

Obscure virus found in women with unexplained infertility

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A new study has found that the little-known member of the human herpesvirus family called HHV-6A infects the lining of the uterus in 43% of women with unexplained infertility but cannot be found in uterine lining of fertile women. The study was conducted by investigators at the University of Ferrara, Italy.

The study also found that the response of the immune system to the [virus](#) may contribute to making the [uterus](#) less hospitable to a fertilized egg. The virus seems to activate immune cells called natural killer cells in the uterus, and lead those cells to produce chemicals called cytokines. Cytokines are tools the immune system uses to orchestrate an attack on a foreign invader, like a virus. However, the activated [immune system](#) cells and abnormal levels of certain cytokines may make it harder for a fertilized egg to lodge in the uterus, and grow into a baby.

Infertility affects approximately 6% of 15-44 year old [women](#) or 1.5 million women in the US, according to the CDC. Approximately 25% of female infertility cases are unexplained, leaving women with few options other than expensive fertility treatments. "This is a surprising and potentially important discovery," said Anthony Komaroff, a professor at Harvard Medical School who has studied HHV-6. "If confirmed, the finding may lead to treatments that improve the outcome for a large subset of infertile women."

Little is known about HHV-6A, which was discovered in 1986 and is one of nine human herpesviruses. Others include Epstein Barr virus, varicella-

zoster virus, cytomegalovirus, and herpes simplex types 1 and 2. Since HHV-6A is typically not detectable in the blood or saliva, its true prevalence is unknown. A closely related virus, HHV6-B, is acquired by nearly 100% of the population in early childhood and is spread through exposure to saliva.

HHV-6B causes roseola and febrile seizures in infants, and can cause brain inflammation and disease of other organs in patients who have immune deficiencies or who are on immunosuppressive drugs.

Currently, there are no FDA-approved drugs for HHV-6A or HHV-6B, but infectious disease specialists commonly use valganciclovir, foscarnet, and cidofovir to treat HHV-6B reactivation in transplant patients. These drugs were developed to treat human herpesvirus-5 (HHV-5), known as cytomegalovirus.

More research is needed to confirm these findings and to determine whether antiviral treatment would help women with this uterine infection. Diagnosis of HHV-6A infection of the uterine lining can be made by a biopsy of the uterine lining, a standard procedure done by gynecologists without anesthesia using a small suction device.

The full article can be found on the *PLOS ONE* website.

More information: Roberto Marci et al. Presence of HHV-6A in Endometrial Epithelial Cells from Women with Primary Unexplained Infertility, *PLOS ONE* (2016). [DOI: 10.1371/journal.pone.0158304](https://doi.org/10.1371/journal.pone.0158304)

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