b National surveillance programme for congenital rubella syndrome

Roll-out of national congenital rubella syndrome surveillance programme

The NICD-NHLS is initiating a programme for national congenital rubella syndrome (CRS) surveillance. Initially, tertiary hospitals will serve as sentinel sites; however, clinicians, National Health Laboratory Services (NHLS) laboratories and private sector laboratories countrywide are invited and encouraged to participate.

Rubella (German measles) is caused by a togavirus. It is characterised by a mild maculopapular rash in most (50-80%) cases, which may lead to a misdiagnosis of measles or scarlet fever. Symptoms are usually mild, and up to 50% of rubella infections are subclinical. Rubella is transmitted through droplet spread of, or direct contact with, nasopharyngeal secretions. The incubation period is on average 14-17 days (range: 12-23 days). Persons are most infectious when the rash is erupting, but can shed virus from 7 days before to 7 days after the onset of the rash. Children usually develop few or no constitutional symptoms, whilst adults often experience a 1-5 day prodrome of low-grade fever, headache, malaise, coryza and mild conjunctivitis. Lymphadenopathy involving postauricular, occipital and posterior cervical glands may precede the rash by 5-10 days. The rash is erythematous and mostly seen behind the ears and on the face and neck. The rash may be fleeting, and is not specific to rubella; given the nonspecific nature of prodromal symptoms, clinical diagnosis of rubella on the basis of a rash with/without prodromal symptoms is therefore not reliable. Arthralgia or arthritis occurs frequently in adults, particularly among women (reported in up to 70% of women). Rare complications include thrombocytopenic purpura (approximately one in 3 000 cases) which is more likely to occur in children, and post-infectious encephalitis (one in 6 000 cases) which is more likely to occur in adults.

Whilst generally a mild, self-limiting illness, rubella can have serious consequences following maternal infection in pregnancy (especially during the first trimester). These include miscarriage, stillbirth and congenital rubella syndrome (CRS). CRS is a constellation of birth defects, most often affecting the eyes (e.g. cataracts, microphthalmia, glaucoma, pigmentary retinopathy, chorioretinitis), ears (e.g. sensorineural deafness), heart (e.g. peripheral pulmonary artery stenosis, patent ductus arteriosus, ventricular septal defects), and brain (e.g. microcephaly). In addition, infants with CRS often exhibit both intrauterine and postnatal growth retardation. Children with CRS can have serious developmental disabilities (e.g. visual and hearing impairment) and have an increased risk of developmental delay, including autism. CRS can also increase the risk of endocrinopathies (including thyroiditis and insulin-dependent diabetes mellitus). The risk for congenital infection and CRS is highest during the first 12 weeks of gestation (including infection just before conception), with fetal defects occurring in up to 90% of surviving infants. The risk of birth defects decreases after the 12th week of gestation, declining to about 10-20% with infection occurring between 11 and 16 weeks gestation. After the 16th week of gestation fetal damage following infection is rare, although sensorineural deafness has been described following infections as late as 20 weeks of gestation. Infants moderately or severely affected by CRS may be more easily recognised at birth, but mild CRS (e.g. mild cardiac involvement or sensorineural deafness) may not be detected for months or years after birth, or not at all. Subclinical maternal infection can also cause CRS.

Virus detection and serologic testing can be used to confirm acute or recent rubella infection. Serologic testing for the detection of rubella-specific IgM is the most common diagnostic test for postnatal rubella. Congenital rubella infection and CRS can be diagnosed using serologic testing, with/without virus detection.

Rubella vaccination is not included in the South African Expanded Programme on Immunisation schedule, but is available in the private health sector (as the measles, mumps and rubella vaccine). As part of a global rubella elimination strategy, rubella immunisation may be introduced into many African countries (including South Africa) within the next few years One of the major concerns facing countries planning to include rubella-containing vaccines in their routine immunisation programmes is the 'paradoxical effect' following suboptimal rubella immunisation coverage in childhood, which may lead to an increased risk of maternal infection and subsequently an increased incidence of CRS. Low immunisation coverage in infants and young children might decrease their exposure to rubella virus during childhood; this in turn may lead to increased susceptibility in women of childbearing age compared with the pre-vaccine era, since this group of women have not been vaccinated or exposed to natural rubella infection. Preventing such a phenomenon requires high immunisation coverage (≥80%) in order to ensure adequate epidemiological control of circulating rubella virus.

The CRS surveillance programme aims to increase awareness and detection of CRS countrywide, and will provide valuable information regarding the burden of CRS in South Africa. Such information will be extremely important for monitoring CRS trends before, during and after roll-out of routine rubella immunisation.

If you are aware of any suspected or confirmed CRS case, please contact villyenm@nicd.ac.za.

Should you be interested in actively participating in the CRS surveillance programme, please contact villyenm@nicd.ac.za.

Source: Centre for Vaccines and Immunology and Division of Public Health Surveillance and Response, NICD-NHLS