稿件編號：OO1

臨時稿件編號：
0402

分析妊娠中期羊膜穿刺術之產前診斷染色體倒位的頻率和臨床意義

Frequency and clinical significance of chromosomal inversions prenatally diagnosed by second trimester amniocentesis

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論文發表方式：
口頭報告

論文歸類：
產科

OBJECTIVE: To compare the frequency and clinical significance of familial and de novo chromosomal inversions during prenatal diagnosis.
MATERIALS AND METHODS: This was a retrospective study of inversions diagnosed prenatally in an Asian population by applying conventional GTG-banding to amniocyte cultures. Data from 2005–2019 were extracted from a single-center laboratory database. The types, frequencies, and inheritance patterns of multiple inversions were analyzed. Pericentric variant inversions of chromosome 9 or Y were excluded.
RESULTS: In total, 56 (0.27%) fetuses with inversions were identified in the 15-year database of 21,120 confirmative diagnostic procedures. Pericentric and paracentric inversions accounted for 62.5% (35/56) and 37.5% of the inversions, respectively. Familial inversions accounted for nearly 90% of cases, and de novo mutation was identified in two pericentric and two paracentric cases. Inversions were most frequently identified on chromosomes 1 and 2 (16.1% of all inversions), followed by chromosomes 6, 7, and 10 (8.9% of all cases). The indications for invasive testing were as follows: advanced maternal age (67.3%), abnormal ultrasound findings (2.1%), abnormal serum aneuploidy screening (20.4%), and other indications (10.2%). The mode of inheritance was available for 67.9% of cases (38/56), with 89.5% of inversions being inherited (34/38). A slight preponderance of inheritance in female fetuses was observed. Three patients with inherited inversions opted for termination (two had severe central nervous system lesions and one had a thalassemia major). Gestation continued for 53 fetuses, who exhibited no structural defects at birth or significant developmental problems a year after birth.
CONCLUSION: Our study indicates that approximately 90% of prenatally diagnosed inversions have familial inheritance for both common and uncommon inversions. This finding can help to alleviate anxiety during prenatal counseling. Parental chromosomal analysis, further genetic studies, and appropriate counseling are crucial in cases where a nonfamilial inversion is diagnosed.

Keywords: chromosomal inversion, prenatal diagnosis, amniocentesis, cytogenetics

稿件編號：OO2

臨時稿件編號：
0406

異常羊水晶片下，不同遺傳模式對懷孕預後的影響

The pattern of mutation matters in pregnancy outcomes with abnormal single-nucleotide polymorphism arrays

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論文發表方式：
口頭報告

論文歸類：
產科

Background:
Single-nucleotide polymorphism (SNP) array is a high resolution technique which provides detailed results to detect major fetal defect prenatally. Variants with uncertain pathogenicity make prenatal genetic counseling challenging. We aim to find the association between the pattern of mutation and fetal outcome in different types of copy number variants (CNVs).

Materials and methods:
We analyzed 1,560 cases who received prenatal SNP array analysis in National Taiwan University Hospital from 2015 to 2020. The parental blood samples of positive array cases were checked to identify if the CNVs were inherited or not.

Results:
80 cases out of 1,560 were diagnosed with aneuploidy and CNVs. 17.4% of the fetuses with trisomy diagnosed prenatally were delivered . All of them had sex chromosome abnormalities. The patterns of mutation and the delivery rate were significantly correlated in the microdeletion group (p=0.02), while there was no association in the microduplication group (p = 0.137). Dosage variant of 22q11.21 was most commonly detected and accounted for 15% of all abnormal cases. No correlation was identified between birth weight, gestational age and the size of CNVs in the four common CNV (15q11.2 microdeletion, 16p13.11 microduplication, 22q11.21 microdeletion and 22q11.21 microduplication) groups. The maternal age was not different between the micoduplication/microdeletion group and normal group.

Conclusion:
The pattern of mutation may affect the fate of the fetuses with abnormal SNP array results. The parents tend to continue their pregnancy when the CNVs were inherited.

