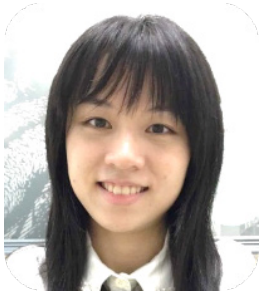
*Ching-Wen Chou* 周靜汶
*(Y31)*



## Specialized technique of aggressive sperm immobilization improves reproductive outcomes in patients with male infertility and ICSI fertilization failure

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**Objective:** Can aggressive sperm immobilization (SI) prior to intracytoplasmic sperm injection (ICSI) improve reproductive outcomes for infertile couples with a history of ICSI fertilization failure (FF)?

**Materials and Methods:** Twenty-three Infertile couples with male infertility who experienced FF during previous ICSI cycles and received subsequent ICSI cycles with aggressive SI were enrolled in our study. This study was conducted in National Taiwan tertiary university hospital between January 2016 and February 2022. Standard (N=31) and aggressive(N=34) SI were performed by compressing the distal tail of the spermatozoa at <5 and up to 15 cuts prior to ICSI respectively. Generalized estimating equations (GEE) for a repeated measurement analysis were applied to compare the clinical outcomes between standard and aggressive SI prior to ICSI. The primary outcome was the live birth rate (LBR). The secondary outcomes were fertilization rate (FR), number of transferred and good-quality embryos per transfer cycle, and clinical pregnancy rate, defined as the presence of a fetal heartbeat at the 7th gestational week. All outcomes were adjusted for age, SI method, time interval between oocyte triggering and ICSI, gravidity, parity, and the number of retrieved metaphase II oocytes.

**Result:** Overall, 23 couples contributed to 65 ICSI cycles, including 31 standard and 34 aggressive SI, which were applied to the GEE analysis. There were seven live births in the aggressive SI group and one live birth in the standard SI group, resulting in a significantly high number of live births in the former group (OR 23.45, 95%CI: 23.39– 23.52, P=0.0073). The average FR in the initial ICSI cycles with standard SI and subsequent ICSI cycles with aggressive SI was 23.6±23.1% and 49.5±31.8, separately. Aggressive SI prior to ICSI was associated with an increase of 27.4% in the FR (95% CI: 13.1– 41.8%, P=0.0002). The number of embryos transferred per transfer cycle was higher in the aggressive SI group (P=0.015), whereas the number of good-quality embryos was similar between the two groups.

**Conclusion:** Aggressive SI before ICSI was associated with a significantly higher fertilization rate (FR) and live birth rate (LBR) and can be a safe, economic, and effective method to improve the assisted reproductive technologies (ART) outcomes for infertile patients affected by previous ICSI-FF

*Yu Wang* 王瑀
*(Y32)*

## Impact of adenomyosis and endometriosis on IVF/ICSI pregnancy outcome in patients undergoing gonadotropin-releasing hormone agonist treatment and frozen embryo transfer

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**Objective:** To investigate whether adenomyosis and endometriosis afected IVF outcomes in our patients.

**Materials and Methods:** This was a retrospective study of 1720 patients from January 2016 to December 2019. In total, 1389 cycles were included: 229 cycles in the endometriosis group (group E), 89 cycles in the adenomyosis group (group A), 69 cycles in the endometriosis and adenomyosis group (group EA), and 1002 cycles in the control group (group C). Most patients in groups A and EA received GnRH agonist treatment before FET.

**Results:** The 1st FET live birth rates (LBR) were 39.3%, 32.1%, 25% and 48.1% in groups E, A, EA, and C. The miscarriage rates were 19.9%, 34.7%, 39%, and 17.6%. The per retrieval cycle cumulative live birth rates (cLBRs) in patients < 38 y/o were 56.4%, 58.1%, 44.8%, and 63%. The per retrieval cycle cLBRs in patients ≥ 38 y/o were 25%, 9.8%, 17.2%, and 29.5%. Among groups A and EA, LBRs were 25.58% and 18.89% in patients with a ≥ sevenfold decrease and a < sevenfold decrease in CA-125 level, respectively, after GnRH agonist treatment.

