Tian-Jeau Huang 黃天爵
(Y1)

Which is the best approach for embryo transfer with biopsied embryos: biopsy-fresh transfer, biopsy-freeze FET, or freeze-biopsy FET?

Tian-Jeau Huang[*1], *Hsiao-Chin Huang*[1], *Chueh-Ko Yang*[2], *Hsin-Hung Wu*[1,3]**
[1] *Reproductive Medicine Center, Department of Obstetrics and Gynecology, Changhua Christian Hospital, Changhua, Taiwan*
[2] *Women's Health Research Laboratory, Department of Medical Research, Changhua Christian Hospital, Changhua, Taiwan*
[3] *Department of Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, Taichung, Taiwan*

Objective: To evaluate which clinical outcome is superior for embryo transfer with biopsied embryos: biopsy-fresh transfer, biopsy-freeze FET, or freeze-biopsy FET?

Materials and Methods: This retrospective cohort study included all embryo transfer cycles involving biopsied embryos between 2021/01/01 to 2023/12/31 at the ART center in Changhua Christian Hospital, Taiwan. All cycles underwent trophectoderm biopsy for qPCR or array-CGH. Cycles were categorized into three groups based on biopsy and embryo transfer timing: Group A: Embryos cultured to the expanded blastocyst stage, biopsied on day 5 or 6, followed by fresh embryo transfer on the next day after biopsy. Group B: Embryos cultured to the expanded blastocyst stage, biopsied on day 5 or 6, followed by cryopreservation, and thawed embryos-FET. Group C: Freeze all blastocysts, and then thawed embryos for biopsy, and embryo transfer on the next day after biopsy. The primary outcome was the biochemical pregnancy rate. Clinical and ongoing pregnancy rates, miscarriage rates, embryo grading at biopsy and transfer, and the rate of discontinued ET cycles were also evaluated.

Result: A total of 426 embryo transfer cycles with biopsied embryos were recorded. After excluding cycles involving donated eggs and untransferred embryos, 304 cycles were included in the study. Embryo morphology before transfer was significantly better in Groups A and C compared to Group B (70.3% vs. 74.78% vs. 41.13%, $P < 0.05$). Chemical, clinical, ongoing pregnancy rates, and miscarriage rates per cycle in Groups B and C showed a better trend compared to Group A, but these differences were not statistically significant.

When comparing Groups B and C, Group C had better embryo morphology before transfer (74.78% vs. 41.13%, $P < 0.05$) with no significant differences in pregnancy or miscarriage rates.

The rate of discontinued embryo transfer cycles did not differ significantly among the three groups (40% vs. 28.3% vs. 25.9%, $p=0.181$).

Conclusion: For embryo transfer with biopsied embryos, clinical outcomes are similar across biopsy-fresh transfer, biopsy-freeze FET, or freeze-biopsy FET approaches. Therefore, the most appropriate approach should be based on individual patient circumstances. However, we must consider that Group C had a 25.9% rate of prepared endometrium, but no embryos were transferred.

Yu-Tung Hsieh **謝雨彤**
(Y2)

Clinical Outcomes of Mosaic Embryos Transfer

Yu-Tung Hsieh, Yi-Ting Chen, Yi-Lun Lin, Jen-Yu Wen, Yung-Chieh Tsai
Center for Reproductive Medicine, Department of Obstetrics and Gynecology, Chi Mei Medical Center, Tainan, Taiwan

Objective: This study aims to share our experience with mosaic embryo transfers over the past six years. Clinical outcomes and their effects on fetal development will be detailed in this report.

Materials and methods: This retrospective study was conducted at a single medical center over a period from August 2018 to November 2024, including all cycles involving mosaic embryo transfer. Mosaicism in embryos was identified using next-generation sequencing (NGS), defined as the presence of intermediate copy number levels (20%– 80% between whole numbers) in a whole chromosome or sub-chromosomal segment. Following thorough counseling and informed consent, patients underwent single embryo transfer with mosaic embryos. The range of mosaicism in the transferred embryos was between 20% and 79%, including cases of partial or segmental deletions. For pregnancies progressing to a gestational age of 16 to 18 weeks, amniocentesis was performed for karyotyping in all cases. The viability of mosaic embryos was assessed by analyzing pregnancy and neonatal outcomes. Key measures include clinical pregnancy rates, ongoing pregnancy rates, live birth rates, and miscarriage rates before 20 weeks of gestation. Neonatal outcomes include birthweight, sex, 1-minute and 5-minute Apgar score, neonatal complications, admission to a neonatal intensive care unit (NICU), congenital malformations, and neurodevelopmental delay.