稿件編號：OO3

臨時稿件編號：
0489

不同孕期體重增加和妊娠糖尿病的關聯性

The association between weight gain at different stages of pregnancy and risk of gestational diabetes mellitus

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論文發表方式：
口頭報告

論文歸類：
產科

Aims/Introduction: Women with excessive gestational weight gain (GWG) are at a higher risk for complications during pregnancy, such as preeclampsia. However, the association between excessive GWG and gestational diabetes mellitus (GDM) remains unclear.
Materials and Methods: We retrospectively reviewed 8,352 women from our obstetric database with singleton pregnancies who gave birth after 28 completed weeks of gestation between January 1, 2012, and December 31, 2016, excluding pregnancies complicated by fetal anomalies, fetal death, and overt diabetes. Diagnosis of GDM was based on
the criteria recommended by the International Association of Diabetes and Pregnancy Study Groups. We used two classification methods to define excessive GWG: a weight gain above the 90th percentile of the population, or exceeding the upper range recommended by the Institute of Medicine, stratified by pre-pregnancy body mass index. Statistical analysis was performed using multiple logistic regression to determine the association between excessive GWG and the risk of GDM.
Results: Overall, 1,129 women (13.5%) were diagnosed with GDM. There was no difference in GWG between women with and without GDM in the first trimester and before GDM screening. Women with GDM had significantly less GWG in the second trimester, after GDM screening, and throughout the whole gestation than women without GDM. No correlation was found between excessive GWG in the first and second trimesters, before GDM screening, and the later development of GDM.
Conclusions: Our results indicate that excessive GWG prior to GDM screening is not associated with an increased risk of GDM.

稿件編號：OO4

臨時稿件編號：
0424

非侵入性產前檢測狄喬治氏症候群的台灣經驗
Noninvasive Prenatal Testing for DiGeorge Syndrome in Taiwan

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論文發表方式：
口頭報告

論文歸類：
產科

Objective: DiGeorge syndrome (DGS) is associated with microdeletions of chromosome 22q11. It is the second most common cause of congenital heart disease and is an important consideration whenever a conotruncal cardiac anomaly is identified. The availability of noninvasive prenatal testing (NIPT) is altering the practice of prenatal genetics and maternal-fetal medicine, resulting in a decline in invasive testing. Antenatal ultrasound and other biomarkers have their own limitation. NIPT was proposed to screen DGS with cell-free DNA in Taiwan. Here, we present our experience of prenatal diagnosis of DGS in our center.

Methods: This was a retrospective study between November 1, 2019, and August 31, 2020, in Taiwan. Data were collected from 7,826 pregnant women self-referred for DGS screening with massive parallel shotgun sequencing-based NIPT. High-risk cases subsequently received amniocentesis for array comparative genomic hybridization (aCGH) to confirm the diagnosis. Characteristics of pregnancies were documented when participants received the test. Report of NIPT was completed 2 weeks after the test. Follow-up on high-risk cases was completed by telephone interview on January 30, 2021.

Results: Thirteen cases showed high risk by NIPT, and 7 cases were confirmed by aCGH. The sensitivity and specificity were 100% (95% confidence interval [CI] 64.57-100.00%) and 99.92% (95% CI 99.83-99.96%). The prevalence of DGS was 1 in 1,118 pregnancies. The positive predictive rate was 53.85% (95% CI 29.14-76.79%). One true positive (TP) showed US anomaly, and 5 TPs selected termination.

Discussion/conclusion: NIPT demonstrated good performance in DGS screening. Detection of 22q11.2 deletion could be combined with routine screening to facilitate proper intervention.

稿件編號：OO5

臨時稿件編號：
0574

一個家庭出現多重基因變化的產前基因諮詢困擾

Difficulties of Prenatal Genetic Counseling for a Subsequent Child in a Family With Multiple Genetic Variations

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論文發表方式：
口頭報告

論文歸類：
產科

Many parents with a disabled child caused by a genetic condition appreciate the option of prenatal genetic diagnosis to understand the chance of recurrence in a future pregnancy. Genome-wide tests, such as chromosomal microarray analysis and whole-exome sequencing, have been increasingly used for prenatal diagnosis, but prenatal counseling can be challenging due to the complexity of genomic data. This situation is further complicated by incidental findings of additional genetic variations in subsequent pregnancies. Here, we report the prenatal identification of a baby with a MECP2 missense variant and 15q11.2 microduplication in a family that has had a child with developmental and epileptic encephalopathy caused by a de novo KCNQ2 variant. An extended segregation analysis including extended relatives, in addition to the parents, was carried out to provide further information for genetic counseling. This case illustrates the challenges of prenatal counseling and highlights the need to understand the clinical and ethical implications of genome-wide tests.

