of brain tumors in the pediatric hematology-oncology department in Nouakchott
The secondary objective of this work is to compare the results obtained with the data found in the literature while identifying the constraints and prospects with the aim of improving care.

3.Results

The average age of our patients was 10 years old with extremes of 2 and 15 years old, The male sex is the most affected, 53% of our patients were insured by the National Health Insurance Fund against 47% by social affairs.
Intracranial Hypertension (ICH) was the most frequent reason for consultation in 9 patients, 4 patients had balance disorders, one case of exophthalmos and 2 cases of visual disturbances were found.

In our study, medulloblastoma was the most common diagnosis (27%), pilocytic astrocytoma (12%).
58% of our patients had histological confirmation, brain CT was performed in 58% of cases and MRI in 70.5% of cases.

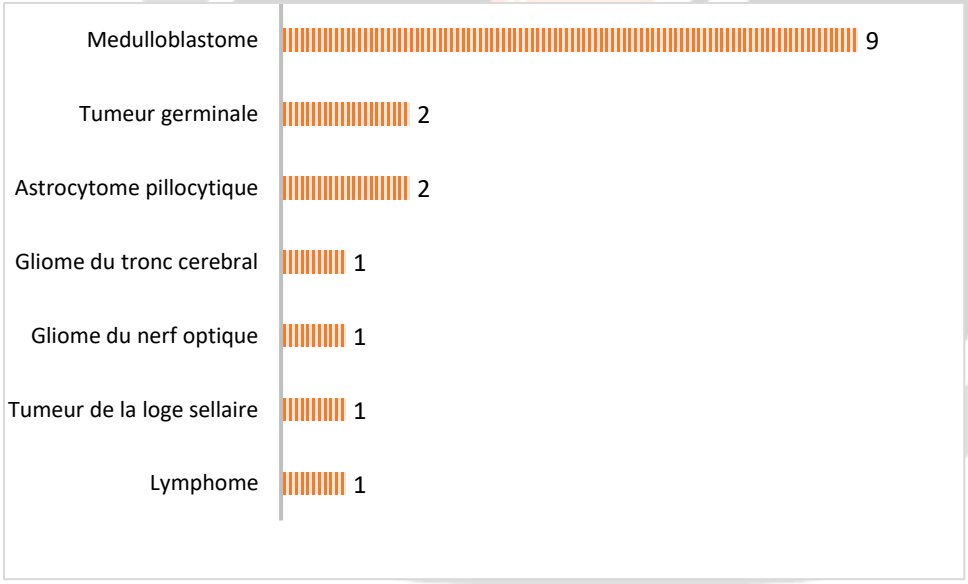

Fig 1 : Distribution of patients by diagnosis

In our study, 14 cases were non-metastatic, i.e. 82%.
Most of our patients were treated with surgery, chemotherapy and radiotherapy with 70.6%, 88.2% and 70.6% of cases respectively.
23.5% have a complete remission, 16.7% have a progression and 35.3% have relapsed.
58.8% of our patients died.

4.Discussion

Studies on childhood brain tumours in Africa are few and often fragmented. Our work aimed to carry out an epidemiological, clinical and therapeutic study of cases of brain tumors diagnosed in children aged 0 to 16 years in the pediatric hematology-oncology department at the National Oncology Center in Nouakchott.

The mean age of our patients was 10 years, close to that observed in the literature 8 1/2 years [5-14]. The marked male predominance in our study has been confirmed by different studies [2,5,11].
Intracranial hypertension was the most frequent diagnostic circumstance in our study, 52.94% as for most authors [4-14]
Histological confirmation in our study was 58%, with a lower rate reported in the literature not exceeding 1/3 of cases [14].
The frequency in our study of medulloblastoma at 52.9% is close to the data in the literature [4,12].
The management of brain tumors requires certain human and technical conditions for the proper treatment of the various brain lesions, the standard treatment includes radiotherapy which leads to an improvement in medium-term survival rates, whether used alone or in addition to incomplete excision surgery, or in combination with a chemotherapy.
In our study, most patients received radiation therapy in 70% of cases, chemotherapy in 88.2% of cases, and 70% were treated surgically.
The fact that chemotherapy and radiotherapy are free for our indigent patients explains the availability of our patients at high rates to these two therapeutic methods compared to other studies where the rate varied between 36 and 43% [2,15].
The low remission rate of 23.5% can be explained by the inadequacy in the coordination between neurosurgeons and pediatric oncologists as well as the delay in diagnosis.
The number of deaths in our series was high at 58.8% compared to other studies whose rate varied between 14% and 42% [2, 14] illustrating our inadequacies in the management of this pathology
common in children.

5.Conclusion:

Pediatric brain tumors are a serious pathology that is difficult to manage in developing countries. Our study showed the epidemiological, clinical and therapeutic profile of brain tumors in children in Mauritania. The unsatisfactory evolution of our patients draws attention to the inadequacies and challenges of the management of brain tumors in our country.

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