**Conclusion:** Endometriosis was not associated with a poorer pregnancy outcome. Patients with adenomyosis with/without endometriosis had higher miscarriage rates, lower LBRs, and lower cLBRs, especially in patients aged≥ 38 years, even after GnRH agonist treatment before FET cycles. Patients who have a greater than sevenfold decrease in CA-125 level after GnRH agonist treatment might have better clinical pregnancy outcomes.

*Po-Wen Lin* 林柏文
*(Y33)*

## Administration of oxytocin receptor antagonist during frozen embryo transfer might improve live birth rates in women with recurrent implantation failure, adenomyosis and myoma

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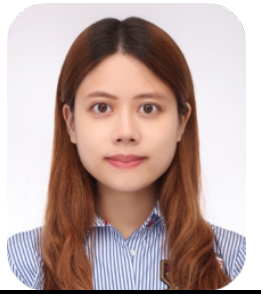
**Objective:** To investigate the effect of oxytocin receptor antagonist used during frozen embryo transfer on IVF outcomes and further analyze the effect of oxytocin receptor antagonist on subgroups.

**Materials and Methods:** This retrospective cohort study contained 431 patients who underwent first IVF frozen embryo transfer (FET) cycle in our reproductive center from Jan. 2021 to Dec. 2021. The study group included 162 patients receiving oxytocin receptor antagonist during embryo transfer. A total of 227 patients in the control group underwent embryo transfer without administrating oxytocin receptor antagonist. Baseline characteristics, infertility histories, ovarian reserve tests and IVF outcomes were compared between the two groups. Subgroup analyses were also performed.

**Result:** Baseline characteristics and FET cycle characteristics were similar between the two groups. In all population, no significant difference regarding live birth rates was observed between the study group and the control group. However, in the subgroups, compared to the control group, live birth rates in the study group were significantly higher (RIF, 43.9% versus 26.2%, $P = 0.016$; adenomyosis, 37.7% versus 22.1%, $P = 0.039$; myoma, 46.3% versus 20.4%, $P = 0.004$). The multivariate analysis revealed that use of oxytocin receptor antagonist was positively associated with live birth rates in women with RIF (adjusted OR 2.17, 95% CI 1.08– 4.35, $P = 0.030$), adenomyosis (adjusted OR 3.44, 95% CI 1.43– 8.28, $P = 0.006$) and myoma (adjusted OR 3.11, 95% CI 1.23– 7.85, $P = 0.016$).

**Conclusion:** Oxytocin receptor antagonist administration during frozen embryo transfer might improve live birth rate in women with recurrent implantation failure, adenomyosis and myoma.

*Meng-Hsuen Hsieh* 謝孟軒
*(Y34)*



## Changes in cervical elastography, cervical length and endocervical canal width after cerclage for cervical insufficiency: an observational ultrasound study

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**Background:** We previously demonstrated that pregnant women with a history of cervical insufficiency had a softer anterior cervical lip, shorter cervical length and wider endocervical canal in the first trimester. The aim of this study was to investigate changes in cervical elastography, cervical length, and endocervical canal width in the second trimester after cerclage, and further discuss whether these ultrasound parameters are predictive of preterm delivery.

**Methods:** This was a secondary analysis of cervical changes in singleton pregnancies after cerclage from January 2016 to June 2018. Cervical elastography, cervical length, and endocervical canal width were measured during the second trimester in the cervical insufficiency group and control group without cervical insufficiency. Strain elastography under transvaginal ultrasound was used to assess cervical stiffness and presented as percentage (strain rate).

