

DISEASE WATCH

Zika virus — concerns for male fertility

Although Zika virus (ZIKV) has been detected in the semen of men months after initial infection, the consequences of retention of the virus in the male reproductive tract were not known. Now, a team of investigators led by Kelle Moley and Michael Diamond has shown that ZIKV persists in the testes, sperm and epididymis of mice 21 days after infection and that persistence of the virus is associated with testicular damage, oligospermia and severely impaired male fertility.

The team infected wild-type C57BL/6 mice with mouse-adapted African ZIKV (strain Dakar 41519) or the closely related Dengue virus (DENV) (strain D2S20). To facilitate infection and dissemination of the viruses, mice were also administered a single dose of a blocking monoclonal antibody that suppressed IFN α/β receptor 1 signalling.

Within 7 days of infection, viral RNA and infectious particles were detected in all tissues of the male reproductive tract of mice infected with ZIKV but not in those infected with DENV. By day 14, the blood–testis barrier was breached and the virus was detected throughout the testes in ZIKV-infected mice. Marked infiltration of CD45⁺ cells and testicular cell death were also noted. Persistence of the virus at day 21 was accompanied by progressive destruction of the testes (noticeably reduced size and weight), reduced production of testosterone and inhibin- β , and decreased sperm counts (both total and motile). Crucially, fecundity was lower in female mice mated with ZIKV-infected male mice than in female mice mated with uninfected controls.

Whether persistent ZIKV infection causes the same level of testicular damage in humans remains to

be demonstrated. In the meantime, Moley advises, “men travelling to Zika-endemic areas should take the same precautions as women of child-bearing age; that is, wear protective clothing, apply bug spray and stay indoors to avoid infection.” She adds, “the current recommendation is to avoid unprotected sexual intercourse for 6 months following a known Zika infection; however, longitudinal human studies are needed to determine the actual length of time ZIKV persists in the reproductive tract of men.”

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ORIGINAL ARTICLE Govero, J. et al. Zika virus infection damages the testes in mice. *Nature* <http://dx.doi.org/10.1038/nature20556> (2016)

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