DALHOUSIE UNIVERSITY

Department of
Obstetrics and Gynaecology

31st Annual Research Day

Friday, April 21, 2017

Parker Reception Room
IWK Health Centre

Program Sponsorship

We gratefully acknowledge financial support for this program from:

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Thank you to our Judges:

Dr. Jane Schulz,
Uro-Gynaecology
University of Alberta

Dr. George Kovacs
Emergency Medicine
Dalhousie University

Dr. Baharak Amir
Uro-Gynaecology
Dalhousie University

Research Day
Department of Obstetrics and Gynaecology
Dalhousie University

April 21, 2017

0800	Reception
0830	Welcome – Dr. B.A. Armson Professor and Head, Department of Obstetrics and Gynaecology
0845	**INVITED SPEAKER** Dr. George Kovacs, Dalhousie University *Competent and aware: Managing high acuity low opportunity cases*
SESSION I	**Moderator, Dr. Nicholas Braithwaite**
0945	Yang Wang, PGY1 Proposal *Speaking with Pride: An Evaluation of Communication Skills and Knowledge Necessary for Communicating with the Transgendered Population*
1000	Jessica Bossé, PGY5 *Barriers preventing medical students from performing pelvic examinations during obstetrics & gynecology clinical clerkship rotations*
1015	Justin White, PGY1 Proposal "*Among women undergoing in vitro fertilization in Halifax, is proton nuclear magnetic resonance spectroscopy a feasible method to describe the metabolomic profile of women with a viable pregnancy compared to those who do not?"*

1030 Anca Matei, PGY5
Loop Electrosurgical Excision Procedure, Abnormal Cervical Histology, and Risk of Preterm Delivery: a Retrospective Cohort Study

1045 NUTRITION BREAK

SESSION II Moderator: Dr. Marianne Pierce

1115 Alyson Digby, PGY1 Proposal
Assessing Barriers to Gynecologic Care in the Syrian Refugee Population: A Qualitative Research Project

1130 Kimberley Nix, MED3
The influence of perinatal conditions and outcomes in a first pregnancy on smoking in the second pregnancy

1145 Rebecca McBriarty, PGY1 Proposal
An Assessment of the Educational Needs of Canadian Obstetrics and Gynaecology Residents Regarding Opioid Agonist Use in Pregnancy

1200 Mila Smithies, MFM Fellow
Characterising the pregnancies of a select group of women with previous Caesarean section: a population based study

1215 Lauren Adolph, PGY1 Proposal
Efficacy of an Obstetrical Triage System in LMICs: An Implementation Study in Cape Coast, Ghana

1230 LUNCH

SESSION III Moderator: Dr. Scott Farrell

1330 **INVITED SPEAKER:**
Dr.Jane Schulz, University of Alberta
Pelvic Organ Prolapse: new thoughts about an old problem

1430 Bader Alamri, CIP Student, MSc
Imparied glucose and insulin modulation of ghrelin secretion in obese mice

1445 Heather Stone, PGY3
Retention of vaginal breech delivery skills taught in simulation

1500 Maeghan Keddy, PGY5
The incidence of placenta accrete (morbidly adherent placenta) and the influence on maternal and Perinatal outcomes.

1515 Kayla Churchill, MUN Resident
Letrozole versus letrozole combined with gonadotropins for superovulation in women undergoing intrauterine insemination with unexplained infertility

1530 Rachelle Findley, PGY4
The association of CMV and Toxoplasmosis with prenatally detected fetal echogenic bowel

1545 Jessica Pearsall, PGY3
Ohvira Syndrome And Pregnancy Outcomes Following Vaginal Septum Resection: A Case Report And Literature Review

Awards Presentation Refreshments to be served in the Parker Reception Room

ABSTRACTS

Speaking with Pride: An Evaluation of Communication Skills and Knowledge Necessary for Communicating with the Transgender Population