Result: Totally, 15 women underwent single embryo transfer with mosaic embryos. The clinical pregnancy rate was 66.7% (10/15), with no miscarriage reported, ongoing pregnancy rate 66.7% (10/15), and live birth rate 60% (9/15; one on going). The karyotyping results acquired from amniocentesis of all ongoing pregnancies revealed no aneuploidy. The live births were all delivered after term pregnancy (ranged from 37 to 40 weeks of gestation), with mean birthweight 3187.89 gram. There was no preterm delivery or neonatal mortality reported. One newborn required NICU admission due to newborn respiratory distress syndrome, and recovered after nasal CPAP (continuous positive airway pressure) ventilation support. No congenital malformations were noted at birth, nor was there any neurodevelopmental delay observed during subsequent follow-up.

Conclusion: The introduction of next-generation sequencing (NGS) in preimplantation genetic testing for aneuploidy (PGT-A) has greatly increased the detection of mosaicism in trophectoderm (TE) biopsies. Based on six years of follow-up, our findings indicate that transferring mosaic embryos can result in healthy outcomes. However, it remains uncertain whether this is due to the embryo's ability to self-correct or an overestimation of mosaicism by PGT-A. Larger studies are needed to further investigate and clarify these findings.

Yung Huang 黃詠
(Y3)

Does the interval between two consecutive cycles of oocyte retrieval have an impact on the outcomes?

Yung Huang[1], Chu-Chun Huang[1,2], Mei-Jou Chen[1]*
[1]Department of Obstetrics and Gynecology, National Taiwan University Hospital, Taipei, Taiwan
[2]Department of Obstetrics and Gynecology, National Taiwan University Hospital Yunlin Branch, Yunlin, Taiwan

Objective: To assess the association of the interval between two consecutive cycles of oocyte retrieval and the oocyte retrieval outcomes.

Materials and Methods: This is a retrospective cohort study, including 1481 patients from 1989 to 2019 in NTUH. All patients who underwent at least two cycles of oocyte retrieval were selected, and the first two cycles of these patients were analyzed. Only those with an interval less than 180 days were included(N=1481), to minimize the effect of aging. Oocyte donors/recipients and those with canceled cycles were excluded. Patients with an interval between cycles <90 days(N=829) were compared to those with an interval 90-180 days(N=652). The primary outcome is the number of retrieved oocytes.

Results: The number of retrieved oocytes significantly increased in the consecutive retrieval cycles when the interval was <90 days (1^{st} vs. 2^{nd} cycles: 5.95 vs. 6.80, $p<0.001$). Meanwhile, the number of retrieved oocytes in two consecutive cycles was statistically similar when the interval was 90-180 days (1^{st} vs. 2^{nd} cycles: 8.01 vs. 8.26, $p=0.176$). In addition, among the patients with interval <90days, the increment of retrieved oocytes was significant only in those who had <4 oocytes retrieved (1^{st} vs. 2^{nd} cycles: 1.85 vs. 3.30, $p<0.001$), or 4-9 oocytes retrieved (1^{st} vs. 2^{nd} cycles: 5.93 vs. 6.93, $p<0.001$), but not those who had >9 oocytes retrieved (1^{st} vs. 2^{nd} cycles: 14.07 vs. 13.41, $p=0.052$) in their first retrieval cycles. Our study is the largest cohort to date to evaluate the impact of time interval on oocyte retrieval outcomes.

Conclusion: An interval < 90 days between two consecutive cycles of oocyte retrieval was associated with an increment of retrieved oocytes in the second cycle, in whom <9 oocytes were retrieved in the first cycle. Although the underlying mechanism remained to be elucidated, it could be one of the possible reasons that the oocyte retrieval operation in the first cycle may serve as ea mechanical disturbance of ovarian extracellular matrix, leading to increased hormone sensitivity and therefore increased oocyte numbers. Our study results could provide valuable information for patients who require two consecutive retrieval cycles.

