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SHORT COMMUNICATION

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Epidemiological, Clinical and Therapeutic Aspects of Malaria in Children Under 5 Years Old in the Bagira General Referral Hospital

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ABSTRACT

Background: In the Democratic Republic of the Congo, as in many African countries, malaria remains the leading cause of hospitalization in routine paediatric practice.

Objective: To analyze the epidemiological, clinical and therapeutic aspects related to malaria in children hospitalized in the paediatric department of the Bagira general referral hospital.

Patients and Methods: This was a retrospective, descriptive and cross-sectional study that explored the documentary technique of records of children hospitalized in the Bagira general referral hospital from January 1 to December 31, 2020.

Results: A total of 183 children were hospitalized for malaria (37.8%). From an epidemiological point of view, the month of December, male children as well as the age group 4-5 years have been found to be factors increasing the risk of developing the disease. Fever and headache are the most frequent reasons for consultation. The death rate was 4.9% versus 81.4% cure while anemia is the most common complication (78.7%). The treatment was mainly done with 67.8% Quinine.

Conclusion: Malaria in children under 5 remains a high pathology in the Paediatric department of the Bagira General Referral Hospital, and anemia, responsible for most deaths, must be a fear for any clinician.

ARTICLE HISTORY

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Introduction

Malaria is an erythrocytopathy caused by a hematozoan, of the genus Plasmodium, transmitted by the bite of a mosquito, the female Anopheles [1].

Malaria is the first parasitic endemic in tropical regions of our planet. Individuals lacking anti- malaria immunity, particularly young children living in malaria-endemic areas, are the most exposed to severe forms and the risk of death from malaria [1, 2, 3].

It is the main cause of death for children under five in the world, mainly in sub-Saharan Africa, including the Democratic Republic of Congo. Malaria remains the leading cause of fever and the leading cause of hospitalization in routine paediatric practice [1].

This high mortality is mainly attributable to the P. falciparum species responsible for the severe forms more frequent in children under five years of age whose immunization is not yet effective. The simple clinical forms of the disease are less fatal [3, 4, 5].

The management of severe malaria in children is provided by injectable antimalarials including artesunate, artemether and quinine [2, 3, 4, 5].

The objective of this work was to analyze the epidemiological, clinical and therapeutic aspects related to malaria in children with the aim of consequently improving therapeutic management.

Patients and Methods

This was a retrospective, descriptive and cross-sectional study that explored the documentary technique on case of malaria in children aged 0 to 5 years who were hospitalized in the paediatric department of the Bagira General Hospital of the 1st January to December 31, 2020. The data were collected on the paediatric department's hospitalization cards and registers and were presented in tabular form. We respected the rules of medical ethics. Thus the confidentiality and anonymity of patient data in the files were respected.

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The diagnosis of malaria was confirmed by the presence of Plasmodium falciparum in thick gout and the presence of clinical signs of severity according to the World Health Organization. Children over 5 years of age with symptoms similar to malaria but not diagnosed with malaria were excluded from the study.

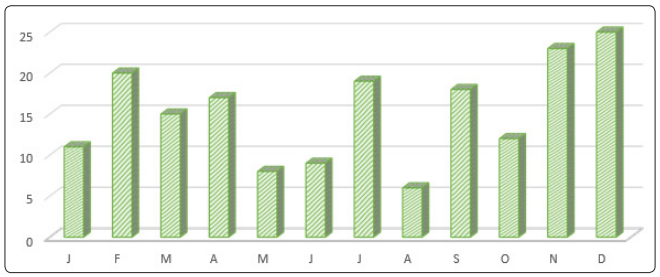
For each file, the following data were collected: age, sex, reason for admission, treatment and complications.

Results

During our study period, from January 1 to December 31, 2020, out of a total of 484 hospitalized children, of which 183 had malaria, i.e. a frequency of 37.8%. Cases are highest in December with 25 cases compared to other months (Graph 1).