Wang Y, Lackie K, Evans J, Craig C

Background: The transgender community presents an unique communication challenge for healthcare professionals because of the specific vocabulary surrounding this group. Despite ample literature emphasizing the importance of training healthcare providers in communicating with transgender patients, there is currently no formal curriculum nor communication tool.
Objective: The purpose of this research study is to assess what are the knowledge and skills (competencies) needed by healthcare professionals when interviewing transgender patients and the creation of a competency based communication tool that can be used inter-professionally when interviewing transgender patients.
Method: We propose a Delphi study using inter-professional health providers and community members to create a competency based communication tool. The foundations of the communication tool will be based on the Structured Communication Adolescent Guide (SCAG) developed by Dr. Kim Blake. The population of interest is healthcare providers and community experts that specialize in working with transgender individuals. An eight- to twelve-member panel will go through three rounds of consensus formation over six to eight months. In each round, the panel will review each item on the communication tool and the relevant competencies they fulfill and form consensus amongst 70% of the panel of whether those items should be included in the tool. The tool would be considered complete after three rounds of consensus.
Anticipated outcomes: We expect that the resulting tool can be used by healthcare educators in the creation of competency based education for interviewing transgender patients.

Barriers preventing medical students from performing pelvic examinations during obstetrics & gynecology clinical clerkship rotations

Bossé J, Coolen J

Introduction: Pelvic examinations are a core competency for medical students. Students often have difficulty obtaining adequate practical experience in this area. Identification of barriers to learning this skill will help improve the quality of students' clerkship training.
Objectives: To identify barriers preventing medical students in their OBGYN clerkship rotations from performing pelvic examinations, and to compare the perspectives of faculty, residents, nurses and students regarding perceived barriers.
Methods: An electronic survey was sent to third year medical students upon completion of their OBGYN clerkship rotations, and to OBGYN nursing staff, faculty, and residents.
Results: There were 82 responses, giving an overall response rate of 34%. Students performed an average of 9.18 speculum examinations, 3.79 cervical checks, and 2.82 bimanual examinations during their rotations. They were declined the opportunity to perform an examination on average 7.07 times. Students perceived themselves to be more competent performing these exams compared to staffs' perception of student competency. Students perceived resident interest in teaching, resident and staff time constraints, and patient willingness to have a medical student involved in their exam as frequent barriers. Faculty, residents and nurses perceived student gender, patient willingness, difficulty of examination, and resident time constraints to be significant barriers.
Conclusions: Our study is the first to examine multidisciplinary perspectives on perceived barriers to medical students performing pelvic examinations. Staff and students have different perceptions of a student's competence performing these examinations. Existing barriers are likely multifactorial.

Among women undergoing in vitro fertilization in Halifax, is proton nuclear magnetic resonance spectroscopy a feasible method to describe the metabolomic profile of women with a viable pregnancy compared to those who do not?

White J, Ripley M, Anini Y

Background: Pregnancy rates post in vitro fertilization(IVF) remain low despite embryo selection with morphology. Methods have not been perfected on how to increase live births without increasing multiple births. With the standard of care being single embryo transfer (SET) additional methods are needed for embryo selection. Metabolomic profiling with ^{1}H NMR spectroscopy is a novel technique used to identify metabolites rapidly. Little is known about the detection of metabolites in embryo culture medium but studies suggest there are metabolic differences in embryos that result in a successful pregnancy and those that do not.
Objectives: Our primary obkective is to assess the feasibility of undertaking a metabolomics study among IVF patients in Halifax. Our secondary objective is to determine which metabolites can be identified in day-5 embryo culture medium by ^{1}H NMR and the proportion of samples in which each metabolite is detectable.
Methods: This is a descriptive feasibility study designed to define the metabolomic profile of day-5 embryo culture medium prior to transfer into the endometrium. Eligible patients include females undergoing first or second round IVF via SET at Atlantic Assisted Reproductive Therapies (AART). Used culture medium will be analyzed with ^{1}H NMR and results will be reported in concentrations. Patients will be assessed at 8-weeks post embryo transfer to diagnose fetal viability with ultrasound. The metabolomic profile of culture medium will be analyzed to determine if the method is feasible at our centre and to identify specific metabolites.
Anticipated Outcome: We anticipate that it will be feasible to conduct a metabolomics study at AART and metabolites will be identified with the use of ^{1}H NMR. The knowledge gained in this pilot project will allow us to conduct a larger study to evaluate metabolomic differences in embryo culture medium between viable and non-viable pregnancies in the future.

