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HBs Ag and HCV Status Need to Be Specified Before Using Assisted Reproductive Technique

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Dear Editor,

Worldwide, Hepatitis B and C both are major health problems that are considered as sexually Transmitted disease (STD) since they are spread through intercourse, contact with genitals and the anus, semen, vaginal fluids, and saliva (1, 2). Additionally, now days, there is a growing trend to have an increasing use of assisted reproductive technology (ART) such as IVF, which is due to childbearing postponement and an increasing rate of infertility (1).

It is found that HBV DNA sequences can integrate to spermatozoa; therefore, there is possible risk of vertical transmission of HBV via the germ line. Hepatitis B virus found in semen is most likely sexually transmitted and could cause male infertility by damaging spermatozoa, affecting on sperm parameter especially forward motility (1).

Furthermore, the virus can change DNA integrity, causing apoptosis and necrosis, reducing antioxidant capacity, and resulting in oxidative stress (3). After fertilization and using ART with infected sperm, HBV genes is able to replicate and express at the mRNA and protein level in early embryonic cells (4).

As well, if we want to look at the impact of HBV on women's fertility, one can point out its detection of hepatitis B surface antigen (HBsAg), hepatitis B core antigen (HBcAg), and HBV DNA in ovarian tissues of HBV-infected women. Moreover, oocytes can be carriers of HBV and brought HBV DNA into embryos in case of fertilization with normal sperm. From a clinical point of view, HBV infection in women has been associated with increased risk of tubal and uterine infertility (5).

On the other hand, HCV, as blood-borne liver disease, has low seminal viral load but not negligible risk of heterosexual transmission. Likewise HCV infection can alter sperm parameters, such as reduced motility, abnormal morphology, and lower sperm count (6). The existence of HCV in follicular fluid of infected women with HCV has been proven and was detected in the follicular fluid of 89% of HCV PCR-positive females. Women infected with HCV have high HCV RNA levels in the follicular fluid; hence higher incidence of apoptosis during stimulation for ART is possible (7).

Therefore, infertility treatment, when there is a possibility of infection with hepatitis of the couples or one of them, is causing concern. Since, transmission of the infection to the baby, laboratory technicians, medical staff, and contamination of gametes/embryos is possible (8, 9). The management of infertility associated with the hepatitis infection is a very important and controversial topic, by performing diagnostic tests before starting treatment of infertility can reduce or eliminate potential risks. Accordingly, proper initial detection of hepatitis in fertility clinics should be done and protocol and techniques for virus removal should be performed. Moreover, before embryo and gamete cryopreservation or donation of HBs, Ag, or HCV, status should be determined and suggested protocol of sperm washing technique; In addition, storage of sample in the nitrogen vapor instead of the liquid state and double-sealing technique for cryocontainers in order to avoid potential cross-infection should be performed.

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