稿件編號：OO6

臨時稿件編號：
0436

產前多學科專家會議諮詢對於唇顎裂診斷及治療計畫之影響

Multidisciplinary team approach to the prenatal management of orofacial clefts: a single center cohort study in Taiwan

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論文發表方式：
口頭報告

論文歸類：
產科

We present a retrospective cohort of patients prenatally diagnosed with orofacial clefts who were offered consultation by an expert multidisciplinary team, including: a fetal medicine specialist, an obstetrician, a plastic surgeon, and a case managing nurse. We analyzed factors influencing parents' decision to utilize a consultation service, as well as their decision about pregnancy continuation. Our results suggest that the presence of other anomalies and maternal age heavily influenced the decision about the uptake of consultations. If consulted by the team, parents tended to continue with the pregnancy, even when accounting for fetal gender and maternal age. On the other hand, having a consultation had varying effects depending on the cleft type. The findings suggest that multidisciplinary consultations may be an efficient approach in managing pregnancies complicated by orofacial cleft anomalies; which may help in preventing unnecessary pregnancy terminations and developing a sufficient postnatal care plan.

稿件編號：OO7

臨時稿件編號：
0497

胎兒心律不整案例系列報告-單一中心近四年之臨床經驗
Case series of fetal arrhythmia-A single-center experience in recent 4 years.

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論文發表方式：
口頭報告

論文歸類：
產科

Case series of fetal arrhythmia-A single-center experience in recent 4 years.

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Introduction
Fetal arrhythmias are common during pregnancy and mostly transient. In rare instances, arrhythmias are associated with structural defects or can cause heart failure, hydrops fetalis, and as a result, intrauterine demise. Most existing literature focused on classifications of fetal arrhythmias in referral centers, but not in general obstetric screening. The main objective of this report was to analyze types, clinical characteristics, and outcomes for arrhythmia cases in general practice.

Methods
By retrospective review, we present a case series of fetal arrhythmias from obstetric screening in a fetal medicine clinic from Sep. 2017 to Aug. 2021. Types of arrhythmia, clinical characteristics, and outcomes are analyzed.

Results
A total of 66 cases were included in this case series. Gestational age at diagnosis ranged from 18 to 36 weeks. Proportions of different types of fetal arrhythmias are as follows: ectopy (86%, n=57), bradyarrhythmia (11%, n=7), and tachyarrhythmia (3%, n=2). None of them was associated with a cardiac structural anomaly, except one tachyarrhythmia case associated with Ebstein's anomaly. Most mothers (80%) with atrioventricular block fetuses were seropositive for anti-Ro (SSA) antibodies. Outcomes of ectopy cases were excellent, while fetal bradyarrhythmia cases had guarded outcomes. Two cases of second-degree AV block received transplacental fluorinated steroid therapy with recovery of fetal cardiac rhythm in later gestation. One case of complete AV block developed hydrops fetalis.

Conclusion
Detection and careful stratification of fetal arrhythmias in obstetric screening are crucial. While most arrhythmias are benign and self-limited, some require a prompt referral and timely intervention.