Loop Electrosurgical Excision Procedure, Abnormal Cervical Histology, and Risk of Preterm Delivery: a Retrospective Cohort Study

Matei A, Fahey J, Woolcott C, Coolen J, Bentley J

Background: Loop electrosurgical excision procedure (LEEP) is a common treatment of cervical dyplasia [intraepithelial neoplasia (CIN) and adenocarcinoma in situ (AIS)]. LEEP has been associated with preterm birth, but few studies have evaluated the obstetrical risks of dysplasia without LEEP.
Objective: To evaluate whether cervical dysplasia with or without LEEP was associated with risk of preterm delivery.
Methods: A retrospective cohort study was conducted using the Atlee Perinatal Database and the Provincial Cytology and Colposcopy Registry. All women aged ≤45 years with a singleton delivery >20 weeks' gestation in the Halifax Regional Municipality between 1995 and 2012 were included. The exposure groups included women who had CIN/AIS with or without LEEP and a subsequent pregnancy. The comparison group included women who did not have CIN/AIS or LEEP. The primary outcome was rate of spontaneous preterm birth <37 weeks gestation (sPTB). Cox proportional hazards regression was conducted to estimate hazard ratios (aHR) with 95% confidence intervals (CI) for the risk of sPTB, adjusted for several confounders. To assess whether the association was heterogeneous by histological grade, we assessed the significance of an interaction term between the independent variable and diagnosis.
Results: There were 4265 women who had dyplasia treated with LEEP, 3147 women with untreated dyplasia, and 63345 women without dysplasia. Relative to women without dysplasia, women treated with LEEP were more likely to deliver preterm (aHR 1.22; CI 1.06-1.39, $p<0.05$) but women with dysplasia not treated with LEEP were not (aHR 1.01; CI 0.86-1.19). Among women with dysplasia, the association between LEEP and sPTB was not heterogeneous by histological grade (p-interaction=0.065; aHR in CIN1 1.32; CI 0.91-1.88; aHR in CIN2-3/AIS 0.90; CI 0.67-1.22).
Conclusions: LEEP was associated with a higher risk of sPTB whereas dysplasia without LEEP was not. Among women with dysplasia, LEEP was not significantly related to sPTB risk, but additional research with greater sample size is required to elucidate this relationship and make clinical recommendations.

Assessing Barriers to Gynecologic Care in the Syrian Refugee Population: A Qualitative Study Proposal

Digby AM, MacLeod A, Brooks M

Background: Due to recent political events the number of Syrian refugees entering Canada has drastically increased. While it is well known that immigrants experience a disease specific decline in health correlated with country of origin, there is a paucity of research particular to the Syrian refugee population.

Objective: The purpose of this study is primarily to determine barriers to gynecologic care among female Syrian refugees living in Nova Scotia, as perceived by the women themselves. The secondary objective is to assess the barriers as perceived by healthcare workers experienced in the field of refugee health.

Methods: We propose a phenomenological qualitative study based on one-on-one interviews with female Syrian Refugees receiving care from the Halifax Refugee Clinic. A second phase of focus-groups will be conducted with health care workers in the field including nurses, doctors, and translators. The data will be analysed using a phenomenological approach and coding. The thematic content will be identified using progressive familiarity. The sample size will be determined according to the principle of thematic saturation for the Syrian Refugees and convenience sampling for the health care workers.