According to the table (Table 1), the most affected age group was children from 4 to 5 years old with 63 cases, i.e. a frequency of 34.4%. Male children were more affected with 53.1% against 46.9% for the female sex. The majority of children with malaria are admitted with fever and headache as the reason due to 98.9% frequency. The complication of malaria seems to be anemia with 144 cases or a frequency of 78.7% Cure prevailed with 149 cases or a frequency of 81.4% against 4.9% of deaths.

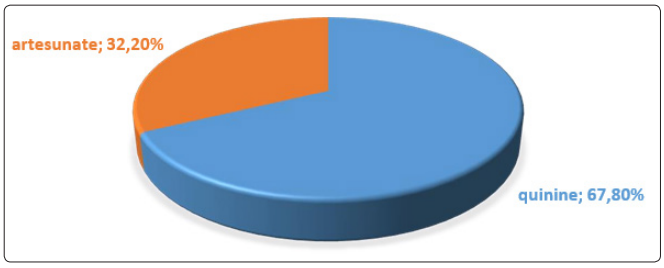
According to the graph (Graph 2), the majority of children with malaria received quinine as a treatment, i.e. 67.8%



Graph 1: Annual distribution of malaria in 2020

Table 1: Distribution of analyzed data

Sociodemographic data		
Variable	**Effective**	**Percentage**
Distribution by sex		
Male	97	53,1
Feminine	86	46,9
	183	100
Age distribution		
0-1 year	48	26,2
1-2 years	36	19,7
3-4 years	12	6,6
3-4 years	24	13,1
4-5 years	63	34,4
	183	100
Clinical data Reason for consultation		
Fever	174	95,0
Headache	181	98,9
Convulsion	32	87,1
Other	24	80,3
Complication		
Anemia	144	78,7
Neurological	36	19,7
Severe sepsis	84	45,9
Other	47	25,7
Evolution		
Healing	149	81,4
Outings on request	17	9,3
Transfer	8	4,4
Death	9	4,9



Graph 2: Distribution according to the treatment

Discussion

Malaria is a disease of concern in our community given the number of children concerned in our study (37.4% of 484 of the total hospitalized children). The highest incidence of malaria was observed in December, then November and February. These three months coincide with the rainy period [6].

From our results, the male sex is slightly more affected by malaria than the female sex, i.e. 53.1% against 46.9% [1].

According to our data, people between 4 and 5 years of age are more affected by malaria (34.4%). This period is followed by that of 0 to 1 year. According to the literature, children are the major targets of malaria. New summer malaria rare in our series [1, 2].

It appears that fever, headache and convulsions are the most frequent manifestations. Fever and headache have the high percentage 98.9% and 95% respectively. This fever is linked to the bursting of red blood cells with the release of pyrogenic factors (hemozoin) in the circulatory torrent [5].

From our observations, we find that anemia is the main complication of malaria in the paediatric department with 78.7%. This explains why malaria is the main cause of blood transfusion in our environment. According to literature malaria can cause intense hemolysis of parasitized red blood cells leading to anemia [3, 4, 7].

In our series, we noticed that quinine was the most widely used antimalarial in the treatment of malaria, ahead of artesunate (67.8% versus 32.2%). This goes against the recommendations of the World Health Organization which places artesunate as the molecule of first choice. We believe that, in an environment as poor as ours, this high use of quinine could be explained by its more affordable price compared to that of artesunate. Other authors show that quinine remains the most widely used antimalarial in hospital [2, 4, 8].

Scalability was marked by an estimated mortality rate of 4.9% and a cure rate of 81.4%. The results of other authors found a much lower death rate compared to cure [4, 7].

Conclusion

Malaria is the major cause of death in the Democratic Republic of the Congo. The Young age including children under 5 years old had a poor prognosis. Improving the prognosis of this disease depends on the speed and harmonization of care and equipment.

The Author Contributions

(I) Conception and design: Aymar CA and Eddy KB

(II) Administrative support: Aymar CA

(III) Provision of study materials or patients: All authors.

(IV) Collection and assembly of data: Gentil DR and Ami MM

(V) Data analysis and interpretation: Ami MM and Aymar CA

(VI) Manuscript writing: All authors

(VII) Final approval of manuscript: All authors

Acknowledgments

None

Conflicts of Interest

The authors declare no conflict

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