稿件編號：OO8 臨時稿件編號：0364	嚴重雙胞胎輸血症候群伴隨右心室出口阻塞在接受者中經由胎兒內視鏡雷射手術後的預後及預測因子 Incidence, Prognosis and Predictors of Severe Twin-Twin Transfusion Syndrome with Right Ventricular Outflow Tract Obstruction in Recipient Twins post Fetoscopic Laser Therapy 詹耀龍[1] 朱庭儀[1] 林口長庚[1]
論文發表方式：口頭報告 論文歸類：產科	Background: Fetoscopic laser therapy (FLT) is recognized as the first-line therapy for severe twin-to-twin transfusion syndrome (TTTS) which was defined as diagnosed before 26 weeks of gestation. Right ventricular outflow tract obstruction (RVOTO) is the most frequently encountered congenital heart disease in TTTS patients, especially in recipient twins. This retrospective study is designed to evaluate the incidence, prognosis, predictors and postnatal management of RVOTO of the recipient twins in severe TTTS who received FLT in a single center of Taiwan. Methods: TTTS patients post FLT between October 2007 and March 2021 were included. RVOTO was diagnosed by fetal or postnatal echocardiography. Fetal outcomes were evaluated by the perinatal survival, neonatal brain image anomaly, gestational age at delivery and birth weight. Results: 187 severe TTTS were included in the study, fourteen (7.49%) had recipient twins RVOTO with twelve cases of pulmonary stenosis and two affected with pulmonary atresia. Three (21.4%) of the fourteen cases with recipient RVOTO showed improvement of outflow obstruction after FLT, and eleven (78.6%) of the fourteen cases with recipient RVOTO resulted in perinatal survival. Five (45.5%) of the eleven surviving recipients with RVOTO received trans-catheter balloon valvularplasty to relieve the obstruction. The perinatal survival rate, gestational age at delivery, neonatal brain image anomaly rate and birth weights were not significantly different between severe TTTS with and without recipient RVOTO treated by FLT. Severe TTTS with recipient RVOTO received FLT at an earlier gestational age (19.3± 2.4 vs 20.7±2.6, respectively, p=0.048) and recorded a higher percentage of presenting as Quintero stage IV (50.0% vs 12.1%, respectively, p<0.001) than their counterpart without recipient RVOTO. A combination of early gestational age (p = 0.046, odds ratio = 0.779) of FLP and manifestation of Quintero stage IV (odds ratio = 7.206, p = 0.001) could predict the occurrence of recipient twin RVOTO in severe TTTS. Conclusions: The neonatal outcomes between TTTS with and without recipient RVOTO are comparable in this series of severe TTTS undergoing FLT, which may be due to similar gestational age of delivery and severity with high Quintero stage (defined as stage III and IV).

稿件編號：OO9

臨時稿件編號：
0446

在胎兒心臟超音波發現異常右肺動脈走向:作為診斷主動脈肺動脈窗合併右肺動脈異常起源於升主動脈的線索。

Abnormal course of the right pulmonary artery found in RVOT view is a hint to the prenatal diagnosis of aorto-pulmonary window with anomalous origin of the right pulmonary artery from the ascending aorta.

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論文發表方式：
口頭報告

論文歸類：
產科

Aorto-pulmonary window (APW) is a rare congenital heart disease in which an abnormal connection between the great arteries, aorta and pulmonary artery, formed before birth. This connection would cause abnormal communication between the systemic and pulmonary circulation. Blood from the aorta flows into the pulmonary artery after birth and would cause pulmonary hypertension. The neonates with this disease may develop heart failure shortly after birth and require a corrective heart surgery within a couple of days after birth. Prenatal diagnosis is crucial to early intervention of this disease and better outcomes.

Mostly a APW can be detected in a 3-vessel while taking screening prenatal echocardiography. But small defects between the aorta and pulmonary maybe missed. Here we present a case, in which we initially detected unclear origin and unusual, interrupted course of the right pulmonary artery. Then we thoroughly looked into each view and the connection between each segment and used color doppler to better imaging of the vessels. Finally the course of the right artery could be defined and the final diagnosis was made: aorto-pulmonary window with anomalous origin of the right pulmonary artery from the ascending aorta.

稿件編號：OO10

臨時稿件編號：
0599

Junctional adhesion molecule 3 表現降低引起胎盤滋養細胞過氧分子產生和細胞凋亡

Decreased junctional adhesion molecule 3 expression induces reactive oxygen species production and apoptosis in trophoblasts