Anticipated Results: We expect the results of this study will provide invaluable information concerning barriers to gynecologic care specific to the Syrian population that may help guide our approach to these women in the future

The influence of perinatal conditions and outcomes in a first pregnancy on smoking in the second pregnancy

Nix K, Dodds L

Background: Smoking is a serious health problem with significant risks for both the mother and the developing fetus. Most women do not change their smoking status between first and subsequent births. Identifying factors associated with continued smoking during the second pregnancy may inform smoking cessation policy.
Objectives: The objectives of this study were to explore the rates of prenatal smoking during second pregnancy (P2) among women who smoked during first pregnancy (P1), and to determine whether adverse pregnancy conditions and outcomes from P1 affect the likelihood of continuing smoking in P2, among women who smoked in P1.
Methods: A population-based retrospective cohort study of first and second singleton births among women in Nova Scotia, Canada who smoked in P1 was conducted using data from the Nova Scotia Atlee Perinatal Database. Logistic regression was used to estimate odds ratios (ORs) and 95% confidence intervals (CI) for factors associated with continued smoking in P2.
Results: Overall, 3441 (20.4%) of women smoked in P1, and 2606 (75.7%) of these women continued to smoke in P2. Among pregnancy conditions, only a diagnosis of gestational hypertension in P1 was associated with a reduced likelihood of smoking in P2 (OR=0.47, 95% CI 0.2-0.91). Of possible infant outcomes in P1, a small for gestational age infant was significantly associated with continued smoking in P2 (OR 1.91, CI 1.43-2.54) compared to women whose babies who were not small for gestational age.
Conclusions: Aside from gestational hypertension, adverse maternal or neonatal conditions in the first pregnancy did not result in a reduction of women who continued to smoke in P2. It is worrisome that having had an infant who was small for gestational age in P1 increased the likelihood of continuing to smoke in P2. More research is necessary to understand the women's decision to smoke in P2 after having had an adverse outcome in a first pregnancy.

An Assessment of the Educational Needs of Canadian Obstetrics and Gynaecology Residents Regarding Opioid Agonist Use in Pregnancy

McBriarty R, Allen V, Woolcott C

Background/Objectives: The prevalence of opioid abuse and dependence in women presenting for prenatal care and obstetric delivery is on the rise. Opiate substitution therapy using long-acting opioid agonist medications is the standard of care for women with opioid dependency during pregnancy. An educational tool that addresses the specific obstetrical considerations amongst this population has not yet been developed. This project aims to describe the knowledge, experience, attitudes and barriers to care with respect to opioid agonist use in pregnancy among Obstetrics and Gynaecology residents in Canadian training programs. The results of this study will then be used to inform the development of an educational tool for residents.

Study Method: A nation-wide online Opinio® survey of all PGY 1-5 Obstetrics and Gynaecology residents (n=415) and Program Directors (n=16) at 16 Canadian universities will be conducted, following Dalhousie University Ethics Board approval. Descriptive statistics will be used to summarize respondents' subjective knowledge, experience, attitudes, perceived barriers, and preferred educational approaches regarding opioid agonist use in pregnancy. A second portion of the study will assess residents' objective knowledge through placement of topic-related multiple choice questions on the national APOG examination. Mean scores by PGY level and training site will be obtained, and the correlation between perceived and objective knowledge will be examined.

Characterizing The Pregnancies Of A Select Group Of Women With Previous Caesarean Section: A Population Based Study.