**Results:** Among the 339 pregnant women enrolled, 24 had a history of cervical insufficiency and underwent cerclage. Both anterior and posterior cervical lips were significantly softer in the cervical insufficiency group even though they received cerclage (anterior strain rate: 0.18 ± 0.06% vs. 0.13 ± 0.04%; P = 0.001; posterior strain rate: 0.11 ± 0.03% vs. 0.09 ± 0.04%; P = 0.017). Cervical length was also shorter in the cervical insufficiency group (36.3 ± 3.6 mm vs. 38.3 ± 4.6 mm; P = 0.047). However, there was no significant difference in endocervical canal width between the two groups (5.4 ± 0.7 mm vs. 5.6 ± 0.7 mm; P = 0.159). Multivariate logistic regression analysis also revealed significant differences in anterior cervical lip strain rate (adjusted odds ratio [OR], 7.32, 95% confidence interval [CI], 1.70-31.41; P = 0.007), posterior cervical lip strain rate (adjusted OR, 5.22, 95% CI, 1.42-19.18; P = 0.013), and cervical length (adjusted OR, 3.17, 95% CI,1.08-9.29; P = 0.035). Among the four ultrasound parameters, softer anterior cervical lip (P = 0.024) and shorter cervical length (P < 0.001) were significantly related to preterm delivery.

**Conclusions:** Cervical cerclage can prevent widening of the endocervical canal, but not improve cervical elasticity or cervical length. Measuring anterior cervical elastography and cervical length may be valuable to predict preterm delivery.

*Ning-Shiuan Ting* 停寧萱
*(Y35)*

## The timing of Prostin E2 intervention in poor response of Propess use in induction of labor

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**Introduction:** In our hospital, there are two medications for Induction of labor (IOL) available: The Propess (dinoprostone vaginal pessary) and Prostin E2 tablets. According to the previous study, the Propess had the advantage of a shorter induction to delivery interval compared to the Prostin E2. However, there are still have group of patients that had poor response after Propess use and needed further Prostin E2 to boost the dinoprostone level to achieve cervical change and vaginal delivery finally. The objective of this study was to compare efficacy of the different timing of Prostin E2 intervention after Propess use.

**Method:** This single-institution retrospective cohort study was conducted from January 2020 to August 2023. Inclusion criteria were nulliparous, singleton, >37 weeks' gestation, cephalic presentation with an unfavorable cervix (Bishop score ≤ 6) after Propess use for 8 hours.

Then we divided it into three groups according to the timing of adding Prostin E2 at the 8th (group 1), 12th (group 2), and 24th (group 3) hours, respectively. The primary outcome is the rate of cesarean section and the secondary outcome is the induction-to-birth interval.

**Result:** In total, 123 women were recruited. Each group had similar patient characteristics, but the gestation age was significantly higher in the group 3. The C/S rate was not significantly different between the three groups, but group 1 achieved a shorter induction-to-birth interval (26.87±9.27 hrs, $p < .0001$) .

**Conclusion:** Adding Prostin E2 for the patient that had poor response after Propess use was a safe alternative and adding at 8th hours after Propess use could have shorter induction-to-birth interval.

*Yu-Hsuan Lin* 林瑜萱
*(Y36)*

## Safety Assessment and Side Effects of HIFU with Sonovue in Myoma Patients: A Prospective Randomized Trial

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**Objective:** To assess the safety profile and potential side effects after HIFU with the use of Sonovue.

**Materials and Methods:** A total of 30 patients with myomas who underwent high-intensity focused ultrasound (HIFU) were evaluated from September 2021 to February 2022, at Chung Shan Medical University Hospital. The patient was randomized into two groups, one receiving Sonovue during HIFU (N = 20) and the other undergoing HIFU without the use of Sonovue (N = 10, respectively. We evaluated the adverse event related to the HIFU procedure during the operation, two hours after the operation, and two weeks after the operation using the patient' s questionnaire.

**Result:** The incidence rates of pain in the treated region, sciatic or buttock pain, leg numbness or pain, and skin discomfort showed no significant differences between the two groups during the HIFU procedure, two hours and two weeks after the HIFU procedure(P> 0.05). However, the incidence rates of vaginal bloody discharge were significantly higher in the control group when analyzing postoperative adverse events 2 hours after the HIFU procedure (P=0.045).

