Is Antenatal Screening for Syphilis Still Necessary?

Congenital syphilis continues to present a significant public health problem worldwide [1,2]. The cornerstone of prevention of congenital syphilis is antenatal screening and treatment of affected mothers with penicillin [1,2]. If untreated, symptoms develop within weeks or months. Early congenital syphilis occurs in children between 0 and 2 years old, however newborns may be asymptomatic and are only identified on routine screening [3]. If such infants are missed and untreated, they can develop late congenital syphilis after 2 years. Syphilis is known as the â Great Imitatorâ and congenital syphilis can present as neurosyphilis, juvenile paresis, optic atrophy, blindness, progressive sensorineural deafness, dental and skeletal abnormalities [1,3].

All pregnant women booking in Ireland have routine syphilis serology. First line syphilis testing consists of Treponema pallidumparticle agglutination (TPPA) and Rapid plasma reagin (RPR). If either or both first line tests are reactive, additional confirmatory tests are carried out using Treponema pallidum enzyme immunoassay IgM and total antibody tests. Non-specific false positive results are identified on the basis of a single positive result which was not reactive in any confirmatory tests. Confirmation of maternal syphilis infection is based on two positive treponemal antibody tests; generally TPPA and Treponema pallidum total antibody. A positive IgM or high titre RPR result in the absence of a history of recent treatment suggests recent active disease.

Infants are considered to be at risk if they were born to mothers who were either IgM positive, had high titre RPR, had inadequate treatment or treatment late in the pregnancy. In addition, infants at risk of congenital syphilis need additional investigations such as X-Ray of long bones and chest, CSF syphilis test, CSF cell count and protein, fundoscopy, examination of umbilical cord and placenta. Every infant with confirmed positive maternal syphilis serology should therefore have syphilis serology at birth which will be repeated during follow up at 3, 6 and 12 months [3]. All infants with proven, presumed or highly suspected infection should be treated with 10-14 days of aqueous penicillin G or procaine penicillinG.

A diagnosis of congenital syphilis will be considered in the presence of the following: Physical or radiographic evidence of active disease; Serum quantitative non treponemal titre at least 4-fold greater than maternal titre; Positive IgM antibody test; Reactive CSF VDRL test result or abnormal CSF cell count / protein levels; Positive dark field microscopy findings or positive findings when staining for Treponema pallidum in placenta or umbilical cord [3]. False positive syphilis tests are seen in certain acute or chronic infections, following immunization, in autoimmune diseases, pregnancy, tuberculosis, hepatitis, Lyme disease, rheumatoid arthritis, drug addiction, cross reaction with other treponemes and other conditions. In these circumstances testing should be repeated in 14-21 days. Newer diagnostic tests such as enzyme immunoassays, polymerase chain reaction have made diagnosis more sensitive and specific but are not universally available [4].

Congenital syphilis was rare in most affluent countries but there has been a recent resurgence in several European countries. In the United Kingdom the reported number of babies with congenital syphilis increased from 2 in 1996 to 14 in 2005 (1.9 per 100,000 births) [1]. In Ireland between 2000-2003, 540 cases of infectious syphilis were identified [5]. There were 6 (0.4%) congenital cases of syphilis reported between 2000-2005 and intrauterine death was reported in 2 of the 6 cases [5]. In Sub-Saharan Africa, 4-15% of pregnant women have syphilis and an estimated 492,000 infants die of congenital syphilis annually [6,7]. In the UK, universal antenatal screening of pregnant women was about as cost-effective as targeted screening programmes and is politically more acceptable. In countries with a 1% rate of syphilis seroreactivity among pregnant women, the estimated cost of antenatal screening and treatment programmes is 0.30 ($0"42) per pregnant woman, and the cost of averting each syphilis associated adverse pregnancy outcome 50.10 ($70) [8]. Syphilis promotes transmission of human immunodeficiency virus (HIV)6. The World Development Report cites antenatal screening and treatment for syphilis as one of the most cost-effective health interventions available as the cost saved per disability adjusted life year is 2.86 ($4) versus 13.73 ($19.20) for HIV [9]. Tools to prevent congenital syphilis have been available for more than 50 years, and cost less than 0.75 ($1) [6]. However babies still die of syphilis.

Most infants are asymptomatic at birth and there is no clinically useful diagnostic gold standard, the clinician must essentially rely on the maternal case management history to determine whether treatment is indicated in the asymptomatic infant [10-12]. The low prevalence of congenital syphilis in many developed countries may have led to complacency and lack of a structured approach to management [1,3]. The Centers for Disease Control (CDC) report on Congenital syphilis in the US from 2002 found that 76.3% of cases had untreated, inadequately treated or undocumented treatment of maternal syphilis before or during pregnancy (including stillbirths). In addition pre-school children in the developed world will have a high exposure to antibiotics (prevalence 72%; prescription rate 2.2 prescriptions/person per year) predominantly penicilins (40-70% of antibiotic prescriptions), which we hypothesise may treat undiagnosed cases of congenital syphilis [13]. A strict follow-up of pregnant women with syphilis before delivery and an active approach to identifying and treating exposed neonates born to such patients is needed. Future research needs to concentrate on increasing healthcare professionalsâ awareness of the serious preventable sequelae of congenital syphilis in combination with a structured and practical approach to management to enable global syphilis eradication.

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