Title: Evaluation of urological outcomes in children exposed to fetal infection by Zika virus.

Authors: Costa Monteiro, L.M[1]; Fontes, J.M; Cruz, G.N.O; Saad Salles T., Boechat, M., Monteiro, A.C; Ferreira, T.V.L.; Moreira, M.E.L

[1] P.I. (lucia@iff.fiocruz.br). Institution where the research was developed: National Institute of Women, Adolescent and Child Health Fernandes Figueira/FIOCRUZ/Brasil,

Key words: Congenital Zika Syndrome, Zika outcomes, neurogenic bladder

Background: Zika virus is a mosquito-borne flavovirus that may affect pregnant women and their infants by causing fetal abnormalities. This Congenital Zika Syndrome (CZS) is associated with microcephaly and central nervous systems malformations. We identified that some of areas damaged by CZS are also known to influence the neural circuitry controlling the lower urinary tract. The goal is to investigate an association of CZS and neurogenic urinary tract dysfunction to increase knowledge in the field and mitigate the impact of the disease in infected children.

Methods: Urological assessment was performed in pediatric patients with confirmed CZS referred to our urology clinic between June 2016 and June 2017. It consisted of clinical history, laboratory tests, renal ultrasound and urodynamic evaluation. ZIKV was previously confirmed by maternal history and positive PCR in babies/mothers. Microcephaly and other CNS abnormalities were established based on neurological and image evaluation (CT and/or MRI).

Findings: Twenty-eight CZS patients were tested, 15 females and 13 males, age 10 months old in average (ranging from 2mo to 19mo old). All presented microcephaly. Urological assessment confirmed neurogenic urinary tract dysfunction in 100%, some with high-risk profile. Most were asymptomatic but urological screening confirmed urinary tract infection in 5 and renal US were already abnormal in 3 patients.

Conclusion: Urological co-morbidities are associated with Congenital Zika syndrome, including high-risk urodynamic patterns that can cause renal damage if left untreated. This is potentially the only treatable health condition in CZS setting and neonatologist and pediatricians need to be aware to promote proactive management that mitigates disease burden to patients and their families.

Acknowledgements: We thank the Zika research team and the Pediatric Voiding dysfunction team from IFF/FIOCRUZ.

Funding: MCTIC/FNDCT-CNPq/ MEC-CAPES/ MS-Decit /grant No 14/2016 (Zika Prevention and Combat)