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論文發表方式：
口頭報告

論文歸類：
產科

Background: The molecular mechanisms underlying the role of junctional adhesion molecule 3 (JAM3) in placental dysfunction remain unclear. We hypothesized that JAM3 expression is involved in trophoblast fusion, differentiation, proliferation, and apoptosis.
Methods: Placental tissues from first-trimester and term were examined by immunofluorescence. BeWo and JAR trophoblasts were used as an in vitro model for JAM3 expression, cell cycle alterations and apoptosis evaluated by Western blot and flow cytometry.
Results: JAM3 was expressed in the cytotrophoblasts and syncytiotrophoblasts of first-trimester and term placental villi. JAM3 expression in cell-cell junctions decreased with the formation of syncytiotrophoblasts. Forskolin and JAM3 knockdown significantly reduced JAM3 expression and increased syncytium formation. JAM3 knockdown additionally inhibited trophoblast proliferation and increased the number of trophoblasts in the sub-G1 and G2/M phases, indicating cell cycle disturbance and apoptosis. Cell cycle arrest was associated with the engagement of Checkpoint kinase 2–cell division cycle 25C–Cyclin-dependent kinase 1/Cyclin B1 signaling. Increased expression of BIM, NOXA, XAF1, cytochrome c, and cleaved caspase-3 further indicated trophoblast apoptosis. Overexpression of JAM3 or recombinant JAM3 protein enhanced trophoblast adhesion and migration, which were inhibited by JAM3 knockdown. JAM3 knockdown induced reactive oxygen species production in trophoblasts. Furthermore, H_2O_2-induced oxidative stress reduced JAM3 expression in BeWo and JAR cells and cell culture supernatants. H_2O_2 simultaneously induced trophoblast apoptosis.
Conclusions: JAM3 may not only be a structural component of trophoblast cell junctions but also regulate trophoblast fusion, differentiation, proliferation, apoptosis, and motility. Dysregulated trophoblast JAM3 expression may be involved in preeclampsia development.

稿件編號：OO11

臨時稿件編號：
0400

胎兒先天性靜脈異常: 系統性產前超音波診斷與臨床意義

Congenital Malformations of the Fetal Central Veins and Umbilico-Portal System: a Stepwise Systematic Ultrasound Approach and Clinical Implications

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論文發表方式：
口頭報告

論文歸類：
產科

Objectives:
Anomalies of the human fetal venous system occur sporadically, possibly associated with cardiac or other malformations. Four major types, cardinal (CV), umbilical (UV), vitelline (VV), and pulmonary (PV), are classified for central and umbilico-portal venous anomalies. We present our experience in the prenatal diagnosis of fetal venous disorders by using 2D/3D/4D ultrasound modalities and evaluate associated anomalies and outcomes.
Methods:
We conducted a retrospective review for identifying congenital malformations of the fetal central veins and umbilico-portal system at Taichung Veterans General Hospital and Your Clinic in Taichung from November, 2015 to May, 2021. We used a sonographic algorithm via a stepwise and systematic 2D and 3D/4D spatiotemporal image correlation (STIC) approach incorporating with HD color Doppler for the fetal central and umbilical-portal veins. Six planes were sequentially scanned, including abdominal, coronary sinus, 4-chamber, 3-vessel-tracheal, left brachiocephalic and bicaval views. 2D HD color Doppler imaging was routinely applied. 3D/4D STIC was performed as necessary, when anomalous cases were encountered. Clinical demographics, prenatal features, postnatal characteristics and the outcomes of fetuses with venous disorders were recorded and statistically analyzed.
Results:
6,841 singleton and 414 twin fetuses were consecutively recruited. There were 104 fetuses with either abnormal connections between the central veins and the heart, or abnormalities of the umbilico-portal system (104/7,255; 1.43%), including 51 abnormal connections of CV (48 PLSVCs and 3 others) (0.70%), 46 abnormalities of the UV/VV (39 PRUVs and 6 others) (0.63%) and 7 abnormal PV connections (0.10%). Of 51 fetuses in the CV group, there were 43 singleton (43/6,841; 0.63%) and 8 twin (8/414; 1.93%) fetuses ($p = 0.008$). However, there was no statistical significance in both UV/VV and PV groups ($p > 0.05$).
The maternofetal characteristics of the 104 fetuses in 3 groups (CV, UV/VV and PV) were analyzed. Median maternal ages were 34, 32 and 34 years, respectively ($p = 0.035$). Prenatal ultrasound findings significantly demonstrated isolated findings (88.2% vs. 93.5% vs. 57.1%, $p = 0.020$), associated cardiac anomalies (43.1% vs. 8.7% vs. 57.1%, $p < 0.001$), associated extracardiac anomalies (11.8% vs. 21.7% vs. 28.6%, $p = 0.309$) and associated multiple anomalies (11.8% vs. 0.0% vs. 28.6%, $p = 0.009$). Median birthweight (2152.5 vs. 2660 vs. 1247.5 g) and gestational age at delivery (37 vs. 39 vs. 26 weeks) were also statistically significant ($p = 0.011$ and 0.009, respectively). Survival outcome showed 64.1%, 87.5% and 28.6%, respectively ($p = 0.008$). However, there was no significance related to gravidity, parity, gestational age at diagnosis, assisted reproduction, associated chromosomal or genetic disorders, twin pregnancy, SGA/FGR, delivery mode and gender ($p > 0.05$).
Conclusions:
Fetal venous disorders can be accurately diagnosed prenatally. Stepwise and systemtic 2D and 3D/4D STIC ultrasound approaches for various venous anomalies are useful and complementary. A diagnosis of fetal venous disorder should be followed by a thorough fetal morphology scan in order to exclude any other malformations. The prognosis depends on the presence of associated anomalies. In isolated cases, the prognosis is generally better.

