DALHOUSIE UNIVERSITY
Inspiring Minds

Department of
Obstetrics and Gynaecology

25th Annual Resident Research Day

Friday, April 29, 2011

Parker Reception Room
IWK Health Centre

Resident Research Day
Department of Obstetrics and Gynaecology
Dalhousie University

April 29, 2011

0745   Reception with Coffee/Muffins/Fruit
              PARKER RECEPTION ROOM

0800   Welcome – Dr. B.A. Armson
              Professor and Head,
              Department of Obstetrics and Gynaecology
              Dalhousie University

Session I: Moderator, Dr. Linda Dodds

0815   **INVITED SPEAKER**
              Dr. Gail Estes, Research Director, Brain Repair
              Centre *"Brain Repair Centre: Present and Future"*

0850   Miriam Ang, PGY4
              *Meteorologic predictors of prelabour rupture of
              membranes and preterm birth*

0910   Diane Ahn, PGY2
              *Incidence and perinatal outcomes of umbilical cord
              prolapse in Nova Scotia (protocol)*

0922   Caitlin Reid , Honours Science Undergraduate
              Physiology
              *Metabolic effects of the antipsychotic drug
              olanzapine in young rats*

0942   Dawn Edgar, PGY4
              *Neonatal Outcome Following Failed Vacuum
              Extraction*

1000   NUTRITION BREAK

1035   Chris Nash, PGY2
         *The accuracy of pre-natal ultrasound in estimating fetal
         birth weight at various gestational ages in diabetic women
         with singleton pregnancies. (protocol)*

1047   Jeffrey Gagnon, PhD candidate, Physiology
             Investigating the Mechanism of Ghrelin Release

1107   Maureen Oramasionwu, PGY2
         *Fetal heart rate activity on 6-8 week ultrasound as a
         predictor of live birth in women who have undergone in vitro
         fertilization in Halifax, Nova Scotia (protocol)*

1120   Lisa Currie, MSc student Community Health and
         Epidemiology
         Physical Activity during Pregnancy and Fetal Growth

1140   Elinor Lu-Olaco, PGY4
         *Outcomes in an Early Pregnancy Complications Clinic: A
         five year audit, 2005-2009.*

1200   LUNCH (Classroom B&C)

Session II: Moderator Dr. Gillian Graves

1250   INVITED SPEAKER:
             Dr. Bob Reid, Chair of the Division of Reproductive
             Endocrinology and Infertility at Queen's University
             *"Risk Communication: Bridging the Gap between
             Science and Perception"*
1400   Kim MacDonald, PGY3
         *A pilot study to determine the accuracy of non-
         invasive, fetal Rh genotyping in Nova Scotian
         women.*

1420   Maegan Rutherford, PGY2
*Missed Cases of CIN3+ at First Colposcopic Visit:
A Nova Scotian Perspective on the Accuracy of
Colposcopy (protocol)*

1432   Priscilla Frenette, MED 1
*An investigation of reproductive stoppage in a
cohort of Nova Scotia families affected by autism
spectrum disorders*

1452   James Andrews, MFM Fellow
*Fetal sex as a determinant of preterm birth and
small for gestational age*

1512   Mila Smithies, PGY2
*The prevalence of smoking among pregnant women
in Nova Scotia from 1988 to 2009 (protocol)*

1525   **NUTRITION BREAK**

1545   Kyungsoo Shin, Honours Science
Undergraduate, Physiology
Role of apelin in adipose tissue

1605   Karen Splinter, Memorial University
*Does uterine septum repair increase live birth rate
compared to women with otherwise unexplained
infertility?*

1625   Barbara Reichetzer, Uro-Gynaecology Fellow
*Teaching Cystoscopy: Evaluation of a Curriculum
for Residents in Obstetrics and Gynecology
(protocol)*

1637   Darrien Rattray, PGY4
*Acute Disseminated Intravascular Coagulation
(DIC) In Obstetrics: A Tertiary Centre Population
Review (1980-2009)*

1700   **Awards Presentation**
Cocktails and Hors d'oeuvres to be served in the
Parker Reception Room

Abstracts

Meteorologic predictors of prelabour rupture of membranes and preterm birth

Miriam Ang, Victoria M. Allen, John Fahey, Alexander C. Allen

Objectives: To estimate the influence of meteorologic factors on prelabour rupture of membranes and preterm birth.

