

Prevalence of Malaria Parasitaemia among Patients Attending Accidents and Emergency Units, Aminu Kano Teaching Hospital Kano State Nigeria, 2014

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Abstract: This study reports the prevalence of malaria parasitaemia caused by *Plasmodium* among different aged group and gender in patients attending accidents and emergency units of Aminu Kano teaching Hospital between 2nd April – 2nd June 2014. A period characterized by high ambient temperature. A total of 114 samples were examined. Thick film technique was employed during the study. 75 of the samples were tested positive for Malaria resulting to 65.8%. There was no significant difference in malaria between the sexes (males and females) however significant difference was recorded among age groups ($p < 0.05$) with highest prevalence 71.2% among 0-5 years old. The study showed that substantial number patients were infected with malaria parasites. This could be attributed to poor sanitary conditions and weather conditions which is hot and wet during the period of the study which could be suitable for breeding of the vector and enhance growth cycle of the parasite in the study area.

Keywords: malaria parasitaemia, patients attending accidents.

1. INTRODUCTION

Malaria is the world's most deadly parasitic disease and is caused by infection with single-celled parasites of the genus *Plasmodium* belonging to the phylum Apicomplexa. Anopheles mosquitoes transmit these parasites from one person to another in their bites (White, 2011). Malaria is characterized by periodic bouts of severe chills and high fever and serious cases can result in death if left untreated. More than a half a million people die from the disease each year, most of them in Africa according to WHO (White, 2011). Over 90% of these deaths occur in sub-Saharan Africa there by making it a leading cause of mortality in children less than 5 years old, killing a child every 30 seconds (WHO, 2005). Pregnant women and their unborn children are particularly vulnerable to malaria, which is a major cause of prenatal mortality, low birth weight and maternal anemia. The disease accounts for 40% of public health expenditure, 30- 50 % of inpatient's admissions and up to 50% of out-patients visit in areas with high malaria transmission (WHO, 2005). In Nigeria, a lot of effort has gone into controlling malaria but the problem has not shown any sign of abating. The reasons for the limited success in efforts to eradicate the disease include poverty, lack of political will and commitment, low awareness of the magnitude of the malaria problem, poor health practices by individuals and communities and resistance to drugs (Yusuf, 2007). This current study reports the prevalence of malaria parasitaemia caused by *Plasmodium* between ages and genders among patients at accident and emergency units, Aminu Kano Teaching Hospital.

2. MATERIAL AND METHODS

The study was conducted at Accident and emergency unit and emergency pediatric unit, Aminu Kano Teaching Hospital Zaria road Tarauni LG. Kano state Nigeria. Microscopy is the main tool for laboratory diagnosis of malaria (WHO, 1992). The thick blood film was employed. Blood samples were collected by finger pricking with the help of the laboratory technician as described by (Cheesebrough, 2009). The lobe of the finger or heel of infant was cleansed using a swab moistened with 70% alcohol. The area was then allowed to dry, then using a sterile lancet, the finger was pricked gently to obtain a drop of blood.

Thick film and staining procedure

A drop of the collected blood was placed on a completely clean grease free microscope slide and then evenly spread to cover an area of about 15 by 15 mm using another slide. Films were then placed in a horizontal position and allowed to dry. Air dried blood films were stained using field staining technique, i.e stained in field stain A (methylene blue) and then field stain B (eosin). The Stained blood films were rinsed and allowed to dry.

When completely dried, a drop of immersion oil was applied to an area of the thick film and then examined under the microscope using $\times 100$ magnification lens. A sample was considered positive in the presence of ring from trophozooids or gametocytes, and if no any form of the parasite was seen, it was considered negative.

3. DATA ANALYSIS

Prevalence of *plasmodium* was calculated as the proportion of positive samples. The data generated was presented using Chi-square statistical test for independence.

4. RESULT

A total of 114 samples were screened for the presence of malaria parasites. Presence of ring trophozooids indicates positive result. Out of these samples, 75 (65%) were positive for malaria parasites 45 (71.4%) were from female samples and 30 (58.8%) were from males samples.

On basis of aged group, 0-5 age group has the highest prevalence rate 44 (77.0%) while least prevalence was recorded between 16-20 age groups. The overall result is represented in the table below.

Table 1: Prevalence of malaria parastaemia in relation to sex

Sex	No. Examined	No. positive	Infected rate(%)
Males	51	30	58.8
Females	63	45	71.4
Total	114	75	65.8

There is no significant different on malaria prevalence on sex $p \leq 0.05$

Table 2: Prevalence of malaria parastaemia in relation to age group

Age group	No. Examined	No. positive	Infected rate(%)
0-5	57	44	77.2
6-10	19	9.0	47.4
11-15	4.0	3.0	75.0
16-20	2.0	0.0	0.00
21-25	3.0	1.0	33.3
26-30	7.0	3.0	42.9
31-35	7.0	4.0	58.1
35-above	15	11.0	73.3
Total	114	75	65.8

There is no significant different on malaria prevalence on age group $p \leq 0.05$

5. DISCUSSION

Malaria occurs almost exclusively in the tropics and sub tropics (who, 2006). Approximately 40% of the world's population, mostly living in the world's poorest countries is at risk (Atif et al., 2009). In this study, the overall prevalence of malaria

was recorded to be 65.8% which is comparable to the overall prevalence of 59.9% reported by Ojo and Mafiana (2005) among children less than 15 years of age in Abeokuta. The result was substantially higher than previous estimates from passive surveillance of suspected malaria case-patients. Anumudu et al., (2006) reported 17% prevalence in eastern Nigeria. Faizu (2008) reported a total prevalence of 26.4% among patients AKTH while Atif et al (2009) reported an incidence rate of only 10% malaria parasitaemia among 1000 patients in Hyderabad.

Prevalence of 65.8% in this study represents a substantial level of illness, especially when one considers that the severity of the disease is likely high given the low level of acquired immunity among these patients. Thus this prevalence underscores the facts that malaria is still a burden on the continents despite all efforts. Malaria can affect all age groups both males and females sexes. This study shows that malaria is higher in female (71.4%) than in males (58.8%) and this is in agreement with finding of Ibekwe (2004) in southern Nigeria and Faizu (2008) in AKTH. Highest prevalence was recorded among the aged group (0-5) years, this high prevalence in children under 5 years coincides with that of Murray (2012). One major factor that is likely to contribute to high prevalence in malaria is climatic factors. The period in which this research was conducted was characterized by high ambient temperature which is critical factor for transmission, for example at low temperature below 20°C, *Plasmodium falciparum* cannot complete its growth cycle in Anopheles mosquito and thus cannot be transmitted (CDC, 2004).

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