台灣婦產科醫學會 111 年度年會暨學術研討會

論文摘要

稿件編號：OO12

臨時稿件編號：
0495

嚴重產後大出血轉診個案之處置及預後:醫學中心經驗之分享(三軍總醫院)

The experiences of management on Inter-hospital transfer of severe postpartum hemorrhage patients in a Tertiary care Hospital (TSGH)

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論文發表方式：
口頭報告

論文歸類：
產科

Introduction:
Postpartum hemorrhage is defined as a blood loss of 500ml or more within 24 hours after birth. It is one of the leading causes of maternal mortality in Taiwan and the primary cause of nearly one-quarter of all maternal deaths globally. It occurs in up to 18% of total births. We aim to share the experiences of management of severe PPH in a tertiary care hospital.
Method:
A case series(total 7 cases) study was conducted in tri-service general hospital from July 2019 to October 2021.
Results:
Severe postpartum hemorrhage sometimes needs inter-hospital transfer for arterial embolization or admission in the intensive care unit. Validation of this transfer needs a multidisciplinary decision, including obstetricians, anesthesiologist-intensivists of primary and tertiary center, inter-hospital communications, and prehospital medical team. Hereby, we presented cases of uterine atony, uterine rupture, deep birth tract laceration, and other unusual etiology of PPH. On certain conditions of severe PPH patients, patients should be transferred to a multidisciplinary center (surgery, anesthesiology and ICU, interventional radiologist, blood bank).
Conclusion:
Inter-hospital transfer for severe postpartum hemorrhage is important under certain conditions and a multidiscipline medical center with adequate equipment (hybrid-OR, ICU, blood bank, 24/7 anesthesiologist and experienced obstetrician) is key for the prognosis on severe PPH patients.

稿件編號：OO13 臨時稿件編號： 0581	新冠肺炎疫苗於孕婦施打後症狀與預後分享--單一醫學中心經驗分享 COVID-19 vaccine in pregnancy woman-- One medical center experience 陳妍樺 [1] 何銘 [1] 中國醫藥大學附設醫院婦產部 [1]
論文發表方式： 口頭報告 論文歸類： 產科	Pregnant women are at increased risk for morbidity owing to infection with the COVID-19 virus. Vaccination presents an important strategy to mitigate illness in this population. However, there were no evidence of safety regarding vaccination in pregnant woman due to lack of major trial. Our objective was to describe the maternal, neonatal, and obstetrical outcomes of women who received a full dose of COVID-19 vaccination. To date, most women in this series have had uncomplicated pregnancies and have delivered at-term. By performing manual chart reviews, we obtained detailed and reliable information about individual patients. Symptoms were recorded by history taking upon admission. Limitation included self-enrollment and self-report bias. In addition, our cohort is small and may not be generalizable.

稿件編號：OO14

臨時稿件編號：
0435

足月分娩時的兩種胎盤輸血方式與胎盤血液餘量之相關性

The Association Between Placental Residual Blood Volume and Two Placental Transfusion Methods After Delivery at Term

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論文發表方式：
口頭報告

論文歸類：
產科

Background: Despite reports of the beneficial effects, such as increasing hemoglobin level and iron store in the neonatal period, of delayed cord clamping, or umbilical cord milking after delivery in healthy term-born infants, the duration of delayed clamping or rounds of milking in most previous reports were determined arbitrarily and varied widely across different studies.