Methods: A population-based cohort study of patients from 1988 to 2007 was derived from the Nova Scotia Atlee Perinatal Database. Data was linked to publicly available data from the National Climate Data and Information Archive of Environment Canada. Barometric pressure, temperature, humidity, and windspeed were considered in terms of lag value, and differences between current, lag, and time of day. Multivariate analyses in a forward stepwise regression with the Wilcoxon test were used to examine the order of predictive ability of maternal and obstetrical clinical variables and weather variables. Chi-square was interpreted for statistical significance using SAS (8.0).

Results: From a total of 255 974 patients, 50 644 (19.8%) had spontaneous rupture of membranes (SRM), while preterm birth occurred in 4.75%. Results of separate determination of significant weather predictors were included with clinically relevant maternal variables in multivariate regression. Maternal and obstetrical factors predicting both SRM and preterm birth were delivery time of day, pre-pregnancy weight, nulliparity, and antepartum bleeding (APB). Top weather predictors included temperature differences at 2h and 6h, and windspeed lag at 12h (all P<.05). Maternal medical complications had less predictive influence on study outcomes than the top three weather predictors.

Conclusions: Linkage of publically available environment data to a comprehensive perinatal database demonstrated that weather has a small but significant influence on the risk of SRM and preterm birth, even after accounting for relevant maternal and obstetrical predictors.

Incidence and perinatal outcomes of umbilical cord prolapse in N.S.

Diane Ahn, Thomas Baskett, Colleen O'Connell

Introduction: Umbilical cord prolapse (UCP) constitutes an obstetrical emergency due to the risk of cord compression leading to perinatal hypoxia and its sequelae. The perinatal mortality rate ranged between 32-47% in the first half of the 20th century, but has fallen to 2-3% in industrialized countries due to immediate delivery by Caesarean section and advances in neonatal intensive care. The Society of Obstetricians and Gynaecologists of Canada and the American College of Obstetricians and Gynecologists currently have no published clinical practice guidelines on the management of umbilical cord prolapse. There is a paucity of Canadian data regarding incidence, associated risk factors, current hospital management and neonatal morbidity associated with umbilical cord prolapse.

Purpose: To describe the incidence and perinatal outcomes of umbilical cord prolapse in a Canadian population from 1988-2010 for in-hospital births.

Methods: This will be a retrospective population-based study of umbilical cord prolapse including all women delivered in Nova Scotia as recorded in the Atlee Database from 1988-2010. Primary outcome variables include the incidence of umbilical cord prolapse in Nova Scotia, with birth asphyxia and umbilical cord pH as a measure of neonatal morbidity. The main independent variable will be umbilical cord prolapse. Other variables collected will include neonatal mortality, singleton vs. multiple gestation, type of hospital, gestational age, birth weight, mode of delivery, malpresentation, placenta previa, amniotomy and others that may influence perinatal hypoxia.

Data Analysis: Incidence will be calculated as number of umbilical cord prolapses per 1000 deliveries. Odds ratios (OR) and relative risk ratios will be calculated with 95% confidence intervals. Adjusted OR will be calculated based on a logistic regression model controlling for gestational age, birth weight, singleton vs. multiple pregnancy and other factors influencing asphyxia and umbilical cord pH.

Metabolic effects of the antipsychotic drug olanzapine in young rats

Caitlin Reid, Younes Anini

Olanzapine is an atypical antipsychotic medication that is associated with weight gain. The prescription of this medication is becoming more abundant in children although there is minimal research concerning its use in children. A set of acute and chronic experiments were conducted to determine the metabolic effects of olanzapine using post weanling rats to model olanzapine use in children and adolescents.

