IgM AND IgG ANTIBODIES SPECIFIC TO RUBELLA IN CHILD BEARING WOMEN

Pages with reference to book, From 121 To 122

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ABSTRACT

Three hundred fifty five pregnant women were tested for IgM and IgG type of antibodies by Enzyme immuno Assay (EJA). Sero- positivity for IgM and lgG antibodies were 13% and 29% respectively. Of 212 pregnant women with abortion, 39 (18%) and 80 (38%) were sero-positive and of 143 pregnant women with normal reproductive performance, 7 (5%) and 23 (16%) were positive for IgM and lgG respectively. Premarital screening and vaccination of Sero-negative girls is recommended to reduce morbidityand mortality related to rubella virus (JPMA42:121, 1992).

INTRODUCTION

Rubella is a non-arthropod borne togavirus but unlike other togaviruses, rubella is a respiratory virus. This disease is widely distributed throughout the world and has very peculiar place among infectious diseases because though a benign disease, in expectant mother it may cause severe malformations to the foetus[1,2]. It has been incriminated in number of abortions in epidemic hits in United States and other places[3-7]. Infection of the mother during early months of pregnancy has been associated with a wide variety of malformations, spontaneous abortion or miscarriage and still birth[8]. The object of this study was to find out reproductive losses caused by rubella virus and how many normal pregnancy are at risk of giving birth to congenitally malformed child in our population. Future measures to overcome misery caused by the virus.

PATIENTS AND METHODS

A total of 335 women comprising of 212 pregnancy wastage group and 143 with normal reproductive performance were screened for anti-rubella antibodies of 1gM and IgG type by Enzyme Immuno Assay (EIA). These cases were collected from JPMC, CHK and few private hospitals. Criteria for selection were women with history of recent abortion, recent past abortion, past abortion and normal age matched pregnant women. Blood was collected immediately after abortion, 2-3 months after abortion, past abortion and comparable controls. Serum was separated and stored at -4°C to -20°C till processed. All sera were tested in duplicate in 1:100 dilution for 1gM and IgG type of antibodies alongwith controls (positive and negative) provided in kit. The wells were precoated with antigen incubated with patients serum for 1 hour at 370 C. The residual patient sample is removed by washing with Tween 20 and alkaline phosphatase tagged antihuman-globulin are added (IgM and IgG). The wells are washed again with Tween 20 and a colourless substrate p-nitrophenyl phosphate (PNPP) was added. The substrate hydrolyzed by the enzyme to coloured end product p- nitrophenol. The enzyme substrate reaction is terminated by adding 100 ul of freshly prepared IM NaOH. The colour intensity is directly related to concentration of antibodies (1gM and IgG) in patients serum[9]. The IgM positive results are confirmed by rubella IgM confirmatory kit.

RESULTS

The results of antirubella antibodies of IgM and IgG type by EIA is given in Table,

Table. Rubella IgM and IgG antibodies in child bearing age women.

Group	Total tested	IgM sero-positive	IgG sero-positive
PW	212	39 (18.4)	80 (37.7)
NRP	143	07 (4.9)	23 (16.1)
Total	355	46 (13.0)	103 (29.0)

Results in parenthesis is percentage
PW = Pregnancy wastage
NRP = Normal reproductive performance
P< 0.05 significant

which ia indicative of prevalence of rubella in our population. Majority of the cases were between 20-25 age group in pregnancy wastage groups (46.1%) tested for IgM type of antibodies and same group in normal reproductive performance (10.0%). In women tested for IgG type of antibodies highest number of cases in pregnancy wastage group (60.0%) were in 40-45 age group and in women with normal reproductive performance (26.2%) in 25-30 age group. Out àf 461gM sero-positive cases from a total of 355 tested, 19 (41.3%) were asymptomatic and remaining 27 (58.7%) were asymptomatic (more in pregnancy wastage group).

DISCUSSION

Rubella is an infectious disease mainly affecting pregnant women and their foetuses ‘throughout the world, although the frequency of such infections varies from country to country and within a country[1,2,5,6,7,10]. In present study 1gM sero-positive cases are quite high. In pregnancy wastage group rubella virus is responsible for quite a number of reproductive losses. In women with normal reproductive performance seropositive cases are less but the female is at risk of abortion or miscarriage or still birth during pregnancy or may give birth to child with congenital rubella syndrome. Such women are at high risk, preventive measure (therapeutic abortion) will prevent consequences of congenital rubella syndrome. IgG sero-positive cases are not as high as in other countries, which indicate that less number of women are protected against rubella in our population. According to age (pregnancy wastage group 1gM) there is rise in sero-positivity from 15-25 years age group with maximum between 20-25 years age group with maximum between 20-25 years age (46.1%) and fall afterwards. Similar pattern seen in normal reproductive performance group for 1gM type of antibodies but less number of cases. In pregnancy wastage group for IgG type antibodies, sero-positivity increases with age maximum between the age 40 to 45 years. In normal reproductive performance group sero-positivity increases with age. IgG antibody shows the immune status of individuals whether protected or not against rubella. A symptomatic cases were more than the symptomatic. The main clinical findings were fever, lymphadenopathy (sub occipital, postauricular and cervical) and rash. More symptomatic cases were in patients with history of reproductive losses. Thus Rubella is potentially a danger to pregnant women. It can result in substantial number of reproductive losses. Sero- negative women should be vaccinated with prior notice that she will not conceive for 3 months after vaccination. These facts emphasize the need to educate and motivate the masses and health care professionals for premarital screening immunization programmes in order to prevent abortions, miscarriages, still births, and serious outcome of congenital rubella syndrome.

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