Smithies M, Woolcott C, Brock J, Maguire B, Allen V

Background The Modified Robson Criteria classify deliveries in groups within which Caesarean section (CS) rates can be compared over time and between regions. Robson Group 5 (RG5) includes the subset of women with ≥1 previous CS and a singleton term infant in cephalic presentation.
Objectives To determine the proportion of women in RG5 eligible for a trial of labour after Caesarean (TOLAC) and, among eligible candidates, to identify determinants of having a TOLAC and vaginal delivery (VD). To estimate the minimum rate of CS possible if all eligible women in RG5 had a TOLAC.
Methods A population-based cohort of deliveries from 1998-2014 in RG5 was identified using the Nova Scotia Atlee Perinatal Database. TOLAC eligibility was based on SOGC criteria. Of the many sociodemographic, obstetric history, and antenatal determinants considered, those independently associated with TOLAC and VD were identified with multivariable logistic regression. The model developed for VD was used to estimate the theoretical probability of VD in the group who did not have a TOLAC.
Results Of the 15,111 deliveries in RG5, 14,763 were eligible for a TOLAC, 5,488 had a TOLAC, and 3,739 had a VD. Predictors of VD included high area-level income and a preceding CS without labour or spontaneous VD. While type of previous delivery also predicted TOLAC among those eligible, high area-level income was associated with a reduced odds of TOLAC. The probability of VD in the group that did not undergo TOLAC was estimated to be 48.3%, and combined with the proportions ineligible for TOLAC and achieving VD following TOLAC, the minimum CS rate estimated for RG5 is 45.6%.

Conclusion Clinical and nonclinical factors influence rates of TOLAC and subsequent VD in eligible women. Comparing the actual (75.3%) to the estimated minimum possible CS rate (45.6%) suggests that the CS rate in RG5 could be reduced. Further research into improving clinical prediction of a successful VD among women in RG5 is warranted.

Efficacy of an Obstetrical Triage System in LMICs: An Implementation Study in Cape Coast, Ghana

Adolph L, George R, Scott H

Background: Triage seeks to optimize resources and patient outcomes, so is of value in low and middle income countries (LMICs) where there is typically a large burden of sick patients and limited resources. The concept of obstetric-specific triage is relatively new in the field of systems of care. There has been limited study on the efficacy of implementing obstetric triage tools and systems in the hospital setting. However, those few pre/post implementation studies have lent evidence to the idea that a triage system founded in evidence-based practice and designed to meet the needs of a local hospital can achieve significant improvements in triage practices.
Objective: This study will assess whether implementation of the Obstetrical Triage Acuity Scale (OTAS) triage system improves the rate of documentation for triage assessment among midwives caring for pregnant women >20wks GA presenting to Cape Coast Teaching Hospital (CCTH) for obstetrical care. It also lays the groundwork for a future study assessing triage systems on patient outcomes in LMICs.
Methods: Our research team will conduct a pre/post study. An initial chart review will be performed of all patients presenting to the obstetrical unit at CCTH over a 6-month period. Documentation of initial patient assessment will be evaluated for completeness, based on ten key patient factors that have been identified as integral to accurate triage by the National Obstetric Triage Working Group. With input from local partners in Ghana, the OTAS triage process will be adapted to suit the specific needs of the CCTH environment, and implemented throughout the obstetrical unit. Following this 4-month implementation phase, an identical chart review process will be completed over the following 6 months. Our primary outcome measure will be a prospective assessment of the rate of documentation of patient factors integral to accurate triage, prior to and following the implementation of a triage system founded on the OTAS.

Impaired Glucose and Insulin Modulation of Ghrelin Secretion in Obese Mice

Alamri B, Imran F, Anini Y

Background: The stomach-derived hormone, ghrelin, acts as a key regulator of appetite and energy homeostasis by stimulating food intake and promoting adiposity. Typically, ghrelin levels peak during fasting and reach a nadir during fed state. Despite obesity being generally associated with increased food intake, obese individuals have low basal ghrelin levels and a blunted postprandial suppression, suggesting that obesity may be associated with dysregulation of ghrelin secretion.

Objective: The goal of the present study was to investigate the putative mechanisms underlying dysregulation of ghrelin secretion in obesity using the diet-induced obesity (DIO) mouse model.