We first examined the effect of acute olanzapine administration (0.5, 1, 2 mg/kg intraperitoneal injections) on food intake, plasma insulin and ghrelin concentrations, and hypothalamic expression of pro-opiomelanocortin (POMC), cocaine and amphetamine regulated transcript (CART). We then investigated the effect of chronic administration of olanzapine (5, 10 mg/kg mixed in to cookie dough) on adiposity, body weight, and food intake.

Our results indicate that acute administration of olanzapine significantly increased appetite.

Neonatal Outcome Following Failed Vacuum Extraction

Dawn C. Edgar, Thomas F. Baskett, David C. Young, Colleen M. O'Connell, Cora A Fanning

Objective: To evaluate the neonatal outcome in infants delivered by forceps following failed vacuum extraction using the Kiwi OmniCup Vacuum device

Methods: We conducted a retrospective study of 262 failed vacuum deliveries using the OmniCup device followed by forceps. The neonatal morbidity was recorded for each delivery.

Results: Of the 262 women, 70% of women were nulliparous and 30% parous (> para 1). In 93.5% of the women, a failed vacuum followed by successful forceps delivery was completed; a failed vacuum and failed forceps, followed by caesarean section was performed in 6.5%. Cephalohematomas were diagnosed in 21.4% of the 262 infants delivered. There were no cases of intracranial or subgaleal hemorrhage in any of the newborns studied.

Conclusions: Although the method of delivery following failed vacuum extraction is controversial and most guidelines warn of increased neonatal morbidity with subsequent use of forceps, the low morbidity in this study is reassuring. In this hospital low forceps delivery (station >2cm) following failed vacuum extraction was not associated with serious neonatal morbidity.

The accuracy of pre-natal ultrasound in estimating fetal birth weight at various gestational ages in diabetic women with singleton pregnancies.

Chris Nash, Anthony Armson.

Diabetes is a common medical disorder affecting 35% of all pregnancies, and can lead to a multitude of complications, including alterations in fetal growth. Currently, diabetic mothers undergo a detailed anatomical ultrasound at 18-20 weeks gestation and subsequent evaluations every 4-6 weeks to reassess fetal growth. As term approaches estimated fetal weight (EFW) obtained from ultrasound are used to help guide counseling on mode of delivery, however, it is not known what gestational age can provide the most accurate EFW. Using the Diabetes-in-Pregnancy, Viewpoint and Atlee databases; a cohort of pregnant diabetic women between 2000-2009 will be identified. The primary outcome of this study will be to see whether ultrasound performed at 32-34 weeks gestation can more accurately estimate fetal birth weight compared to ultrasound performed at 36-38 weeks gestation. The Mongelli equation for gestation-age-adjusted fetal birth weight projection will be used to predict EFW at term from measurements obtained from both the 32-34 week and 36-38 week ultrasounds. Secondary outcomes of this study will be to determine whether diabetic pregnancies remain within their growth curve percentiles in the third trimester, and if glycemic control is related. If we are able to show that ultrasounds at 32-34 weeks can accurately predict birth weights at term, then ultrasound at 36-38 weeks may not be necessary.

Investigating the Mechanism of Ghrelin Release

Jeffrey Gagnon and Younes Anini

Background: Ghrelin is a peptide hormone that is primarily produced in the endocrine cells of the stomach. Ghrelin promotes growth hormone release, gastric motility and appetite. Accordingly, ghrelin levels are highest in the fasted state and in individuals with anorexia nervosa. Furthermore, both obesity and hyperinsulemia have been correlated with reduced circulating ghrelin. Despite the extensive literature examining how ghrelin levels may change, little is known on the actual mechanism of ghrelin release from the stomach. This gap in understanding is due to the lack of a cellular model that expresses and secretes ghrelin.

