

tubal course after two consecutive contrast agent injections. The visualization with CCI of the contrast agent around the ovaries, the need for more than one fluid injection to assess tubal patency, the detection in 2D real time of the bubbles movement around the ovaries, and the side effects and pain during and after the procedure were assessed.

RESULTS: Sixtytwo patients underwent automated 3D CCI HyCoSy; 50 women showed bilateral tubal patency and 12 a tubal occlusion (4 cases bilateral, 8 unilateral). The 3D tubal course automated reconstruction was achieved in 41cases (66%) after the first contrast injection, while in other 15 cases a second injection was needed, for a total of 56(90%) 3D tubal imaging. For the 108 patent tubes, in 101 cases CCI clearly showed the contrast agent around the omolateral ovary. 2D realtime evaluation was performed in all cases to confirm tubal status and it was helpful to assess tubal patency in those 6 patients in whom 3D reconstruction wasn't good enough to achieve a diagnosis.

CONCLUSIONS: Automated 3D-CCI HyCoSy allows for a reliable assessment of tubal patency in 90% of cases. Automated 3D volume acquisition allows less experienced operators to easily evaluate the tubal course.

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COMPARISON OF AUTOMATED MEASUREMENTS OF FOLLICULAR VOLUME AND MANUAL MEASUREMENTS OF FOLLICULAR DIAMETER TO TIME HCG ADMINISTRATION: A PROSPECTIVE STUDY IN EGG DONORS. J. Hernández, V. Sanabria, A. Rodríguez-Fuentes, R. García-Guzman, A. Palumbo. Centro de A.Reproducción Humana de Canarias, La Laguna, S/C Tenerife, Spain.

OBJECTIVE: We have recently shown that follicles of stimulated ovaries can be measured effectively and reliably using 3D ultrasound and SonoAVC (Automated Volume Calculation, GE Medical Systems, Austria) (Fertil Steril 2009, in press). The objective of this study was to determine whether donor IVF cycles monitored only by 3D US and SonoAVC have success rates comparable to conventional monitoring.

DESIGN: Prospective observational study.

MATERIALS AND METHODS: 36 donors monitored only by 3D ultrasound and SonoAVC with a Voluson E8 expert (GE Medical Systems, Austria) were compared to 23 controls monitored by conventional 2D ultrasound. Ovulation induction was carried out with a combination of recombinant FSH and either recombinant LH or urinary hMG using an antagonist protocol. Final oocyte maturation was triggered when at least 2 follicles reached a mean diameter of 18 mm (controls) or when the majority of follicles reached a volume of 0.6 cc (cases). In the experimental group, quality of image was assessed and considered good when less than 10% of follicles needed manual measurement. Statistical analysis was performed using the SPSS.

RESULTS: Age (23 ± 2.64 vs 22.94 ± 3.19), days of stimulation (10.87 ± 1.89 vs 10.77 ± 1.37), dose of gonadotropins, number of total (20.96 ± 11.63 vs 22.43 ± 11.62 and mature (16.26 ± 8.06 vs 17.3 ± 9.4) oocytes, % mature oocytes (76.21 ± 22.29 vs 77.72 ± 11.31), fertilization rate (69.61 ± 19.98 vs 69.62 ± 21.46), % viable embryos (92.28 ± 11.55 vs 82.65 ± 28.39), implantation (42.65% vs 47.01%) and clinical pregnancy rates (59.52% vs 68.3%) were comparable in the two groups ($P>0.05$). Image quality was good in 88.6% of donors in the experimental group.

CONCLUSIONS: This study demonstrates that ovulation induction can be monitored exclusively by SonoAVC without compromising IVF results. The ability to determine the day of hCG administration based on follicular volume is a potential advantage of SonoAVC which deserves further investigation.

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ENDOMETRIAL BLOOD FLOW MEASURED USING THREE-DIMENSIONAL POWER DOPPLER ULTRASOUND MAY BE A PREDICTOR OF PREGNANCY IN WOMEN UNDERGOING INTRAUTERINE INSEMINATION. A. Kim, J. E. Han, W. S. Lee, S. W. Lyu, Y. S. Kim, T. K. Yoon. Department of Obstetrics and Gynecology, Fertility Center, CHA Gangnam Medical Center, College of Medicine, CHA University, Seoul, Korea.

OBJECTIVE: This study was aimed to investigate whether endometrial and subendometrial blood flow parameters measured using three-dimensional power Doppler ultrasound (3D PD-US) can predict pregnancy following intrauterine insemination (IUI).

DESIGN: Prospective clinical study.