Ting-Chien Lin 林廷謙
(Y4)

Conservative treatment for early-stage endometrial cancer conservative treatment: single-center real-life data and Parallel Artificial Reproductive Treatment (P-ART protocol)

Ting-Chien Lin[1], Ya-Min Cheng[1,2]
[1] Department of Gynecology and Obstetrics, National Cheng Kung University Hospital, Tainan, Taiwan
[2] Department of Gynecology and Obstetrics, Kuo General Hospital, Tainan, Taiwan

Objective: To present the experience of conservative treatment for early-stage endometrial cancer, and to report a new protocol for fertility-preserving purpose
Materials and Methods: We collected patients with early-stage endometrial cancer that have received conservative treatment from January 2017 to December 2021. Patients with endometrial cancer, endometrioid adenocarcinoma, stage 1A, grade 1-2 were included. Treatment options includes either single regimen or a combination of Medroxyprogesterone (MPA), Leuprorelin, or Levonorgestrel intrauterine device (LNS-IUD). Treatment response is evaluated by hysteroscopic surgery (HSC) or dilatation and curettage (D&C) every three months, and is assigned to stable disease (SD), partial response (PR), or complete remission (CR). Pathological reported as complex atypical hyperplasia or epithelial intraepithelial neoplasm is assigned to PR group. While disease recurred, it is counted as different treatment courses. A complete treatment course is defined until complete remission, or the patient received total abdominal hysterectomy (TAH), loss follow up or expired.
We analysis the treatment response of these patients, including treatment protocol, response rate between different protocol, time to response and time to recurrence. Time to recurrence is defined as an interval between stopping medical treatment and next pathologic confirmed recurrence.
We analyzed patients receiving assisted reproductive technology (ART) at our hospital during conservative treatment, and the fertility outcome of receiving LNS-IUD treatment parallel to ovulation induction for ART, so called P-ART protocol. Time interval was calculated between complete remission and ART.
Results: Total 40 patients with early-stage endometrial cancer received conservative treatment. Mean age was 36.2 years old, ranging from 29 to 53 years old. While 11 patients experienced recurrence and 2 of them had twice recurrence, there were total 52 treatment courses. Five treatment courses were ongoing, and 47 treatment courses were completed. The CR rate was 90.4% (47), while 5 patients had stable disease (SD) despite treatment. Of the patients with poor treatment response, three of them received TAH, one loss followed up and one passed away due to disease progression. Mean time to CR was 7.72 months, and mean time to recurrence was 18.9 months. Fifty percents of patients recurred within one year after stopping medical treatment.
After conservative treatment, five patients were conceived. Three of them had given birth, one is currently pregnant, and one had abortion in the first trimester. Eleven patients received ART at our hospital, including 4 of the 5 pregnant patients. Of the seven patients receiving ART after completed conservative treatment, 5 out of 9 complete treatment courses had recurrence during ART course. Two patients had conceived with embryo transfer. One of them gave birth and the other had an abortion. Total five patients received P-ART. One patient had disease progression during treatment and eventually passed away. Of the other four patients who achieved complete remission, 3 of them received embryo transfer in 3 months, and one patient had just completed her treatment course recently. Two of them conceived successfully. One had given birth while the other pregnancy is ongoing.
Conclusion: In our retrospective analysis, the reproductive outcome of P-ART protocol was better than receiving ART after stopping conservative treatment, with less recurrence and more successful pregnancy.

Yi-Hsuan Ho 何宜軒
(Y5)

Transarterial Embolization for Post-Oocyte Retrieval Hemorrhage: A Case Series

Yi-Hsuan Ho[1], MD, Heng-Kang Chang, MD[2], Hsun-Ming Chang MD, PhD[3]
[1] Department of Obstetrics and Gynecology, China Medical University Hospital
[2] Department of Obstetrics and Gynecology, China Medical University Hospital
[3] Department of Obstetrics and Gynecology, China Medical University Hospital

Introduction: Traditionally, post-oocyte retrieval hemorrhage patients would undergo emergency laparoscopic exploration to identify and control the bleeding site. In these three cases, we opted for conservative treatment, and the outcomes were satisfactory. We aim to preserve the maximum reproductive potential. The conservative management involved extensive blood transfusions, fluid resuscitation, and transcatheter arterial embolization (TAE)

Result: All three cases showed a favorable recovery. On the third day after undergoing transcatheter arterial embolization (TAE), the patients were able to walk without any symptoms. On the fourth day, follow-up ultrasound confirmed the status of ascites, and by the fifth day, the patients were stable and discharged. During a follow-up outpatient visit one week later, bedside ultrasound demonstrated that most of the blood clots had been absorbed, and clinical symptoms had fully resolved. One of the cases subsequently achieved a successful pregnancy and delivery.