Objective: We aimed to develop a cellular system to investigate the direct mechanisms of ghrelin secretion. With this cell system we examined the effects of hormones, neurotransmitters and nutrients on ghrelin release.

Methods: Primary culture of new born rat stomach cells was completed by whole stomach enzymatic digestion. Cells were grown in culture media for 48 hours. Treatments were given directly into culture media for 4 hours, media was collected and analyzed for ghrelin peptide content by immunoassay.

Results: We first demonstrated that the cells in culture were positive for ghrelin hormone. We observed that ghrelin secretion is stimulated through the ß-adrenergic but not through the cholinergic pathway. We found that insulin inhibited while glucagon stimulated ghrelin release. We then verified that the inhibitory effect of insulin is occurring though the PI3K-AKT signaling pathway. Interestingly, we were able to abolish the inhibitory effect of insulin by rendering our cell system insulin resistant.

Conclusions: This cellular system is the first that allows the study of ghrelin secretion in vitro. Our findings highlight the role of the adrenergic system, as well as insulin and glucagon in the regulation of ghrelin secretion. Understanding how ghrelin levels can be directly altered may enable new strategies for ghrelin altering therapies.

Fetal heart rate activity on 6-8 week ultrasound as a predictor of live birth in women who have undergone *in vitro* fertilization in Halifax, Nova Scotia

Maureen Oramasionwu, Renda Bouzayen, David Young

Introduction: Over the past thirty years *in vitro* fertilization (IVF) has evolved into a precise science. The focus of IVF has moved beyond from detection of early fetal heart rate (FHR) activity to evaluating associated pregnancy complications and neonatal outcomes. Live birth rate and neonatal outcomes following IVF have significant impact on public health, patient counseling, and the informed consent process. Prospective parents are both financially and emotionally invested in the IVF process and should receive accurate center specific data.

Purpose: The primary objective is to correlate the presence of fetal heart activity on 6-8 week ultrasound with live birth rate. For the purposes of this study live birth rate has been defined as birth at 24 weeks gestational age or greater. Secondary outcome evaluation will include preterm labor, fetal malformations, birth weight, and multiple gestation.

Methods: This will be a retrospective cohort study looking at all women (n=250) who underwent *in vitro* fertilization from January 2005 – December 2010 at the Atlantic Assisted Reproductive Therapy (AART) clinic in Halifax. Women who underwent IVF in Halifax, and delivered their babies out of province will be excluded from the study. Patient demographic data, documentation of a positive pregnancy test, and fetal heart rate activity will all be extracted from the AART database. Nuchal translucency ultrasound information will be extracted from the maternal fetal medicine database.

Data Analysis: Pregnancy outcomes and complications of interest to this study are captured in the Nova Scotia Atlee database. Data compilation will involve linking both the Atlee and AART databases. Statistical analysis of secondary outcomes will involve multivariate analysis of independent predictors of poor pregnancy outcome.

Physical Activity during Pregnancy and Fetal Growth

Currie L, Fell D, Woolcott C, Armson A, Dodds L

Background: Maternal behaviors affecting energy balance, such as physical activity, may affect fetal growth. However, few studies have investigated this issue.

Objective: To assess the relationship between physical activity and preterm birth (PTB), low birth weight (LBW) and macrosomia.

Methods: This study used existing data from a prospective cohort of women 4-20 weeks gestation presenting for prenatal care in Halifax, Nova Scotia between 2002-2005 (n=1687). Participants completed a questionnaire including the Kaiser Physical Activity Survey based on active living, household activity, and sports-related activity during early pregnancy. Outcomes, determined by linkage with the provincial perinatal database were PTB (<37 weeks gestation), LBW (<2500g) and macrosomia (>4000g). Logistic regression was used to estimate odds ratios (OR) and 95% confidence intervals (CIs), adjusted for maternal age, marital status, prepregnancy body mass index, smoking status and baby's sex.

