A Weekly Digest on Fertility & Human Reproductive Science

Fertility Weekly

March 1 & 8, 2010 www.fertilityweekly.com

News

Endometriosis. Proinflammatory Cytokines Enhance Expression of GSH in ESCs. . . p. 2

Fertility in Hairdressers. Chemicals in Hair Salons May Cause Subfertility and Menstrual Disturbances. . . p. 3

Phthalate DEHP and Male Fertility. Exposure in Utero Decreases Mineralocorticoid Receptor Expression. . . p. 4

IVF. Outcome Correlates with Changes in Distribution of NK and NKT Cells. . . p. 4

Primary Ovarian Insufficiency. Correlation between SCA-POI and the Ovarian Follicle Pool. . . p. 5

Preimplantation Genetic Diagnosis. Case Study on the Use of FISH to Prevent DiGeorge Syndrome. . . p. 6

L-Selectin Ligands. Expression Differs between Fertile and Infertile Women. . . p. 7

MORE NEWS . . . pp. 8 - 11

Conference Abstracts

Authors' Abstracts from Meetings Worldwide. . . pp. 12 - 17

International Calendar

Upcoming Events. . . pp. 18

IVF/ET

Effect of Hepatitis B Infection on Outcome

Pregnancy and implantation rates after in vitro fertilization (IVF) are significantly higher for couples in which at least one partner has hepatitis B virus (HBV) infection, states a study from China.

It is estimated that 400 million people world-wide are actively infected with HBV (Ocama et al., 2005). More and more infertility centers are conducting routine screenings for HBV prior to assisted reproductive treatment (ART) (Van den, 1995). A small study by Pirwany et al. (2004) found that couples discordant for HBV have a significantly ($P < 0.01$) lower pregnancy rate (7.7%) than age-matched couples without HBV (40.7%).

The relationships between HBV prevalence and the causes of subfertility and IVF/ET outcome were evaluated in this study by P.M. Lam and colleagues. "Our results demonstrate for the first time significantly higher PRs [pregnancy rates] and implantation rates of IVF and embryo transfer cycles for couples with at least one partner being HBV seropositive. Further studies to elucidate the underlying mechanisms are warranted," wrote Lam et al. ("Hepatitis B Infection and Outcomes of in Vitro Fertilization and Embryo Transfer Treatment," *Fer & Ster*, 2010;93(2):480-485).

The current study included 287 couples who were undergoing IVF-embryo transfer (ET) between July 2007 and September 2008 at the Assisted Reproductive Unit of The Chinese University of Hong Kong. Causes of infertility included tubal factor, male factor, endometriosis, unexplained infertility, and mixed factors. Semen samples were prepared by the density gradient method; intracytoplasmic sperm injection (ICSI) was conducted in couples that had severe semen abnormalities. HBV serostatus for the women and their husbands was checked upon referral and within two years of the treatment cycle. Couples in which at least one partner was HBV seropositive were categorized as HBV (study) group, while those who screened negative were categorized as the control group. Ovulation induction was conducted according to an established routine protocol; the long GnRH agonist protocol was used for down-regulation. Ultrasound examinations were conducted to rule out functional ovarian cysts and to make sure endometrial thickness was < 5 mm. Ovarian stimulation utilized hMG or recombinant

Advising Editor: Mark Perloe, M.D., Medical Director, Georgia Reproductive Specialists
News Editors: J. Mitchell, K. Holcomb; Medical Editor: V. Kasibhatla
Editor-in-Chief: Keith Key

FSH. Ovarian response was monitored via ultrasound and serum E_2 concentrations. Once three mature follicles reached 18 mm in diameter, hCG was given; oocyte retrieval was carried out 36 h later. ET took place three days later; surplus embryos were cryopreserved. Separate storage tanks were used for the HBV group.

Statistical analysis utilized SPSS v.16.0 and included χ^2 test, independent sample t-test, and regression analysis. $P < 0.05$ was considered significant.

Twenty-nine women (10.1%) were HBV seropositive, as were 32 (11.1%) men. In five couples, both partners were HBV seropositive. A trend was noted toward a longer duration of infertility and more tubal blockage in the HBV-affected couples, but there was no statistical significance.

One hundred and ninety women (34 in the HBV group and 156 in the control group) were undergoing their first IVF -ET cycle; the outcomes of these cycles were analyzed. No significant differences were noted in ovarian hyperstimulation regime, endometrial thickness, and embryology data, which included semen parameters and fertilization rate. Pregnancy rates per cycle initiated were 50.0% in the HBV group and 23.1% in the control group ($P < 0.01$); pregnancy rates per cycle with oocyte retrieval were 50.0% and 23.7%, respectively ($P < 0.01$), and pregnancy rates per cycle with embryo transfer were 56.7% and 28.1% for the HBV and control groups, respectively ($P < 0.01$).

The ongoing pregnancy or live birth rate per cycle with embryo transfer was 53.3% for the HBV group versus 24.2% for the control group ($P < 0.01$). Implantation rates were 43.3% for the HBV group and 18.4% for the control group ($P < 0.01$). For couples in which only the wife had HBV, the implantation rate was 58.3%, which was significantly ($P < 0.01$) higher than that of the control group (18.4%). The pregnancy rate per cycle with embryo transfer was significantly higher in couples in which only the wife had HBV compared with the control group (66.7% vs. 28.1%; $P < 0.01$). The ongoing pregnancy or live birth rate per cycle with embryo transfer was also significantly ($P < 0.01$) higher when only the wife had HBV compared with the control group (66.7% vs. 24.2%).

"In conclusion, this study demonstrates for the first time significantly higher PRs of IVF and embryo transfer cycles for couples with at least one partner being HBV seropositive. We agree that our results were totally unexpected and require additional confirmation from prospective studies with a larger samples size," wrote Lam et al.

Address correspondence to P.M. Lam, MD, Department of Obstetrics & Gynecology, Prince of Wales Hospital, Shatin, New Territories, Hong Kong, S.A.R., China; e-mail: Lampomui@cuhk.edu.hk.

Endometriosis

Proinflammatory Cytokines Enhance Expression of GSH in ESCs

Estradiol (E_2), tumor necrosis factor (TNF)-α, and interleukin (IL)-1β increase the expression of glutathione (GSH) in endometrial stromal cells (ESCs), state researchers in South Korea.

Although there is little understanding of the pathogenic mechanisms, it is clear that endometriosis develops and regresses in an estrogen-dependent manner and that locally produced cytokines may function in the formation of endometriotic lesions. Some researchers have reported that the intracellular antioxidant system, derived from FSH, has a vital role in endometrial detoxification reactions and may play an important part in the pathogenesis of endometriosis (Van Langendonckt et al., 2002). Glutathione synthesis is enhanced by cytokines (Wu et al., 2004) and it has been demonstrated that GSH level fluctuates according to menstrual phases within the endometrium (Serviddio et al., 2002). However, no in vitro study has been performed to determine if GSH level is controlled by sex steroids or cytokines in human endometrial cells.

To further investigate the above information, Sa Ra Lee and colleagues performed a study to determine

Since 1995, published weekly for subscribers internationally by Fertility Weekly, Inc. 2451 Cumberland Parkway, Suite 3374, Atlanta, GA 30339 USA, Telephone: (888) 662-5048, or (404) 419-6701, Fax: (404) 419-6702, email: subs@fertilityweekly.com. **Internet:** info@fertilityweekly.com **World Wide Web:** http://www.fertilityweekly.com. US$699 a year North America, US$799 a year all other countries. ISSN 1086-1068.