Conclusion: In the cases we encountered, transcatheter arterial embolization (TAE) was successfully employed to control the hemorrhage, including in patients experiencing hypovolemic shock and disseminated intravascular coagulation (DIC). This successful application of TAE in managing severe hemorrhage post-oocyte retrieval demonstrates its potential benefit and supports its use in similar future cases.

Jie Sung 宋潔
(Y6)

Recombinant Follicle-stimulating hormone and Luteinizing hormone Enhance Mitochondrial Function and Metabolism in Aging Female Reproductive Cells

Kuan-Hao Tsui[1, 2, 3, 4, 5, 6, 7], Chia-Jung Li[1, 2, 3], Li-Te Lin[1, 2, 3, 4,5,]*
[1.] Department of Obstetrics and Gynecology, Kaohsiung Veterans General Hospital, Kaohsiung 813, Taiwan
[2.] Department of Nursing, Shu-Zen Junior College of Medicine and Management, Kaohsiung City, Taiwan
[3.] Institute of Biopharmaceutical Sciences, National Sun Yat-sen University, Kaohsiung 804, Taiwan
[4.] Department of Obstetrics and Gynecology, National Yang-Ming University School of Medicine, Taipei 112, Taiwan
[5.] School of Medicine, College of Medicine, National Sun Yat-sen University, Kaohsiung 804, Taiwan
[6.] Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei 112, Taiwan;
[7.] Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei 114, Taiwan.

Background: Ovarian aging significantly impacts female fertility, with mitochondrial dysfunction emerging as a key factor. This study investigated the effects of recombinant follicle-stimulating hormone (FSH) and luteinizing hormone (LH) on mitochondrial function and metabolism in aging female reproductive cells, particularly granulosa cells.

Methods: Human granulosa cells (HGL5) were treated with FSH/LH or not. Mitochondrial function was assessed through various assays including mitochondrial mass, membrane potential, ROS levels, and ATP production. Mitochondrial dynamics and morphology were analyzed using MitoTracker staining. Cellular respiration was measured using a Seahorse Bioenergetics Analyzer. Metabolic reprogramming was evaluated through gene expression analysis and metabolite profiling. In vivo effects were studied using aging mouse oocytes.
Results: FSH/LH treatment significantly improved mitochondrial function in aging granulosa cells, increasing mitochondrial mass and membrane potential while reducing ROS levels. Mitochondrial dynamics showed a shift towards fusion and elongation. Cellular respiration, ATP production, and spare respiratory capacity were enhanced. FSH/LH induced favorable alterations in cellular metabolism, favoring oxidative phosphorylation. In aging mouse oocytes, FSH/LH treatment improved in vitro maturation and mitochondrial health.

Conclusions: FSH/LH supplementation ameliorates age-related mitochondrial dysfunction and improves cellular metabolism in aging female reproductive cells. These findings suggest potential clinical applications for enhancing oocyte quality and reproductive outcomes in aging women undergoing assisted reproductive technologies.

Hsin-Tze Hwang 黃信慈
(Y7)

The predictability of serum anti-Müllerian level for cumulative live birth rates in women aged over 40 years

Hsin-Tze Hwang[1], MD, Shan-Chi Chiu[1], MD, Ming-Huei Lin[1], MD, Guo-Guang Li[1], MD, Kuan-Sheng Lee[1], MD
[1]Department of Obstetrics and Gynecology, MacKay Memorial Hospital, Taipei, Taiwan

Objective: To investigate the impact of age and anti-Müllerian hormone (AMH) levels on in vitro fertilization (IVF) outcomes in women aged ≥40 years, focusing on cumulative live birth rates (CLBR) and clinical predictors of success.

Materials and Methods: This retrospective study included 459 women aged ≥40 years undergoing IVF treatment, stratified into three age groups: Group 1 (40– 41 years, n = 270), Group 2 (42– 43 years, n = 131), and Group 3 (≥44 years, n = 58). Key parameters analyzed included AMH levels, oocyte retrieval rates, clinical pregnancy rates, live birth rates, and CLBR per intention-to-treat (ITT). Statistical analyses identified predictive markers of IVF outcomes.

