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Sero-Prevalence of Rubella Virus among Pregnant Women in Kaduna State Nigeria 2015

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Objective

To determine the IgM and IgG antibodies of rubella virus circulating among pregnant women in Kaduna State Nigeria.

Introduction

Rubella virus causes -"German measles," also known as "three-day measles." This is usually a milder disease than red measles. Red/Hard measles or just measles is caused by Rubeola virus. The result of acute infection of the virus is a benign systematic rash which is significantly pathogenic to humans. This virus is a, positive-strand RNA virus that replicates in the cytoplasm of the infected cell. *(Brooks et al., 2007).* If placental infection of the virus spread during 8-10 weeks gestation it causes a chronic infection of the fetus leading to the development of congenital rubella syndrome (CRS) (Matthews *et al*., 2011) The effect of the infection of the several organ systems which include the eyes, ears, heart, brain, and endocrine system is known as congenital rubella infection (CRI) (Chantler *et, al*.,2001)

Rubella is endemic in Nigeria. Studies among women of child bearing age in Nigeria put seroprevalence at 66.6% in Imo, 77% in Lagos and 93.5% in Oyo (8-10). Thus as part of the control measure, the availability of an effective vaccine to prevent Rubella infection and therefore CRS, is necessary to evaluate the burden of disease in a country where MMR vaccine is not covered in the immunization schedule or in vaccination strategy

Methods

A cross-sectional study carried out on pregnant women attending ante-natal clinic from the three different senatorial district in Kaduna state. Blood samples were screened for rubella IgM & IgG antibody using commercially produced enzyme linked immunosorbent assay (ELISA), Questionnaires were administered to obtain demographic information and possible risk factors associated with rubella virus. Data was analzyed using Epi Info 6 Version 3.5.3.

Results

Of the 900 pregnant women screened, 572(63.3%) were positive for rubella IgG. The prevalence of rubella IgG was highest among the age group 21-25 with 198(34.6%) and IgM was highest among the age group 21-25(51.3%). The IgG test results shows that 317 (66.0%) pregnant women tested positive for their first trimester, while the IgM positive results shows 17(33.3%) for their first trimester. Although the southern senatorial district had the highest seroprevalence 14(35.9%) among the three centres, the differences were not statistically significant ($p>0.05$). Only 3 people claimed to have been vaccinated against rubella virus. Acquisition of primary education and being a house wife were insignificantly associated with raised titres. ($p>0.05$).

Conclusions

The serological evidence of rubella virus found in pregnant women among age group & their first trimester in this study is an indication that rubella is prevalent in Nigeria. It is however still necessary to immunize seronegative women against rubella before they get pregnant.

Table 1: Sero-prevalence of Rubella Antibodies Among Pregnant Women Attending Antenatal clinic in Kaduna State Based on Age

Age grp (Yrs)	No. Screened	IgG Positive (%)	IgM Positive (%)
11-15	8	5(62.5)	0(0)
16-20	160	99(61.5)	7(4.4)
21-25	328	198(60.4)	20(6.1)
26-30	224	155(69.2)	7(3.1)
31-35	132	82(62.1)	3(2.3)
36-40	41	28(68.3)	2(4.9)
41-45	6	5(83.3)	0(0)
Greater Than 45	1	0(0)	0(0)
Total	900	572(63.5)	39(4.3)

Table 2: Sero-prevalence of Rubella Antibodies among Pregnant Women Attending Ante-Natal Clinic in Kaduna State Based on Trimesters

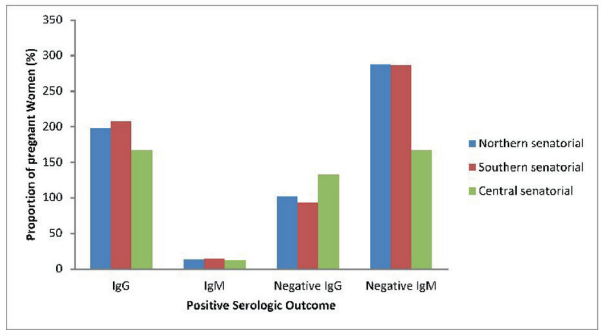
Trimesters	Senatorial District	No. Screened	No. IgG Positive %	No. IgM Positive %
First	SSD*	183	96(52.5)	7(3.8)
Second		87	71(81.6)	5(5.7)
Third		30	40(133.3)	2(6.7)
First	NSD*	168	85(50.6)	8(4.8)
Second		73	66(90.4)	3(4.1)
Third		59	47(79.7)	2(3.4)
First	CSD*	146	92(6.2)	9(6.2)
Second		88	62(70.5)	9(6.2)
Third		66	13(19.7)	3(3.4)
Total		900	572(63.6)	39(43.3)

SSD-Southern Senatorial District,

NSD-Northern Senatorial District,

CSD-Central Senatorial District.

Figure 1: Prevalence of Rubella-Virus-Specific Immunoglobulin G and M Among Pregnant Women Attending ANC in the Three Senatorial Districts of Kaduna State



Keywords

Rubella; IgG; IgM

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