Method: C57BL/6 mice fed high fat diet (HFD) for 8 weeks (DIO mice) had higher body weights and impaired glucose tolerance compared to those fed standard rodent chow (lean mice). We investigated the effect of oral glucose (75 mg) on ghrelin secretion.

Results: In lean mice, overnight fasting resulted in increased acylated ghrelin plasma levels (520.3 ± 32 pM). Administering oral glucose significantly reduced ghrelin levels to 60% at 30 min and 70% at 60 min ($p<0.001$, $p<0.001$ respectively, n=6) before increasing slightly at 120 min. While fasting ghrelin level was lower in HDF mice compared to low fat diet (LFD) (462 ± 28 pM, $P<0.05$), glucose-induced suppression of ghrelin secretion was significantly reduced compared to LFD-fed mice and was only different from the fasting level at 60 min ($p<0.05$, n=6). These results indicate that ghrelin secretion is impaired in obesity. We previously showed that insulin inhibited both basal and norepinephrine-stimulated ghrelin secretion through phosphorylated serine-threonine kinase (AKT) (Gagnon et al. Endocrinology 2012). The direct effect of insulin on ghrelin secretion was further tested in primary cultures of dispersed gastric mucosal cells generated from either lean or DIO mice. In preparations from lean mice, 10 nM insulin reduced acyl-ghrelin secretion by 40% ($P< 0.05$, n=6). In contrast, the effects of insulin was lost in gastric mucosal cells derived from DIO mice (n =6). Western blotting relative densitometry of pAKT/AKT was examined after 15 min of treatment with 10 nm insulin in primary cultures of dispersed gastric mucosal cells generated from lean mice and DIO mice. In lean mice, insulin significantly increased pAKT levels relative to total AKT (6.4 ± 2.1-fold of control, $P < 0.01$), while insulin had no significant effect on Akt phosphorylation in primary cultures of dispersed gastric mucosal cells generated from DIO mice.

Conclusion: In summary, our findings demonstrate that postprandial ghrelin suppression is impaired in obesity and in part due to impaired insulin signaling in ghrelin cells.

Retention of vaginal breech delivery skills taught in simulation

Stone H, Crane J, Johnston K, Craig C

Background: Vaginal breech delivery is an essential skill that every obstetrician must obtain. It is a low frequency, high-risk event that is well-suited to simulation training. Teaching this skill through simulation is commonly incorporated into residency training programs. The optimal frequency at which this training should be completed to maintain competence is unknown.

Objective: We evaluated retention over time of vaginal breech delivery skills taught in simulation, comparing junior and senior residents. Their subjective comfort level to perform this skill clinically was also assessed.

Methods: We conducted a prospective cohort study including 22 Obstetrics and Gynaecology residents in a Canadian residency program. Digital recordings were completed for pre-training, immediately post-training, and delayed (10-26 weeks later) post-training intervals of a vaginal breech delivery simulation, with skill assessment by a blinded observer using a binary checklist. Residents also completed a 5-point Likert scale to assess their subjective comfort level at each interval.

Results: Junior and senior residents had improvement in vaginal breech delivery skills from pre-training assessment to both immediate post-training (junior, $p<0.001$; senior, $p<0.001$) and delayed post-training ($p<0.001$; $p=0.001$) assessments. There was decline in skills between immediate and delayed post-training sessions for junior and senior residents ($p=0.003$; $p<0.001$). Both junior and senior residents gained more comfort immediately after training ($p <0.001$; $p<0.001$), without a significant change between immediate post-training and delayed post-training comfort levels ($p=0.19$; $p=0.11$).

Conclusion: Residents retained vaginal breech delivery skills taught in simulation 10-26 weeks later, but decline in skills occurred over time period. Comfort level was positively impacted and retained. These results will aid in determining the frequency of simulation teaching in a residency simulation curriculum.