Results: AMH levels and oocyte retrieval rates significantly declined with age ($P < 0.001$). Clinical pregnancy rates per cycle start were 25.2% (Group 1), 17.3% (Group 2), and 7.0% (Group 3, $P = 0.001$). Live birth rates per embryo transfer also declined: 21.3% (Group 1), 10.2% (Group 2), and 1.8% (Group 3, $P < 0.001$). CLBR per ITT decreased significantly with age: 28.9% (Group 1), 11.0% (Group 2), and 1.8% (Group 3, $P < 0.001$). AMH demonstrated moderate predictive performance for CLBR (AUC = 0.646). No live births were observed in women aged ≥42 years with AMH ≤0.2 ng/mL. Regression analysis confirmed a strong correlation between AMH levels and CLBR. For women aged ≥42 years with AMH ≤0.3 ng/mL, CLBR after three IVF cycles was only 2.8%. Two predictive markers of poor outcomes were identified: (1) age 42– 43 years with AMH <0.925 ng/mL, and (2) AMH <0.27 ng/mL, which was associated with no live births.

Conclusion: Age and AMH levels are significant predictors of IVF outcomes in women aged ≥40 years. Particularly poor prognoses were noted in women aged ≥42 years with low AMH levels. These findings highlight the importance of individualized counseling and treatment strategies for this population.

Ming-Ju Wang **王敏如**
(Y8)

Clinical and sonographic risk factors for developing pre-eclampsia refractory to aspirin prophylaxis

*Chia-Chen Lee [a], Chie-Pein Chen [a], Chen-Yu Chen [a, b], Liang-Kai Wang [a], Ming-Ju Wang [a], Yi-Yung Chen [a, b, *]*
[a] Department of Obstetrics and Gynecology, MacKay Memorial Hospital, Taipei, Taiwan
[b] Department of Medicine, MacKay Medical College, New Taipei City, Taiwan

Objective: Identify risk factors for development of preeclampsia refractory to aspirin prophylaxis in women at high-risk of preeclampsia.

Materials and Methods: A retrospective cohort study analyzed 206 women identified as high-risk for preeclampsia through first-trimester screening and prescribed aspirin prophylaxis. We compared maternal characteristics, medical history, biochemical markers, and uterine artery Doppler indices between those with and without preeclampsia.

Result: Women with preeclampsia had significantly higher rates of chronic hypertension (54.3% vs. 8.2%), higher first-trimester mean arterial pressure (MAP, 109.6 vs. 95.4 mmHg), and higher body mass index (BMI 27.6 vs. 24.9) compared to controls. Second-trimester MAP and mean uterine artery pulsatility index (UtA-PI) were also significantly elevated in the preeclampsia group (103.3 mmHg and 1.39, respectively) compared to controls (89.7 mmHg and 1.05). ROC curve analysis identified an optimal second trimester UtA-PI cut-off 1.36 for predicting preeclampsia, with sensitivity of 49% and specificity of 87.1%. When using a cut-off value of 1.36 for predicting preeclampsia, with sensitivity of 49% and specificity of 87.1%. When using a cut-off value of 0.77 for the second-to-first trimester UtA-PI ratio, the sensitivity and specificity were 60% and 90.6%, respectively.

Conclusion: Chronic hypertension, high first and second trimester MAP, higher BMI and elevated second trimester UtA-PI or the ratio of second to first trimester UtA-PI may be a promising tool for identifying women who do not respond to aspirin.

Yu-Wei Chang **張祐維**
(Y9)

The benefit of routine 2nd trimester screening of anemia

Yu-Wei Chang
Department of Obstetrics & Gynecology, MacKay Memorial Hospital, Taipei, Taiwan

Objective: To investigate the impact of mid-trimester anemia screening on the improvement of anemia at delivery and its correlation with adverse fetal outcomes.

Methods: A retrospective review was conducted on 1,000 women with documented hemoglobin levels at their first prenatal visit at Taipei Mackay Memorial Hospital (2018– 2022). Anemia was defined as hemoglobin <11.0 g/dL in the first and third trimesters and <10.5 g/dL in the second trimester. Hemoglobin levels were measured at 8– 12 weeks, 24– 28 weeks, and at delivery.

Results: Anemia in the third trimester was significantly associated with low 5-minute Apgar scores (p=0.04), neonatal hospitalization, ICU admission, and mortality (p=0.03). Logistic regression revealed that during the second trimester, the "Hb ≤ 10 g/dL" group had a higher risk of low Apgar scores compared to the "Hb > 11 g/dL" group (p=0.04). After excluding preterm births, a significant association was found between anemia combined with vitamin D deficiency and neonatal hospitalization, ICU admission, or mortality (p=0.046).

Conclusion: A significant correlation exists between anemia in late pregnancy and adverse neonatal outcomes, particularly low Apgar scores (<5) and increased neonatal hospitalization.