An overview of the cerebral abnormalities ultrasonographically detected at fetuses with congenital Cytomegalovirus infection

Authors: Oana Diminescu, Andreea Balan, Ples Liana, Silvia Moga, Cezar Podască, Nicusor Bigiu, Diana Panait

1. Bucur Maternity, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania. 2. Faculty of Medicine, Transilvania University of Brasov, Brasov, Romania

Introduction
Cytomegalovirus (CMV) is a DNA virus which affects all age individuals.
During the intrauterine life, CMV can affect the foetus and can produce severe morphological abnormalities, especially in the brain structure, leading to various neurosensorial deficiencies after birth. In recent years, the incidence of congenital CMV infections recorded a significant increase.

Objectives
To describe the effectiveness of ultrasonography examination of fetuses with presumed or confirmed congenital CMV infection, especially in the detection of cerebral abnormalities. Cerebral damages represent a major cause of neurological and sensorial impairment in children, and early ultrasonographical detection of these modifications may improve the prognosis of the affected fetuses.

Material and methods

Results and discussions
The prevalence of congenital fetal infection in women with primary acquired infection during pregnancy was 14.2%, and in women with recurrent infection 1.4%. Foetal abnormalities can be visualized by ultrasonography, especially in the second and third trimester of pregnancy, range 22-37 weeks. The ability of ultrasound examination in fetuses with proved CMV infection to predict symptomatic newborns had a positive predictive value of 78.3%.
Transvaginal sonograms in coronal and sagittal planes provided additional information to that obtained with transabdominal sonography, by better elucidating the abnormalities. The addition of MRI to ultrasound examination increases the positive predictive value for the diagnosis of foetal brain damages in affected foetuses. Several studies consider these techniques to be complementary, but they should not be mutually exclusive in high-risk foetuses.

Conclusion
A clinical suspicion or serologic evidence of maternal CMV and/or abnormal fetal sonographic findings should prompt a detailed examination of the fetal brain. The combination of these findings is associated with a poor neurodevelopmental outcome, and termination of pregnancy should be considered.