Results: Physical activity scores were not associated with PTB or LBW. Relative to the lowest tertile, women with a physical activity score in the middle tertile were at a nonsignificantly lower risk (OR: 0.78, CI: 0.57-1.07), and women in the highest tertile were at significantly lower risk of having a baby above 4000g (OR: 0.65, CI: 0.47-0.89). Trend analysis indicated that greater physical activity in pregnancy was associated with lower risk of having a baby above 4000g (p-trend=0.01), adjusting for confounding factors.
Conclusions: Our analysis suggests that physical activity during pregnancy may decrease the occurrence of macrosomia. Further research is necessary to determine the effect of physical activity in pregnancy on neonatal outcomes.

Outcomes in an Early Pregnancy Complications Clinic: A five year audit, 2005-2009.

E. Lu-Olaco, T.F. Baskett

Objective: To evaluate the outcomes in the first 5 years of an early pregnancy complications clinic (EPCC)

Methods: A retrospective study of women attending the EPCC of the Women's Hospital, IWK, Halifax in 2005-2009. For each of the three main diagnoses: missed and incomplete miscarriages and ectopic pregnancy, 25 random charts were reviewed for each of the three treatment options: expectant, medical or surgical – a total of 225 charts. The treatment outcomes and complications were reviewed.
Results: There were 2345 initial and follow up visits. Main diagnoses: missed (911), incomplete (414), complete (279) miscarriage and ?ectopic/ectopic (142). The need for retreatment (%) and the average days(d) to completion of management in the three main diagnostic categories was:
Missed: expectant (44%, 6d), medical misoprostol (44%, 10d), surgical D&C (0%, 2d)
Incomplete: expectant (28%, 15d), medical misoprostol (16%, 14d), surgical D&C (0%, 1d)
Ectopic: expectant (42%,14d), medical methotrexate (24%, 30d), surgical laparoscopic (12%, 12d)
The complication rates [blood transfusion(1), infection (2), readmission (2)] were very low and not significantly different between groups. The only significant difference was visits to the emergency department in the medical (misoprostol) group for missed abortion (24%) versus expectant (4%) and surgical (0%) [RR2.14 (1.448-3.172) compared to D&C]
Conclusion: All these treatments have low complication rates, but the expectant and medical options have a significantly higher need for retreatment and take longer to complete compared to surgical management. This information enhances the ability to provide informed consent for women considering these management options.

A pilot study to determine the accuracy of non-invasive, fetal Rh genotyping in Nova Scotian women.

Kim MacDonald, Robert Liwski, Michiel Van den Hof

Objectives: To evaluate the accuracy of non-invasive, PCR-based testing of fetal DNA in maternal plasma for Rh genotype.

Study Methods: To date, our pilot study at the IWK Health Center in Halifax, NS has recruited twenty-one Rh negative, pregnant women between 27w and 40w gestation. Fetal DNA was isolated from the plasma fraction of maternal whole blood and tested for fetal Rh type by quantitative PCR amplification of exon 5 and exon 7 of the RHD gene. Fetal gender (SRY gene) was simultaneously tested. PCR results were compared to cord blood Rh type (direct Coomb's test) and gender at birth.

Results: Fetal gender and Rh type were predicted with 95.2% and 100% accuracy, respectively. qPCR quality assurance parameters, for example cycle detection limits and criteria for re-testing, were established to maximize testing sensitivity and accuracy.

Conclusions: This pilot study suggests that non-invasive, fetal Rh testing is highly accurate. With diagnosis-based, targeted anti-D IG prophylaxis, 35000 Canadian women per year could avoid anti-D IG administration (45% of Rh- women carry Rh- fetuses). Minimizing blood product exposure, cost saving and conserving limited anti-D IG make this a worthy goal. Our next step is to confirm our results in a larger study group, with strict quality assurance parameters and a universal fetal DNA marker to minimizes false negative results.

