ZIKA VIRUS IN SEMEN: LOCALIZATION, SHEDDING, SEMEN CHARACTERISTICS - RESULTS OF A PROSPECTIVE STUDY

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Zika virus (ZIKV), is an arbovirus in the family Flaviviridae, genus Flavivirus, than cause mild infection in human but it can be responsible for severe neurologic complications and adverse fetal outcomes. It is usually transmitted through the bite of infected mosquitoes but several accounts of cases of sexual transmission were reported. Case reports demonstrated the presence of ZIKV RNA in semen up until 188 days after the clinical symptoms of Zikv infection. More recently, we have shown the presence of ZIKV antigens inside the spermatozoa. Recent animal studies, have shown testis and epididymis ZIKV infection with altered testis histology and spermatogenesis. However, in human, the localization of virus in the different compartments of semen is not documented and the frequency and duration of ZIKV shedding in a group of men are not known.

In this context the objectives of this prospective study is to investigate the presence of ZIKV in semen and to determine its localization in seminal plasma, semen cells and sperm cells, using semen processing methods. A cohort of 15 patients, with acute ZIKV infection and documented positive ZIKV RNA detection in blood or/and urines, were recruited in Pointe à Pitre University Hospital in French Caribbean ultramarine island Guadeloupe, a ZIKV epidemic area from April to mid-November 2016. This study was approved by the ethic committee board and registered (clinical trial NCT02874456).

After the patient provided his informed consent, he gave semen, urine and blood specimens, 7 or 8 days after the onset of clinical symptoms (D7) and then on days 11, 20, 30, 60 and 90. ZIKV RNA was detected using molecular tools (RealStar Zika Virus RT-PCR kit 1.0; Altona DiagnosticGmbH, Hamburg, Germany).

ZIKV RNA was detected and quantified in blood, urine sample, seminal plasma, semen cells, and in the separate fractions of semen obtained after semen processing using density gradients and in a pure spermatozoa population obtained after sperm preparation. Semen characteristics were monitored throughout.

The results, which will be presented at the First International Conference on Zika virus, are relevant in order to understand the precise localization of ZIKV in semen, to know the frequency and duration of ZIKV seminal shedding. Semen characteristics possible modifications as pertain to ZIKV infection will be described.

Moreover, as these data will enlighten genital ZIKV physiopathology, our results will help to evaluate the management and viral safety procedures necessary during Medically Assisted Procreation in the context of ZIKV epidemic.