Methods: We prospectively recruited 80 women with normal singleton pregnancies at 38–40 weeks' gestation. Participants were classified according to the mode of delivery and randomly assigned to either collecting blood from the placenta by umbilical cord drainage (CD) or cord milking (CM), with the placenta left in the uterus. The volume of blood collected, the duration of CD, and the number of rounds of CM were recorded.

Results: Collected placental residual blood volume positively correlated with birth weight, placental weight, and length of the cord. When 80% of the total placental residual blood volume collected was set as the threshold, more than 80% of women who delivered vaginally reached this level within 60 s of CD or seven repetitions of CM. This amount of blood could be obtained within 120 s of CD or after seven repetitions of CM in more than 80% of women who underwent cesarean delivery.

Conclusion: In most women, regardless of birth weight and placental weight, more than 80% of placental residual blood volume could be collected by CD within 60 s after vaginal delivery, 120 s after cesarean delivery, and seven repetitions of CM in both vaginal and cesarean deliveries.

台灣婦產科醫學會 111 年度年會暨學術研討會

論文摘要

稿件編號：OO15 臨時稿件編號： 0425	15q11.2 拷貝數異常和周產期及新生兒不良預後的相關分析 Adverse perinatal and infantile outcomes following 15q11.2 CNV diagnosis 林建棟[1] 初福傑[1] 洪泰和[1] 台北長庚紀念醫院[1]
論文發表方式： 口頭報告 論文歸類： 產科	Copy number variation (CNV) of 15q11.2, an emerging and common condition observed during prenatal obstetrician counseling, is encompassed by four highly conserved and non-imprinted protein genes: TUBGCP5, CYFIP1, NIPA1, and NIPA2; they have been reportedly related to developmental delays or general behavioral problems. We retrospectively analyzed 1337 samples from genetic amniocentesis for fetal CNV using microarray-based comparative genomic hybridization analysis between January 2014 and December 2019. 15q11.2 CNV showed a prevalence of 1.5%(21/1337). Separately, 0.8% for 15q11.2 microduplication and 0.7% for 15q11.2 microdeletion were noted. Compared to the normal array group, the Burnside-Butler syndrome group had more cases with NICU transfer, an Apgar score of

稿件編號：OO16

臨時稿件編號：
0658

建構妊娠性糖尿病之第一孕期預測模型
Establishment of a first-trimester predictive model for gestational diabetes mellitus

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Objective: To establish a predictive model for gestational diabetes mellitus (GDM) based on maternal characteristics and various markers of first-trimester aneuploidy and preeclampsia screening.

Methods: A retrospective cohort study of pregnant women who received first-trimester aneuploidy and preeclampsia screening was conducted at a tertiary medical center from October 25, 2019 to May 31, 2021. Receiver operating characteristic (ROC) curve analyses were used to evaluated various variables between the GDM and non-GDM groups.

Results: Of the 1019 pregnant women enrolled, 78 developed GDM and 941 did not. The levels of pregnancy-associated plasma protein A (PAPP-A) (5.29 ± 2.62 vs. 6.43 ± 3.35 IU/L, P = 0.003) and placental growth factor (PlGF) were significantly lower in the GDM group than in the non-GDM group (40.64 ± 18.83 vs. 45.02 ± 20.93 pg/mL, P = 0.048). Besides, maternal body mass index (P < 0.001), family history of diabetes (P = 0.027), previous GDM history (P < 0.001), and first-trimester glycosuria (P = 0.013) were also related to the development of GDM. However, there were no significant differences in maternal age, previous giant babies, beta-hCG level, and uterine artery pulsatility index between the two groups. ROC curve analyses revealed that the area under the ROC curve (AUC) of PAPP-A was 0.69 (95% confidence interval (CI) 0.63-0.76, P = 0.004) and the AUC of PlGF was 0.56 (95% CI 0.49-0.62, P = 0.032). The AUC of combined maternal characteristics and biomarkers was 0.81 (95% CI 0.76-0.83, P = 0.007).