Missed Cases of CIN3+ at First Colposcopic Visit: A Nova Scotian Perspective   on the Accuracy of Colposcopy

Maegan Rutherford, Jim Bentley

Abstract:

Cervical cancer is the second most common cancer among women worldwide. The current gold standard for diagnosing cervical precancerous changes is through colposcopically-guided tissue biopsy. If the colposcopic impression does not guide the biopsy to the area of worst actual pathology, there is concern that cervical lesions may be missed or their severity under-diagnosed. There is data showing that colposcopy and guided biopsies are missing a significant number of CIN2 and more severe lesions (CIN2+). Canadian data on the accuracy of colposcopy is lacking. This study aims to provide a Canadian perspective on accuracy of colposcopy by identifying the number of missed prevalent cases of CIN3+ at first colposcopic examination.

This will be a retrospective cohort study using information from the Provincial Cytology and Colposcopy Registry database coordinated by the Cervical Cancer Prevention Program of Nova Scotia. Study subjects will be women aged 21 or older who were referred for colposcopy due to abnormal cervical cytology from Pap smear screening who underwent first colposcopy between 2006 and 2008 at the QEII colposcopy clinic. The results of colposcopic examinations for these women will be followed from their first visit until two years after that visit. Primary analysis will use x^2 or logistical regression analysis. Accuracy will be determined based on percent agreement and the kappa statistic to determine the level of concordance between colposcopic impression and histology from cervical biopsy, as well as using the sensitivity of initial colposcopy to detect 2-year cumulative diagnosis of CIN3+.

An investigation of reproductive stoppage in a cohort of Nova Scotia families affected by autism spectrum disorders

Priscilla Frenette, Linda Dodds

Background: Following the birth of a child with a serious mental or physical impairment, parents may alter family planning decisions in a phenomenon known as reproductive stoppage. It has been suggested that evidence of reproductive stoppage can be found by examining birth orders of affected families. To date, reproductive stoppage has been associated with several conditions, but conflicting results have been reported with respect to autism spectrum disorders (ASDs).

Methods: This population-based cohort study investigated evidence of reproductive stoppage among ASD-affected families in Nova Scotia. A cohort of affected families was identified using provincial population-based perinatal and administrative health databases. Birth orders were examined using Pearson chi-square and partial Mann-Whitney U tests to assess the distribution of affected children. Logistic regression was used to investigate an association between age at ASD diagnosis and presence of subsequent children.

Results: In total, 240 families were included in the analyses. There was insufficient evidence to reject the null hypothesis that affected children were randomly distributed within the birth order in sibships of size two or sibships of size three or more (p=0.0614; p=0.0647). In adjusted logistic regression analysis, a one year increase in age at ASD diagnosis was associated with a 0.19 decrease in the odds of no subsequent children (p=0.0005).

Conclusions: In this cohort, birth order analyses provided inconclusive evidence for reproductive stoppage while investigations of the age at ASD diagnosis showed a strong association between earlier age of autism diagnosis and the decision not to have subsequent children. These findings emphasize the importance of early ASD detection for enabling informed family planning decisions and draw attention to the complexity associated with reproductive stoppage within this population. As widespread practice of reproductive stoppage can lead to underestimates of true sibling risks, research in this area may have important implications for genetic counselling.

Fetal sex as a determinant of preterm birth and small for gestational age

James Andrews, Victoria Allen

Objective: To estimate the influence of fetal sex on preterm birth (PTB) and small for gestational age (SGA).

Study Methods: Medline, Embase, Science Citation Index and bibliographies were searched for relevant publications. Abstracts were first reviewed and then relevant studies and pertinent references from bibliographies were assessed by two reviewers for quality and applicability. The meta-analysis evaluated univariate and multivariate comparisons using Rev Man 5.0 and accounted for heterogeneity among studies. Results were reported as summary odds ratios (OR) and 95% confidence intervals (95% CI).