MATERIALS AND METHODS: The total number of 242 nulliparous women who underwent ovulation induction by clomiphene citrate and IUI between May, 2008 and October, 2008 were enrolled. Except two cases of tubal pregnancy, 240 cases were classified as the pregnant group (n=50), and as the non-pregnant group (n=190). A color Doppler ultrasound and 3D PD-US examination (Accuvix, Medison) were performed on the day of IUI. Pulsatility index (PI), resistance index (RI), and systolic/diastolic ratio (S/D) of uterine artery, and vascularization index (VI), flow index (FI), and vascularization flow index (VFI) of endometrium as well as those of subendometrial region were obtained as main outcomes. These measurements were analyzed in the relation to IUI outcome (pregnant vs. non-pregnant).

RESULTS: The pregnant group had higher endometrial VI, FI, and VFI scores and uterine artery PI value than the non-pregnant group ($p = 0.003, 0.002, 0.013,$ and 0.015 respectively). In contrast, the subendometrial region VI, FI, and VFI scores did not differ between the groups, nor did the uterine artery RI, and S/D scores. Pregnancies did not occur when endometrial blood flow had not been detected.

CONCLUSIONS: 3D PD-US was useful for evaluating endometrial and subendometrial neovascularization in IUI cycles. Endometrial blood flow parameters may be useful predictors for pregnancy.

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ULTRASOUND GUIDANCE IS SUPERIOR TO LAPAROSCOPIC GUIDANCE DURING HYSTEROSCOPIC RESECTION OF INTRA-UTERINE SYNECHIAE AND SEPTA. J. D. K. Kresowik, G. L. Ryan, C. H. Syrop, B. J. Van Voorhis. Department of Obstetrics & Gynecology, University of Iowa Hospitals & Clinics, Iowa City, IA.

OBJECTIVE: Laparoscopic intraoperative guidance has been suggested as a means of reducing uterine perforation during hysteroscopic resection of intrauterine synechiae and septa. We propose that concurrent transabdominal ultrasound is a more cost-effective and safer means of guidance than the more conventional laparoscopy.

DESIGN: Retrospective chart review.

MATERIALS AND METHODS: Charts of all patients undergoing reparative surgery for intrauterine synechiae or uterine septa at our academic institution between 2000 and 2008 were reviewed. A total of 162 procedures were identified, with 126 of these involving either concurrent laparoscopy (n=68) or concurrent ultrasound (n=58) for guidance. Data regarding billing, surgical case logs, and complications were collected for these procedures. Using these data, inflation-adjusted charges and complication rates were compared between the two groups. Appropriate statistical analyses were performed using t-test and z-test.

RESULTS: Available billing data showed the mean total charge was significantly less for ultrasound guided hysteroscopy as compared to laparoscopy (9584.47 vs. 14698.59 , $p<0.001$). A uterine perforation rate of 10.2% (7/68) was observed in the laparoscopic group vs. 1.7% (1/58) in the ultrasound group ($p=.112$).

CONCLUSIONS: Real-time transabdominal ultrasound guidance during the resection of intrauterine synechiae or septa is more cost-effective than laparoscopic guidance. There is a trend towards reduced uterine perforation rate with ultrasound guidance. While we did not find complications related specifically to the laparoscopic procedures, the potential for these complications is much higher than the potential for ultrasound-related risks. Taken together, transabdominal ultrasound guidance is the optimal means of intraoperative guidance for the resection of uterine synechiae and septa.

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OVARIAN STROMAL VASCULARITY EVALUATED BY DOPPLER CORRELATES WITH THE DOSE OF FSH USED DURING IN VITRO FERTILIZATION(IVF) STIMULATION. A. H. Szyller, K. M. Silverberg, R. S. Crumb, T. C. Vaughn, L. J. Hansard, N. Z. Burger. OBGYN Residency Program, UTMB Austin, Austin, TX; Texas Fertility Center, Austin, TX.

OBJECTIVE: Consistent with other biological models, the delivery of nutrients via the bloodstream to a developing ovum must have some impact on follicular growth. While direct measurement is experimentally difficult, ultrasound blood flow analysis has been suggested to be an acceptable surrogate. This study was designed to assess a correlation between ovarian

blood flow prior to stimulation and the dose of FSH required for IVF stimulation.

DESIGN: Prospective, observational, comparative, single center.

MATERIALS AND METHODS: Reproductive endocrinology tertiary care private institution. Patients: Cohort of 59 patients undergoing 60 cycles of IVF stimulation enrolled between April and June 2008. Observational Data Collected: Ovarian Stromal Doppler was performed prior to IVF stimulation, and included Power Doppler Ultrasound (PDU) and Color Doppler Ultrasound (CDU) with pulsed Doppler (PW) Flow Velocity Waveform (FVW). Both semi-quantitative and quantitative evaluations were performed using a semi-quantitative grading system by PDU and calculation by CDU/PW/FVW of Resistance Index (RI), Pulsatility Index (PI), Peak Systolic Velocity (PSV) and Time Averaged Maximum Velocity (TAMX). Main Outcome Measures: The dose of FSH used during IVF stimulation in relation to the above parameters.