Conclusion: PAPP-A and PlGF levels were significantly lower in the GDM group. The model based on maternal characteristics and first-trimester biomarkers could predict the development of GDM.

稿件編號：OO17

臨時稿件編號：
0570

利用新的生化指數與母體變數作為子癲前症的預測模組

Circulating biomarkers and maternal factors combination in first and third trimester preeclampsia prediction in Taiwan

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論文發表方式：
口頭報告

論文歸類：
產科

Objective
This study aims to find the best way to identify patient with high risk of first and third trimester preeclampsia in Asian population, through a combinatorial analysis of maternal characteristics and circulating biomarkers.

Methods
Between 2017 and 2020, a multicenter study was conducted in four recruiting centers in Taiwan. A total of 212 pregnant women were screened for preeclampsia. Maternal characteristics and pregnancy outcomes were recorded. Serum level of sFlt-1/PlGF ratio, miR-181a, miR-210, miR-223 were measured and transformed into multiple of median. Various combinations of maternal characteristic and biomarker level were developed as statistically validated algorithmic models.

Results
First trimester preeclampsia prediction model was established from 152 women with a combination of miR-210, miR-181a and BMI, with performance of training (0.848 AUC, 0.73-0.96 95% CI, 80% sensitivity, 85% specificity, $p < 0.001$) and validation cohort (0.852 AUC, 0.74-0.98 95% CI, 75% sensitivity, 87% specificity, $p < 0.001$). Additionally, miR-181a and miR-210 level were significantly lower in preeclampsia than normal pregnancy. Third trimester preeclampsia prediction model was established from 177 women with a combination of BMI, sFlt-1/PlGF, miR-181a, miR-210 and miR-223. All these biomarkers were significantly higher in women with preeclampsia.

Conclusion
Combinatorial analysis using circulating biomarkers and BMI were effective to identify first and third trimester preeclampsia high risk population.

稿件編號：OO18 臨時稿件編號： 0564	探討子宮頸環紮手術後子宮頸彈性、子宮頸長度和子宮頸內管寬度的變化 Changes of cervical elastography, cervical length and endocervical canal width after cerclage 謝孟軒[1] 陳治平[1] 王國恭[1] 陳宜雍[1] 王亮凱[1] 陳震宇[1] 台北馬偕紀念醫院婦產部高危險妊娠科[1]
論文發表方式： 口頭報告 論文歸類： 產科	Objective: Our previous study has demonstrated that pregnant women with cervical insufficiency have softer anterior cervical lip, shorter cervical length, and wider endocervical canal width in the first trimester. The aim of this study was to investigate the changes of cervical elasticity, cervical length, and endocervical canal width after cerclage and their association with preterm delivery. Methods: This was an observational ultrasound study of cervical changes after cerclage in singleton pregnancies between January 2016 and June 2018. Cervical elastography, cervical length and endocervical canal width were measured in the second trimester. Strain elastography under transvaginal ultrasound was used to estimate the stiffness of anterior and posterior cervical lips and was expressed as percentages (strain rate). Results: Of the 339 pregnant women enrolled, 24 of them had history of cervical insufficiency and received cervical cerclage. Both anterior and posterior cervical lips were significantly softer in the cervical insufficiency group even 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). Also, cervical length was significantly 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 after cerclage (5.40 ± 0.68 mm vs 5.61 ± 0.69 mm; P = 0.159). Multiple logistic regression analysis revealed significant differences in anterior cervical strain rate (adjusted odds ratio [aOR] 7.32, 95% confidence interval [CI] 1.70-31.41, P = 0.007), posterior cervical strain rate (aOR 5.22, 95% CI 1.42-19.18, P = 0.013) and cervical length (aOR 3.17, 95% CI 1.08-9.29, P = 0.035). Receiver operating characteristic curve analyses showed that the optimal cut-off values of anterior cervical lip, posterior cervical lip, and cervical length after cerclage were 0.14%, 0.09% and 37.4 mm. Besides, a negative association was noted between anterior cervical strain rate and delivery age (r = -0.165, P = 0.012). Conclusion: Cervical cerclage can ameliorate endocervical canal width, but cervical elasticity remains softer and cervical length remains shorter. Besides, anterior cervical strain rate is negatively associated with delivery age.