Results: Nineteen publications met eligibility criteria. In singleton pregnancies, male sex was associated with an increased risk of PTB as defined by GA <37 weeks, <32 weeks and <28 weeks (OR 1.16, 95% CI 1.16-1.17, OR 1.16, 95% CI 1.14-1.1, OR 1.18, 95% CI 1.14-1.22, respectively). Multivariate analyses showed a similar effect (OR 1.14, 95% CI 1.11-1.17). Mean birth weight was higher for male fetuses (mean difference 127g, 95% CI 125g-129g). Male fetuses were less likely to be SGA (<10th %ile, OR 0.61, 95% CI 0.58-0.64). Five studies reported data on multiple gestations; pooled analysis was not possible due to differences in gestational age stratifications.

Conclusion: The increased risk of PTB in singleton pregnancies associated with male sex persists with consideration of confounding factors. While male sex is less likely to be associated with lower birth weight and SGA, adjusted analyses are lacking. The influence of fetal sex in multiple gestations is less clear.

The prevalence of smoking among pregnant women in Nova Scotia from 1988 to 2009

Mila Smithies, Linda Dodds

Introduction: Although smoking among pregnant women is becoming less common in Canada, it remains a significant and preventable cause of adverse outcomes, both in the perinatal period as well as later in childhood. Canadian data on maternal smoking in pregnancy is limited, and what is available is for the most part retrospective and outdated. Despite a national decreasing trend in maternal smoking rates, recent data suggest that the number of women smoking during pregnancy in Nova Scotia is stable or increasing.

Purpose: The primary objective of this study is to determine the prevalence of smoking during pregnancy in Nova Scotia between 1988-2009. The secondary objective is to identify socio-demographic characteristics associated with smoking status during pregnancy.

Methods: This population-based descriptive study will use the Atlee Perinatal Database to determine the prevalence of smoking during pregnancy between 1988-2009. All residents of Nova Scotia who delivered a live or stillborn baby during this timeframe will be included (n=221,426). Smoking rates will be subdivided into women smoking pre-pregnancy, at the first prenatal visit, and finally at the time of admission. In order to develop a profile of maternal smokers, subdivided into those who quit (successfully vs. unsuccessfully) and those who continued to smoke throughout pregnancy, the data will be analyzed according to socio-demographic parameters.

Data analysis: Logistic regression analyses will be conducted to determine the association between smoking status and socio-demographic factors. Smoking status will be analyzed according to the following dichotomies: smokers vs. non-smokers, attempted quitters vs. continuous smokers, and finally successful quitters vs. unsuccessful quitters.

Role of apelin in adipose tissue

Kyungsoo Shin, Younes Anini

Apelin is a peptide hormone that is widely expressed in various organs such as the heart, lung, kidney, adipose tissue, and brain. Apelin has been shown to decrease anti-diuretic hormone secretions, and increases water and food intake. Apelin was shown to increase the force of heart contractions, and decreases blood pressure. Therefore, apelin can be used as a preventive method of therapy against hypertension and high blood pressure, which is one of the leading causes of heart attack. Interestingly, apelin is expressed in adipose tissue and its level in circulation increases with obesity, insulin resistance and hyperinsulinemia.

Apelin is found in circulation with different sizes varying from 13 to 36 amino acid long peptides, and their lengths determine the potency of their effects on the apelin receptor. To understand the role of apelin in the regulation of fat cells formation and function, we investigated the effects of different apelin peptides of varying lengths on fat cell precursor differentiation (adipogenesis), the release of free fatty acids by fat cells (adipolysis), and investigated the intracellular pathway involved in the effects of apelin.

Our results demonstrated that apelin peptides inhibit adipolysis and that apelin acts on adipocytes through the MAPK and probably the cAMP and Akt pathways.

Does uterine septum repair increase live birth rate compared to women with otherwise unexplained infertility?