**Conclusion:** There's no significant increase in the incidence rates of side effects between the Sonovue group and the control group. We suggest Sonovue as a safe ultrasound contrast agent for HIFU ablation.

*Chia-Han Chung* 鍾佳翰
*(Y37)*

## Comparison of Clinical Outcomes of Switching from Monopolar to Bipolar Hysteroscopic Myomectomy

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**Objective:** To compare clinical outcome of women who underwent monopolar versus bipolar hysteroscopic myomectomy.

**Materials and Methods**: All women received monopolar (n=45) or bipolar (n=137) hysteroscopic myomectomy between January 2009 and July 2021 were reviewed.

**Result**: The infused fluid volume was significantly larger in the bipolar group, compared with monopolar (4310±3761 mL versus 2317±2024 mL), despite of no between-group differences in blood loss, operative time and complication rate. Myoma diameter (coefficient=680 mL, 95% confidence interval (CI)=334-1025 mL, p<0.001) and the use of bipolar hysteroscopy (coefficient=1629 mL, 95% CI=507-2752 mL, p=0.005) were the independent predictors for infused fluid volume. The predicted infused fluid volume (y) for a given myoma diameter (a) and the use of a bipolar reseptoscope can be denoted by y = 680 x a + 1629 x b + 262. Myoma diameter ≥4.0 cm was the optimal cutoff value to predict the presence of >5000 mL of infused volume, with a receiver operating characteristic curve area of 0.60 (95% CI=0.49 to 0.72).

**Conclusion**: The infused fluid volume might increase when switching from monopolar to bipolar hysteroscopic myomectomy. Meticulous monitoring of infused fluid volume and fluid deficit is imperative to avoid fluid overload, especially for ≥4 cm submucous myoma in the era of bipolar hysteroscopic myomectomy.

*Chi-Han Chang* 張季涵
*(Y38)*

## Comparing Clinical Outcomes of Laparoscopic Myomectomy with and without Uterine Elevator: A Retrospective Analysis

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**Aims and objectives**: This study aimed to compare the clinical outcomes of laparoscopic myomectomy (LM) performed with or without the use of a uterine elevator.

**Background**: Uterine leiomyomas are prevalent among reproductive-age women and can necessitate surgical intervention when medical treatments prove ineffective. Myomectomy, while effective, can lead to obstetric complications, particularly in cases of uterine cavity breach during surgery. Preserving endometrial cavity integrity is crucial, especially for fertility preservation during LM.

**Materials, setting and method**s: Retrospective analysis of data from women undergoing laparoscopic myomectomy at our hospital between January 2020 and June 2023 was conducted. Demographic data were collected, and primary outcomes assessed included conversion rate, abdominal port count, operative time, hospitalization duration, and blood loss. Secondary outcomes encompassed adverse events such as endometrial cavity breach, postoperative anemia, and leiomyoma recurrence. Statistical analysis employed SPSS software, with significance set at $p<0.05$.

**Results**: Among 36 patients, 18 and 18 were included in the groups of LM without and with a manipulator, respectively. The LM without manipulator group exhibited larger myomas (7.38±2.16 cm vs. 5.73±3.08 cm, p=0.0069). No other significant baseline differences were observed. Primary outcomes revealed no substantial intergroup differences. While a trend towards lower leiomyoma recurrence (11% vs. 33%, p=0.2293) and endometrial cavity breach (5.56% vs. 33.3%, p=0.0877) was observed in the LM without manipulator group, statistical significance was not reached.

**Conclusion**: The clinical outcomes of laparoscopic myomectomy performed without a uterine elevator were comparable to those with a manipulator. The absence of a manipulator may potentially aid in preserving endometrial cavity integrity and reducing leiomyoma recurrence. Further investigation through larger cohort studies is warranted to elucidate the true impact of uterine elevator usage on endometrial cavity integrity and leiomyoma recurrence.