RESULTS: Analysis of non-experimental background variables showed no significant differences between the pregnant and non-pregnant groups. Statistically significant correlations were noted between pre-stimulation ovarian stromal PSV, TAMX, PDU score and the dose of FSH administered during stimulation. The statistical significance of these findings was confirmed by multivariable regression analysis. Doppler findings were more predictive of FSH dose than was patient age.

CONCLUSIONS: The pre-stimulation Ovarian stromal ultrasound vascular evaluation accurately predicts the dose of FSH required to achieve optimal IVF stimulation.

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SEPTATE UTERUS IN INFERTILE PATIENTS: THREE DIMENSIONALE SONOGRAPHIC ASSESSMENT, HISTOLOGY OF SEPTAL TISSUE AFTER HYSTEROSCOPIC METROPLASTY AND CORRELATION TO REPRODUCTIVE OUTCOME. C. Exacoustos, E. Vaquero, A. Di Giovanni, V. Romeo, F. Baiocco, D. Arduini. Department of Surgery,

Obstetrics and Gynecology Unit, University of Tor Vergata, Rome, Italy; Department of Obstetrics and Gynecology, Ospedale S. Giovanni Calibita Fatebenefratelli, Rome, Italy.

OBJECTIVE: Septate uteri can cause early abortion and infertility but mechanisms have not been clearly established yet. The aim of this study was to assess by 3D TVS uterine septum dimensions, volume, morphology and vascularization and to correlate these findings to reproductive outcome and to the histological features of uterine septa obtained by hysteroscopic metroplasty (HM).

DESIGN: Reproductive outcome of patients with septate uterus undergoing 3D TVS and HM.

MATERIALS AND METHODS: Sixty-five patients of reproductive age with septate uterus underwent 3D TVS. On the coronal view of the uterus, septal length, width, volume, echostructure and vascularization (Vascularisation Index-VI), were evaluated. The reproductive outcome of each patient was recorded and correlated to the 3D TVS features. Twenty of these patients underwent HM. At least two specimens of the septum were obtained for histological evaluation, to assess the amount of vessels, connective and muscle tissue.

RESULTS: Of the 65 patients with septate uterus, 19 had repeated pregnancy loss, 5 had a preterm delivery, 4 had a term delivery and 36 primary infertility. The width of the septum was significantly larger in patients with recurrent abortion ($31.6 \pm 6.10\text{mm}$) than in those with primary infertility ($25.6 \pm 7.12\text{mm}$). 3D TVS showed a VI on septal volume ($17.49 \pm 8.40\%$) significantly higher in patient with term or preterm deliveries. Histology of the septum showed in 9 cases poor vessels amount, among which only one showed normal muscle tissue amount. In the 11 septa with normal vessels amount 3D TVS showed VI of the septum ($17.49 \pm 8.40\%$) significantly higher compared to the 9 cases with poor vessels amount ($VI 1.83 \pm 1.26\%$). The width of the septum was significantly lower in the fibrotic septa with poor vessels amount.

CONCLUSIONS: 3D TVS can detect different types of uterine septa. The different morphology and histology of uterine septa suggest that pathogenesis of infertility in these patients is multifactorial and correlated to septal width and content.

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CAN ENDOMETRIAL MOVEMENTS AFFECT THE PREGNANCY RATE IN IUI CYCLES? A. Kim, C. Eunmi, H. H. Seok, I. P. Kwak, J. H. Cho, T. K. Yoon. Department of Obstetrics and Gynecology, Fertility Center, CHA Gangnam Medical Center, College of Medicine, CHA University, Seoul, Korea.

OBJECTIVE: This study was aimed to assess the effect of the endometrial movement on pregnancy achievement in women receiving ovulation induction by clomiphene citrate followed by intrauterine insemination (IUI).

DESIGN: Prospective clinical study.

MATERIALS AND METHODS: The study population was composed of all infertile couples without any known factor who were to undergo first-time IUI with clomiphene citrate in Fertility Center of CHA University between September 2008 and January 2009. Not only endometrial movements measured using ultrasound (Accuvix, Medison), but also thickness, volume, pattern, and echogenic change of endometrium were analyzed in prediction of pregnancy.

RESULTS: The total number of 241 cycles of IUI with 49 intrauterine pregnancies (20.3%) was analyzed, among the total number of 243 cycles of IUI with 51 clinical pregnancies (21.0%) with 2 cycles of tubal pregnancies. Pregnancy was not related to endometrial thickness and endometrial volume, but significantly related to endometrial movement, trilaminar pattern, and hyperechoic change ($p < 0.05$). Endometrial movements over than 4 times per minute and with weak or moderate intensity were significantly related to pregnancy ($p < 0.05$). The major direction of endometrial movement was cervicofundal (82.6%), and hence pregnant group showed higher cervicofundal movement rate as well (89.8% vs 75.5%).

CONCLUSIONS: Endometrial movement could be a predictor of pregnancy in IUI cycles. Differently from spontaneous cycles, fundocervical endometrial movement which is retrograde for favorable sperm transport can be overcome by IUI procedures.