NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
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Congenital Rubella Syndrome
Frequently Asked Questions

1. What is Congenital Rubella Syndrome?

Congenital rubella syndrome (CRS) is a major complication of rubella infection. Rubella infection is caused by a togavirus of the genus rubivirus and it is usually a mild viral infection. The disease is characterized by a transient, mild maculopapular rash, conjunctivitis, coryza (running nose), enlarged cervical lymph nodes, low-grade fever and nausea. Up to 50% of rubella infections are subclinical. Rubella infection in early pregnancy can lead to miscarriage or intra-uterine foetal death. If the pregnancy carries on till delivery, the baby can present with CRS which is a combination of birth defects.

2. Who can get Congenital Rubella Syndrome?

Congenital rubella syndrome results from maternal infection and subsequent trans-placental foetal infection with rubella virus.

3. How is Congenital Rubella Syndrome acquired?

A foetus acquires CRS when the mother becomes infected with rubella virus. The virus is transmitted via the aerosolized particles from the respiratory tract secretions of infected individuals. The mother will inhale the virus, and if she does not have antibodies to rubella, she will develop symptoms within 14-17 days (range: 12-23 days). During her infection, the rubella virus disseminates to different sites, including the placenta. The risk of congenital rubella syndrome is related to gestational age at the time of maternal infection. The risk of foetal infection varies according to the time of onset of maternal infection. The risk is above 80% between week 0 and 12 after the last menstrual period (LMP). Infection before LMP presents a negligible risk for the embryo. In case of later infection, i.e. between week 15 and week 30 after LMP, the risk decreases to about 30%, and increases again to reach almost 100% after week 36. Infants with CRS shed large quantities of rubella virus in their pharyngeal secretions and urine for months after birth, and serve as a source of infection to their contacts.

4. What are the signs and symptoms of Congenital Rubella Syndrome?

Rubella infection in a pregnant woman may be asymptomatic or characterized by upper respiratory tract symptoms, mild fever, conjunctivitis, lymphadenopathy (especially in the sub occipital and posterior auricular areas), and a maculopapular rash.

The most frequent abnormalities associated with CRS include:

- Sensorineural deafness. CRS is the most common cause of congenital deafness in the developed world which can progress after birth; various ocular abnormalities such as cataract, retinopathy or glaucoma,
- Cardiovascular defects which can include patent ductus arteriosus, stenosis of the pulmonary artery and its branches, and septal defects,

- Brain damage causing mild to severe mental retardation with microcephaly and spastic diplegia; major structural malformations are rare,
- General learning disability (55%),
- Eye defects including cataracts, congenital glaucoma, pigmentary retinopathy, severe myopia, microphthalmia,
- Children with CRS may develop late-onset manifestations, such as diabetes mellitus, thyroid dysfunction, visual or neurological abnormalities,

5. How does Congenital Rubella Syndrome affect animals?

Rubella virus does not infect animals.

6. How is Congenital Rubella Syndrome diagnosed?

CRS is often suspected when an infant is born with one or more of the complications listed above, or their mother developed a confirmed infection during pregnancy. Infants suspected of having CRS should be tested for rubella antibodies and viral particles. Persistence of rubella-specific IgG in the infant after 6 to 12 months suggests congenital infection. Detection of rubella-specific IgM antibodies also indicates rubella infection, but false-positive IgM results can occur especially after 4 weeks following delivery. Specimens from the nasopharynx, urine, CSF and conjunctiva of infants with CRS usually contain virus; samples from the nasopharynx usually offer the best sensitivity for culture, and the laboratory should be notified that rubella virus is suspected.

7. How is Congenital Rubella Syndrome treated?

There is no specific treatment for maternal or congenital rubella infection and women exposed to rubella early in pregnancy should be informed of the potential risks to the foetus and offered a termination of pregnancy if appropriate

8. How can Congenital Rubella Syndrome be prevented?

CRS is an entirely vaccine preventable disease. Rubella vaccine is available in the private health sector. However, rubella vaccine is not part of the South African Expanded Program on immunisation (EPI). In South Africa, infants should receive vaccination for rubella together with measles and mumps vaccinations at 9 to 18 months of age, non-immune post-pubertal females who are not pregnant. After vaccination, women should be advised not to become pregnant for 28 days. Rubella vaccination is contra-indicated in pregnancy. Suspected rubella infection in a pregnant woman or contacts of a pregnant woman should be confirmed by laboratory testing and advice from a physician should be sought as soon as possible.

9. Where can I find out more information?

Guidelines and other documents: NICD website at www.nicd.ac.za under the 'Diseases A-Z' tab.
Medical/clinical related queries: NICD Hotline +27 82 883 9920 (for use by healthcare professionals only).
Laboratory related queries: Centre for Vaccines and Immunology Laboratory: +27 11 386 6536.
Results inquiries: NICD Specimen Receiving Laboratory: +27 11 386 6404.

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