*Ai-Lun Lee* 李艾倫
*(Y39)*

## Antimüllerian hormone is highly expressed in the eutopic and ectopic endometrium of patients with endometrioma

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**Objective:** To assess and semiquantify AMH level in endometrium, ectopic endometrial tissue in ovary and deep infiltrating endometrial tissue of peritoneum of patients with endometrioma.

**Materials and Methods**: Retrospective laboratory analysis was conducted on surgical specimens obtained from conservative laparoscopic procedures performed on endometrioma patients aged < 42 years between July 2009 and December 2013. The data is presented as mean ± standard deviation (SD).

Paired endometrial tissue biopsies obtained during the same surgical procedure, encompassing samples from the eutopic endometrium, ovarian endometriosis, and pelvic endometriosis, during both the proliferative and secretory phases, were employed for analysis. mRNA expression was quantified through PCR and normalized to GAPDH. Formalin-fixed and paraffin-embedded sections underwent IHC using a primary polyclonal rabbit anti-human AMH antibody (Proteintech). Staining intensity was evaluated using H-SCORE, ranging from 0 to 300.

**Result**: The analysis encompassed 12 patients in the proliferative phase (age: 34.3±4.3 years) and 12 patients in the secretory phase (age: 33.2±5.6 years). Both PCR and IHC staining demonstrated the expression of AMH in both the eutopic endometrium and ectopic endometrial tissue.

In general, the expression of AMH is higher in the secretory phase compared to the proliferative phase in both the eutopic endometrium ($p = 0.001$) and pelvic endometriotic lesions ($p < 0.05$). During the proliferative phase, the immunointensity of AMH in the ectopic endometrium is comparable to that in the eutopic endometrium.

During the proliferative phase, the stromal cells exhibit higher expression compared to the glandular cells. Conversely, in the secretory phase, the glandular cells demonstrate a stronger AMH immunointensity, reaching a level similar to that of the stromal cells. Additionally, the eutopic endometrium displays a higher AMH immunointensity than the ectopic endometrium ($p < 0.01$).

**Conclusion**: Our study revealed that granulosa cells are not the sole source of AMH secretion; both the eutopic and ectopic endometrium express AMH. Furthermore, AMH expression in the endometrium is influenced by the menstrual cycle, with higher expression observed in the secretory phase. In conclusion, AMH may not be a suitable marker for representing ovarian reserve in patients undergoing surgery for endometrioma.

*Chia-Han Chung* 鍾佳翰
*(Y40)*

## Figure out the risk factors of Postpartum Depression (PPD)

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**Materials and Methods**: Between Jan. 2019 to Dec. 2022, we followed up the Postpartum Depression with Edinburgh Postnatal Depression Scale with 5062 maternal were included. Excluding the incomplete data of baby and maternal (23 and 524), twin pregnancy with repeated data (182), and without filling out or returning the scale (1407), we have the data of 2926 Production times with EPDS scale. We analyze the different basic characteristics and the possible risk factors of PPD including marriage or not, education status, delivery age, prenatal complications, preterm delivery, postpartum complications, Cesarean Section, primiparous pregnancy, poor outcomes of baby, and breastfeeding. We calculated the score above a threshold 13 were likely to be suffering from a depressive illness of varying severity. Also, question No. 10 with at least 1 point was considered as high risk of PPD.

**Result**: The significant positive risk factors of PPD are married or not and primiparous pregnancy. In our study, the percentage of unmarried with EPDS > 12 points is 6.25% compared to those EPDS < 13 points 2.05% (p=0.02). The percentage of primiparous pregnancy with EPDS > 12 points the p value is 0.002. Interestingly, the low birth weight, preterm labor, Pregnancy Induced Hypertension and breast feeding all showed no significant difference.

**Conclusion:** The analysis of EPDS showed the primiparous pregnancy and unmarried maternal are the risk factors of PPD. The reason for these situations are risk factors of PPD needs more clinical follow up. Not only for the clinical follow up, but we are also able to collect more data to analyze the risk factor in different complicated situations during prenatal, perinatal and postpartum period.