

PREVALENCE OF MALARIA AMONG UNDER FIVES IN TUDUN-WADA, JOS NORTH LOCAL GOVERNMENT AREA OF PLATEAU STATE, NORTH CENTRAL NIGERIA.

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Abstract

Background: Malaria is a preventable and treatable disease associated with high morbidity and mortality and under fives. It is the third leading cause of death for children under five years world wide. It is a major public health problem in Nigeria. Knowledge of the prevalence in underfives will help in instituting measures to reduce morbidity and mortality associated with it.

Methods: A cross sectional study was conducted among 400 under five children in Tudun Wada, Jos North Local Government Area of Plateau State to determine the prevalence of malaria.

Results: The age range of the sampled population was between 0 and 60 months with mean of 34 ± 8 months. One hundred and sixty four (41%) of the sampled population had malaria. Sixty four (16%) were females while 100 (25%) were males, $p=0.06$.

Conclusion: This study demonstrates a high prevalence of malaria among under five children.

Key words: prevalence, malaria, underfive

Introduction

Malaria is the third leading cause of death in children under five years worldwide, after pneumonia and diarrheal disease¹. In Sub-Saharan Africa, thirty countries account for 90% of global malaria deaths and about one out of five deaths of children under five in Africa is due to malaria¹.

Malaria is a major public health problem in Nigeria accounting for an estimated 100 million malaria cases with over 300,000 deaths per year of which under fives continue to dominate^{1,2}. Many countries have adopted the strategy of Home Based Management of Malaria which is supported by World Health Organization².

This study was performed to determine the prevalence of malaria in Tudun-Wada, Jos North Local Government Area of Plateau State, North Central Nigeria. Knowledge of the prevalence of malaria among under fives in this part of Plateau state will help in the prevention and treatment of malaria.

Materials and Methods

Study Area

Tudun-Wada is located in the township district of Jos in Jos North Local Government Area of Plateau State. It is bounded on the North by Jenta Adamu district, to the West by Hwolshe district of Jos South Local Government Area, to the South by the state and federal secretariat while the Jos High court, Union Bank and COCIN headquarters form the Eastern boundary. Tudun-Wada has about 4215 houses. It is both a commercial and residential area with several ethnic groups that include Berom, Jarawa, Angas, Miango, Idoma, Yoruba and Igbo.

Study Population

The study population comprised children under the age of five in Tudun-Wada, Jos North Local Government Area of Plateau State.

Study Design

This was a descriptive cross sectional study conducted over three months from November 2004 to February 2005 among under fives in Tudun-Wada, Jos North Local Government Area of Plateau State.

Sample Size Determination

The minimum sample size was calculated using this formular³:

$$n = \frac{z^2 pq}{d^2}$$

where n= minimum sample size

p= prevalence of malaria(63%)

q= complementary probability
=(1.00-0.63)

d= 5% confidence interval=0.05

z= value at0.05 significant levels=1.96

Minimum sample size of 400 was obtained after making provision for poor or incomplete responses Sampling Technique

The multistage sampling technique was used. Systematic sampling technique was used to select houses for the study. The factor for the interval was calculated by dividing the total number of houses by the sample size. A simple random sampling was applied by balloting to select a child for the study in each household. A bottle was spinned at the centre of the community to determine the direction in which to start collecting the data.

Data Collection

Data was generated using questionnaires. Blood sample was collected on a slide by a prick on the thumb swabbed with 70% alcohol from which thin and thick films were made immediately.

Data Analysis

Data was analysed using Epi Info 3.5.4. Chi square statistical test was used to establish relationship between socio-demographic characteristics of the subjects. A 95% confidence level was used for the study and a p<0.05 was considered statistically significant.

RESULTS

A total of 400 children with age ranging from 0 to 60 months were sampled. Two hundred and twenty(55%) of the sampled population were males while 180(45%) were females. The mean age was 34 ± 8 months. The highest frequency of the sampled population was in the age range of 48-60 months while the lowest frequency was in the age range 24-35 months(Table 1).

One hundred and sixty four(41%) of the sampled population were positive for malaria parasite. 64(16%) were females while 100(25%) were males(p=0.06). The highest prevalence of malaria was in the age range 36-47 months while the lowest prevalence was in the age range 24-35 months.(Table 3)

TABLE 1

AGE AND SEX DISTRIBUTION OF CHILDREN STUDIED

AGE(MONTHS)	FEMALE n%	MALE n%	TOTAL n%
0-11	40(10.0)	36(9.0)	76(19.0)
12-23	16(4.0)	48(12.0)	64(16.0)
24-35	20(5.0)	20(5.0)	40(10.0)
36-47	28(7.0)	60(15.0)	88(22.0)
48-60	76(19.0)	56(14.0)	132(33.0)
TOTAL	180(45)	220(55)	400(100)

TABLE 2

PREVALENCE OF MALARIA IN UNDERFIVES

	Malaria parasite positive n%	Malaria parasite negative n%	P value
Female	64(16)	116(29)	0.06
Male	100(25)	120(30)	
Total	164(41)	236(59)	

TABLE 3

AGE AND SEX PATTERN AMONG CHILDREN WITH MALARIA

AGE(MONTHS)	FEMALE n%	MALE n%	TOTAL n%
0-11	11(2.75)	22(5.5)	33(8.25)
12-23	5(1.25)	20(5.0)	25(6.25)
24-35	4(1.00)	11(2.75)	15(3.75)
36-47	40(10.00)	28(7.00)	68(17.00)
48-60	4(1.00)	19(4.75)	23(5.75)
TOTAL	64(16)	100(25)	164(41)

DISCUSSION

The prevalence of malaria infection is a major problem of public health significance among under fives in the area of study where malaria is endemic. Despite scale up of malaria prevention and treatment, malaria prevalence remains high among under fives^{4,5,6}.The prevalence of malaria among under fives in this study was 41%. This prevalence is higher than the 20% prevalence among under fives recorded in Angola⁷ and 16.7% in Rwanda⁸. This difference in prevalence of malaria among under fives could be because the studies in Angola and Rwanda were conducted five years after this study. Declining prevalence of malaria over the years has been attributed to interventions to prevent and /or treat malaria³.Knowledge about prevention of malaria has greatly improved among inhabitants of communities where malaria is endemic, thus reducing the prevalence of malaria^{9,10}. The prevalence of malaria among under fives in this study is lower than the 63% prevalence reported in the African Malaria report of 2003¹¹. The lower prevalence recorded in this study could be because patients who were already on antimalaria were not excluded in this study. There was no statistically significant difference in the prevalence of malaria based on sex. This suggest that males and females are equally susceptible to the development of malaria.

Malaria infection is a significant public health concern among under fives in Nigeria. Therefore it is imperative to initiate appropriate area specific and sustainable intervention measures including early diagnosis and treatment of all under fives with suspected malaria. Education and communication activities are also very important intervention measures aimed at improvement of environmental sanitation and personal protection from mosquito bites for the elimination of malaria in endemic areas.

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