Congenital Toxoplasmosis: Evaluation of Molecular and Serological Methods for Achieving Economic and Early Diagnosis Among Egyptian Preterm Infants

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Abstract

Background: Early diagnosis of congenital toxoplasmosis (CT) is difficult when specific immunoglobulin M (IgM) antibodies are absent, or if persist for months, in the newborn infant's blood. Objectives: To study the risk factors of neonatal toxoplasmosis and to compare different immunologic profiles (Toxoplasma-specific IgM, IgA antibodies and the avidity of IgG antibodies) with polymerase chain reaction (PCR) for reaching economic and early postnatal diagnosis. Materials and Methods: We prospectively studied 80 preterm neonates, recruited from neonatal intensive care units (NICUs) of Cairo University hospitals. Whose gestational age ≤4 weeks with (n = 60) or without (n = 20) CT risk. Serum samples for specific IgA, IgM antibodies and avidity of IgG toxoplasma antibodies were measured by ELISA then compared to PCR. Results: Of the 60 studied cases, 16 (26.7%) were positive for toxoplasmosis by PCR, of which 15 (25%) had low avidity of IgG antibodies (positive), 14 (23.3%) were positive for IgA and 10 (16.7%) were positive for IgM, with sensitivity for avidity of IgG, IgA and IgM: 93.2%, 87.5% and 62.5%, respectively. Conclusion: Determination of avidity of IgG toxoplasma antibodies and/or serological detection of specific IgA for toxoplasmosis offer, simple tests for diagnosis of congenital toxoplasmosis with (better sensitivity) than IgM.

Keywords: Congenital Toxoplasmosis (CT) IgM IgA avidity of IgG test polymerase chain reaction (PCR)

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