Abstract

Introduction: After the outbreak of the Zika Virus in Brazil in 2015 the Brazilian health authorities noticed an increase on microcephaly suspected to be related to the ongoing epidemic, described as the emergence of a new teratogenic agent, ZIKV. Although described since 1947 in Uganda only with a large number of patients the neurological malformation cases were possible to be studied [2].

Zika is an arboviruses of the Flaviridea family and can be transmitted by arthropods, blood products, sexual intercourse, and potentially by breastfeeding and saliva [1, 2]. In 80% of cases its infection is asymptomatic.

Objective: Determine imaging prenatal findings related to Zika virus, by means of database research of 2017.

Results: The main radiological findings observed are non-hypertensive ventriculomegaly, cortical and subcortical calcifications, microcephaly, placental inflammation and placental insufficiency and other neurological findings.

Conclusion: Serial prenatal imaging study may be considered to assess the fetuses with suggestion of the Zika virus infection. The congenital infection is of high impact on the families and to correctly diagnose and counseling preparing their homes to receive a special need newborn previous to the birth is of great value.

Keywords
- Imaging
- Zika Virus
- Prenatal
- Neurological Findings
- Microcephaly
tomatic, when noted the symptoms are unspecific as other viral diseases: low grade fever, pruritic maculo-papular rash, asthenia, arthralgia, myalgia, conjunctivitis, edema, retro-orbital pain [1, 2]; in the worse cases, in signs and symptoms overlapping with those of Guillain-Barre syndrome [3].

According to AraujoJúnior et al 2017 [3] the median age of patients with ZIKV infections was 36 years old, 61% women. When suspected ZIKV infection is associated with microcephaly, cytomegalovirus, rubella virus, herpes simplex virus, DENV, CHIKV and toxoplasmosis must be investigated for cross-reactivity [3, 4].

As the ZIKV emerges as a teratogenic agent the scientific population agrees that it should be treated as the other TORCH agents, congenital infections, highlighting that not all fetuses will be affected but it should be prevented and analyzed during pregnancy with radiological findings [1]. To the day, the Zika virus infection during pregnancy has been associated with early and late miscarriages, stillbirths, intrauterine growth restriction, hydropsfetalis and cerebral fetal malformations [1, 2, 3].

It has been described microcephaly that may lead to severe mental retardation, motor disabilities, ocular anomalies and auditory defects; hypospadias, cryptorchidia and micropenisand the studies of Vouga and Baud (2016) [1] agree that the higher microcephaly risk is a maternal infection during the first trimester, data varying 1-14%. The imaging diagnosis findings for the fetuses affected by ZIKV intrauterine infection should be conducted by two-dimensional ultrasounds and three-dimensional ultrasound, and for better sensitivity a fetal MRI, CT and three-dimensional physical model can be used [3, 5].

The imaging prenatal findings by Vouga and Baud (2016) [1], Chen et al. (2016) [2] and Araújo Junior et al. 2017 [3] agrees in evidence of the existence of:

a) Non-hypertensive ventriculomegaly that may be asymmetrical or unilateral, probably related to cerebral atrophy, with the thinning of the cortical mantle [1, 5];

b) Cortical and subcortical calcifications in the white matter, mid brains, basal ganglia, brainstem and cerebellum. And it is also possible to evidence dysgenesis of the cerebellum, brainstem thalamus, basal ganglia and spinal cord [3];

c) A reduced head circumference, microcephaly, it is always found in association with other cerebral abnormalities, the diagnosis are made between 26 and 33 weeks of gestation; It is the main morphological alteration, observed an increase in the HC according to gestational age in a non-linear form and the variation decreases with gestational age [4];

d) Other neurological findings are: lissencephaly, agenesis of corpus callosum, hydrocephalus, mega cisterna magna, destruction of the germinal matrix, abnormal migration and cortical organization, subependymal pseudocysts, microophtalmia [3, 4, 5]; Pachygria and polymicrogyria presence, finding not observed in other congenital infections of the central nervous system according to Aragao, Van der Linden and Brainer-Lima (2016) [6];

e) In the binomial mother-child there are findings of placental inflammation and placental insufficiency at the Doppler fluxometry study, presence of oligohydramnios/anhidramnios and Intrauterine growth restriction, with impact in fetal growth and viability [7]. And due to immobility, it can be seen arthrogryposis and club feet [5, 7, 8].

After the birth the post-natal findings correlates and are equivalent with prenatal ones [7], the radiological monitoring of exposed women should be conducted with basic Ultrasound monitoring evaluating: biometry of head, notice if there are any abnormal gyral patterns, intracranial calcification, cataract or microphthalmia [2]. And in cases of fetal microcephaly a fetal neurosonogram or MRI should be applied, remembering that microcephaly is a post natal clinical finding that can be suspected by prenatal evaluation [1, 2].
In conclusion a serial pre-natal imaging study may be considered to assess the fetuses with suggestion of the Zika virus infection, the congenital infection is of high impact on the families and to correctly diagnose and counseling preparing their homes to receive a special need newborn previous to the birth is of great value [5].

References


© Creative Commons Attribution 4.0 International (CC BY 4.0) License