

PROSPECTIVE STUDY ON THE INCIDENCE OF MALARIA PARASITE INFECTION AMONG CHILDREN (0- 15 YEARS AGE) ATTENDING DUTSE GENERAL HOSPITAL, JIGAWA STATE, NIGERIA

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Abstract: The study was aimed at determining the occurrence state of malaria parasite infection among children (0-15 years age) attending Dutse General Hospital Jigawa state, served as sites for a prospective study. A total of two Hundred (200) blood samples were collected from the subjects and examined using standard microscopic method. The result was recorded as positive or negative to malaria parasite infection were subjected to statistical analysis. Out of 200 subjects screened the overall prevalence among children were 67(35.5%) and 49(24.5%) male and female children respectively. The results from this study demonstrated that male patients recorded a higher prevalence compared to the female counterpart in Dutse District. This finding showed a high prevalence within the age group 0-2 years with percentage prevalence of (36.7%) and was lowest in age range 12-14 years (8%). The findings indicate that there was no significant difference between malaria parasite infection and the children based on age groups and gender ($p > 0.05$). The incidence and spread of malarial parasite infection cases during raining season were intense. In view of this study there is need for mass screening and general public should intensify efforts toward controlling mosquito's breeding sites.

Key words: Malaria, Parasite, prospective, prevalence, children.

Introduction

Malaria infection has been a major cause of the increasing infant-mother mortality in Nigeria (WHO, 2010) over 300,000 Nigerian children die annually of malaria. Although malaria is not a dangerous disease, but it remains the number one cause of absenteeism in this age group, the disease is characterized by fever, chills, and anemia and is caused by a parasite that is transmitted from one human to another by the bite of infected Anopheles mosquitoes. There are four kinds of malaria species that can infect humans: *Plasmodium falciparum*, *P. vivax*, *P. ovale* and *P. malariae* in human, the parasites (sporozoites) migrate to the liver where the mature and release another form of merozoites.

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Many factors has determine its incidence and distribution the most important are anopheles mosquitoes, a reservoir of infections and a susceptible human population, others factors include, climate, rainfall, housing condition, agriculture, wars, migration of people and economic condition (Health link, 2004). Malaria has been a widely prevalent disease the diseases now occurs in more than 90 countries Worldwide, and it is estimated that there are over 500 million clinical cases and 2.7 million malaria caused death per year. Some scientists believe that one in every two people who have lived has died of it (Finkel and Michael, 2007). The World Health Organization has estimated that malaria annually causes 250 million cases of fever (WHO, 2010). The organization estimated that 655,000 people died from the disease; however, a 2-12 Meta study published that 1,238,000 people dying from

malaria in 2010. The majority of cases occur in children under 5 years old, pregnant women are especially vulnerable. However, human malaria is one of the most important diseases in the world with over 5 million people at risk in the tropical and a sub-tropical part of the world especially in Africa. The disease is widely spread in tropical and subtropical regions including much of sub-Saharan Africa, Asia and the Pacific (Kilama and Toumif, 2009). Despite efforts to reduce transmission and increase treatment there has been little change in which areas are at risk of this disease since 1992 (Hay, 2004). Indeed if the prevalence of malaria stays on its present upwards because the death rate could double in the next twenty years (Bremner, 2001). Precise statistics are unknown because many cases occur in rural areas where people do not have access to hospitals or the means to afford health care. As a consequence, the majority of cases are undocumented (Bremner, 2001). The paper thus examined the incidence of malaria parasite in children at Dutse General Hospital. From the previous literature it has been revealed several reported cases of Malaria parasite infection in Nigeria and sub-Saharan Africa.

Materials and methods

A total of two Hundred (200) samples were collected in this study for a period of three months (June-August, 2012) to investigate the incidence rate of malaria parasite infection among children (0-15 years age). The Hospital was located at longitude 12°N to 13°S (World Gazette, 2007) and in most cases the Hospital handles some of these referral cases from the boarded clinics and primary health care centres.

Study population

Population of this work were children who volunteered to participate in the research after interviewed to assess the socio-demographic variables of each individual (sex, age and residence and biomedical data of the subjects).

Sample collection and Data analysis

Blood samples were collected from Two Hundred (200) children (0-15 years age group). Prior to the study informed consent was obtained and structured questionnaire was administered. Samples were analyzed for malaria parasite infection using thick film staining procedure and microscopy in accordance with (Chessbrough, 2005). Data were analyzed using SPSS version 17.0. P values ≤ 0.05 were considered significant.

Result**Table: 1 Incidence of Malaria Parasite infection based on the Residence of the subjects**

Variables		No. of positive	No. of negative	χ^2 -value	P-value
Residence	Rural	68	60	0.89	0.05
	Urban	48	24		
	Total	116	84		

Variables		No. of positive	No. of Negative	χ^2 -value	P-value
Gender	Male	67(35.5%)	53(26.55)	0.56	0.05
	Female	49(24.5%)	31(15.5%)		
	Total	116	84		

Table: 2 Prevalence of Malaria Parasite infection based on Gender**Table: 3 Occurrence of Malaria Parasite infection among Age group**

Variables		No. of positive male	No. of Negative female	χ^2 -value	P-value
Age group	0-2	16(23.9%)	18(36.7%)	8.02	0.05
	3-5	19(28.4%)	15(30.7%)		
	6-8	10(14.9%)	8(16.3%)		
	9-11	11(16.4%)	2(4.1%)		
	12-14	8(11.9%)	4(8.2%)		
	15-16	3(4.5%)	2(4.2%)		

Discussion

Malaria parasite infection have remained recurring decimal in children especially those who are living in an area where there is over production of mosquito species (Female anopheles mosquito). This study therefore, set out to determine the incidence rate of malaria parasite among children attending Dutse General Hospital. From the findings. Out of Two Hundred (200) subject volunteered to participate in this research 120 were males and 80 were female subjects of which (35.5%) and (24.2%) were males and female seropositive respectively (Table- 2), this finding confirmed that malaria parasite is common among children in Dutse District Hospital and the result shows low

prevalence when compared with work done by Health link (2008) and Shamsuddeen *et al.*, (2007). Reason for this variation were due to the majors taken in reducing the debilitating effect of mosquitoes causing malaria by newly construction of the water ways to drain stagnant water and covering the culvert, distributions of mosquito nets and other available drugs of now a days compared to the previous years. Of age prevalence the result explode that children under 0-2 year age are more venerable to the infection (36.7%) [Table -3]. This work was in accordance with the reported work done by WHO, (2004) whose reported that about one million children under five years deaths in Africa due to malaria parasite illness. Similarly, the work was in line with

work done by Shamsuddeen *et al.*, (2007) whose reported that there is high rate of infection among children 0-3 years age group (78.0%) in Gumel. The probable reason was that, children at this age have lower immunity to the disease compared to other age group in the environment (Remi *et al.*, 2004). Statistically using chi-square test the result demonstrated that there is no significant difference between the incidence of malaria parasite infection in relation to gender ($P > 0.05$) [Table-2]. This was in line with reported work by (Shamsuddeen *et al.*, 2007) whose reported that there is no significant difference between gender and the prevalence of malaria parasite infection ($P > 0.05$). It have been observed also that there was no significant difference between age group and the prevalence of malaria parasite infection ($P > 0.05$) [Table-3].

From the slide examination there is preponderance of *Plasmodium falciparum* specie in the study area, which confirmed that from the previous literature *Plasmodium falciparum* is the commonest specie in the hotter parts of the world and responsible for much sickness and even death (WHO, 2004).

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