The incidence of placenta accreta and the influence on maternal and perinatal outcomes

Keddy M, Allen V, Kuhle S, Craig C, Brock J.

Background: Placenta accreta is associated with significant maternal morbidity and mortality with increasing incidence over the past five decades. Antenatal diagnosis has been shown to significantly decrease maternal morbidity by allowing for delivery at a tertiary care centre and multidisciplinary operative planning. Currently, rates and outcomes of cases of placenta accreta at the IWK Health Centre are unknown.

Objectives:

1. To determine the incidence and temporal trends of placenta accreta at the IWK Health Centre from 1980-2015.
2. To describe the demographic and obstetrical characteristics, including antenatal diagnosis, and maternal and perinatal morbidity and mortality with pregnancies with placenta accreta.
3. To determine whether antenatal diagnosis of placenta accreta influences maternal morbidity among women who delivered at the IWK Health Centre with placenta accreta.

Methods: A retrospective population based study using data derived from the Nova Scotia Atlee Perinatal Database (NSAPD) linked with an IWK Health Centre maternal chart review from 1980 to 2016 in order to confirm diagnoses and identify relevant data not available in the NSAPD. Joint Data Access Committee provided data access and approval, and REB approval was obtained.

Results: The incidence of placenta accreta at the IWK Health Centre was 0.48/1000 births at the IWK from 1980 to 2015, and 1.3/1000 from 2010 to 2015. There was significant increase in the incidence of all accreta from 1980 to 2015 (X2 for trend <0.001). Select maternal characteristics (2002-2015) were significantly different from the population without accreta (maternal age >35, pre-pregnancy weight >90kg, previous cesarean section, delivery by c/s, gestational age at delivery, p<0.001), in keeping with risk factors previously described in the literature. Of the 90 cases identified between 1980-2016, 7 were diagnosed antenatally with a combination of US and MRI. Antenatal diagnosis was associated with increased maternal morbidity.

Conclusions: The incidence of placenta accreta is increasing which is consistent with the literature, likely attributable to changing maternal demographics and obstetrical practices. Antenatal diagnosis and preparation remains relatively infrequent, suggesting an area for clinical improvement.

Letrozole versus letrozole combined with gonadotropins for superovulation in women undergoing intrauterine insemination with unexplained infertility

Churchill KP, Murphy D, Adams S, Murphy S

Introduction: As many as 30% of couples with infertility will have no cause identified explaining their inability to conceive. No evidence-based treatments have been proven; most centres will initiate a trial of superovulation. With the impending discontinuation of clomiphene citrate (CC), there is increased need for research about other regimens. Letrozole (LT), an aromatase inhibitor originally developed in breast cancer, is currently used off-label for ovulation induction and superovulation. There is limited North American data on the use of LT +/- gonadotropin (GND) for superovulation.

Objective: Among couples with unexplained infertility undergoing superovulation prior to intrauterine insemination (IUI), is there a difference in live birth or pregnancy rates between those who receive LT versus those who receive LT/GND.

Methods: We retrospectively reviewed 341 cycles in 146 couples diagnosed with unexplained infertility attending the reproductive infertility service in St. John's, Newfoundland, Canada between January 2010-June 2015. All patients were cared for by four physicians. Patients received CC, LT or LT/GND at the discretion of the treating physician. Primary outcome was live birth rate. Secondary outcomes included clinical pregnancy rate, size and number of follicles and endometrial thickness.

Results: Following treatment with CC, LT and LT/GND, live birth rates were 8.4%, 8.8% and 14.3% respectively which were not significant ($p = 0.258$). There was no difference in pregnancy rate ($p = 0.153$). There were differences in follicle number ($p = 0.005$), lead follicle size ($p<0.001$) and endometrial thickness ($p = 0.021$) favoring LT/GND.

