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ePoster Viewing

Abdominal/gastrointestinal, urinary tract & genital infections

Early postnatal diagnosis of congenital syphilis: contribution of a comparative Western Blot method

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Background: Despite the existence of highly effective interventions, maternal syphilis still causes perinatal morbidity, even when antenatal health services are strong.

Serology has a pivotal role in the diagnosis of congenital syphilis, but problems arise because of the passive transfer of IgG antibodies across the placenta.

The aim of this study was to assess the diagnostic value of a comparative Western Blot (WB) method finalized to match IgG immunological profiles of mothers and their own babies at birth, in order to differentiate between passively transmitted maternal antibodies and antibodies synthesized by the infants against *Treponema pallidum*.

Material/methods: Thirty infants born to mothers with unknown or inadequate treatment for syphilis entered in the retrospective study. The babies were born between January 2007 and January 2014, at St. Orsola-Malpighi Hospital, Bologna, Italy. All the infants underwent clinical, instrumental and laboratory examinations, including IgM WB testing.

For the retrospective study, an IgG WB assay was performed by blotting *T. pallidum* antigens onto nitrocellulose sheets and incubating the strips with mother/child pairs' serum specimens.

Results: Eleven out of the 30 enrolled newborns were diagnosed as highly probable congenital syphilis cases: 9/11 infants received the definitive diagnosis with the first week of life, whereas the remaining 2 were diagnosed only later, because of increasing serological tests titers.

In contrast, the use of the comparative WB testing performed with mother/child pairs' serum specimens allowed a correct diagnosis of congenital syphilis in 10/11 cases.

Conclusions: The diagnosis of congenital syphilis was greatly improved by a strategy combining comparative IgG WB with IgM WB results, leading to excellent sensitivity (100% - 95% confidence interval, 85.9% to 99.7%).

The comparative IgG WB test is thus a welcome addition to the conventional laboratory methods used for the diagnosis of congenital syphilis, allowing to identify and adequately treat infected infants, avoiding unnecessary therapy and the consequent hospitalization of uninfected newborns.