Conclusion: There were no differences in live birth or pregnancy between women receiving CC, LT or LT /GND. Larger follicle size, increased number of follicles and endometrial thickness in the LT/GND group suggests that this therapy may be superior to LT. Further prospective studies are needed in this area.

The association of CMV and Toxoplasmosis with prenatally detected fetal echogenic bowel

Findley R, Allen V, Brock J

Objective: To describe the incidence of and outcomes associated with congenital infection in pregnancies complicated by fetal echogenic bowel (EB).
Methods: Data for all pregnancies complicated with EB identified in the second trimester were derived from the IWK Viewpoint Ultrasound Database from 2003 to 2014. There were 422 pregnancies identified prenatally with EB. Rates of positive cytomegalovirus (CMV) and toxoplasmosis (Toxo) infection were determined using maternal IgM serology and amniotic fluid when available. Rates of intrauterine growth restriction (IUGR), cystic fibrosis (CF), other genetic diagnoses, antenatal bleeding, and bowel abnormalities were also determined. Neonatal information included newborn urine culture results and genetic testing. Univariate analyses compared rates of infection with isolated EB and EB with other ultrasound findings, with statistical significance set at $p<0.05$.
Results: CMV/Toxo serology was positive for 3% of women, 27% of which had documented newborn infection. Pregnancies with isolated EB were no more likely to be affected by CMV/Toxo than those with additional ultrasound findings (2% compared to 4%, OR 1.98, 95% CI 0.62-6.33). Other associations included CF in 0.7%, other genetic diagnoses in 7%, IUGR in 14%, antenatal bleeding in 18%, and bowel abnormalities in 5%. None of the above associated abnormalities were identified in 288 (68%) of EB cases. Perinatal mortality with EB was 4% overall.
Conclusions: Congenital infection is uncommon with isolated fetal echogenic bowel. With EB, counseling should include screening for infection and CF, consideration for additional genetic testing based on additional ultrasound findings, and monitoring for fetal growth

Ohvira Syndrome And Pregnancy Outcomes Following Vaginal Septum Resection: A Case Report And Literature Review

Pearsall J, Brooks M, VanEyk N

BACKGROUND: The specific association of uterus didelphys, obstructed hemivagina, and ipsilateral renal agenesis was recognized as early as 1922 and is known as Herlyn-Werner-Wunderlich syndrome but may be more commonly known by the acronym OHVIRA (obstructed hemivagina, ipsilateral renal agenesis) syndrome (Zivkovic et al., 2014). Only few studies have been reported with long-term follow-up to provide data on fertility and outcomes of pregnancies in females with this rare malformation involving both the Mullerian and Wolffian ducts concomitantly (Heinonen, 2013).
CASE: We report the case of a 19 year old female patient who was diagnosed with OHVIRA syndrome at our institution in 2013. She underwent surgical excision of a right hemivaginal septum in January 2014. By her second follow up appointment in May of 2014 she was completely healed and her symptoms had improved considerably. The patient is now 22 years old. Her first pregnancy was diagnosed in April 2016 but unfortunately resulted in a missed abortion at 8 weeks EGA for which she underwent a suction dilation and curettage which was uncomplicated. Her second and recent pregnancy was diagnosed in August of 2016 at which time ultrasound showed a fetus in the right uterine horn with an EGA of 8 weeks and 0 days (EDC March 2017). The patient underwent an early ultrasound which showed an appropriately developed fetus with an estimated gestational age of 12 weeks and 3 days. At 20 weeks 3 days she had a detailed anatomy review which confirms a viable, singleton pregnancy with normal anatomy. The transvaginal ultrasound showed a normal cervical length of 4.7cm. The pregnancy was uncomplicated and resulted in a term infant born by elective caesarean section (indication: Breech presentation).
CONCLUSION: We report a case of surgically corrected OHVIRA syndrome and subsequent pregnancy with good outcome and delivery by caesarean section. There is little if any precedent in this case.