Splinter, KL and Healey SA

Objectives: To determine if women who undergo a uterine septum repair have higher live birth rates than women with a normal hysteroscopy and unexplained infertility.
Study Methods: Using surgical billing records from Fertility Services Newfoundland a cohort of all women at our tertiary care centre undergoing metroplasty from October 2003-December 2009 were identified. The study patients were matched with the next four women from Fertility Services undergoing a diagnostic hysteroscopy. The patients were followed from surgery to March 2011 to determine if they had a pregnancy and the outcome of that pregnancy.
Results: 40 women underwent uterine septum repair (SR) during the specified timeline and were matched with 200 women who had a diagnostic hysteroscopy (DH). The groups were similar in age, BMI, years trying to conceive and surgeon. 33/40 women in the SR group became pregnant vs. 76/200 in the DH group (p=0.007). These pregnancies resulted in 22 (SR) and 58 live births (DH), p=0.094.The SR group had a higher proportion of patients with risk factors for preterm delivery (any of admission for TPTL, antenatal steroids or short cervix on ultrasound) 8/22 vs 6/58, p=0.004. 3 women in SR and 1 in DH group received a cervical cerclage (p=0.053). Excluding non-viable deliveries, the average gestational age for the SR and DH groups was 266.9 +/- 22.5 days and 273.7 +/- 17.4 days, respectively (p=0.218). 5 more study patients and 20 controls remained to be enrolled.
Conclusions: Uterine septum repair resulted in higher pregnancy rates but a non-significant increase in live births compared to women undergoing a diagnostic hysteroscopy for infertility. The difference may be significant after the final analysis with 45 patients. Secondary analyses revealed a higher proportion of women with risk factors for preterm delivery in the septum repair group but a non-significant difference in gestational age at delivery. Our centre routinely follows uterine septum repair patients with transvaginal ultrasound for cervical length from 20 to 32 weeks gestation.

Teaching Cystoscopy: Evaluation of a Curriculum for Residents in Obstetrics and Gynecology

Barbara Reichetzer, Scott Farrell, Alfred Bent, Baharak Amir, Marianne Pierce, Donna Gilmour

Objective: Urinary tract injury is a well known complication in gynaecological surgery and is reported in 1 percent of women who undergo pelvic surgery. It is best recognized by cystoscopy. Therefore, proficiency in cystoscopy helps gynecologists provide the best level of care. However, intraoperative cystoscopy is currently done by only 48% of gynaecologists and lack of training seems to be the principal barrier. In order to teach cystoscopy to residents in Obstetrics and Gynecology, we developed a curriculum consisting of a theoretical and a practical part. The study question we want to answer with this project is: does using this curriculum translate into increased intraoperative skills and competency? The findings of this study could help in understanding how to teach cystoscopy to gynecologists and evaluate their competency.

Methods: For baseline evaluation, participating residents who consented will do a cystoscopy evaluated by an OSAT (Operative Skills Assessment Testing) in an intraoperative setting and score their comfort level using a VAS (visual analogue scale).
Next, after having gone through provided reading material about cystourethroscopy, they are asked to complete a written test at home. The curriculum itself consists of a theoretical part, including a presentation and two short videos about findings on cystoscopy. The practical component involves assembling a cystoscope and performing a cystoscopy on a simple model using a balloon.
 After completion of the session, each resident has to do a total of three intraoperative cystoscopies in order to satisfy full requirements of the course. The score on the precourse OSAT will be compared to that achieved on the third intraoperative cystoscopy done after the course and to an intraoperative cystoscopy done 6 months later. Secondary outcome will be the change in the VAS. All residents will be asked to complete an anonymous questionnaire about the perceived usefulness of the curriculum.

Acute Disseminated Intravascular Coagulation (DIC) In Obstetrics: A Tertiary Centre Population Review (1980-2009)

D D Rattray, C M O'Connell, and T F Baskett.

Objective: To determine the antecedent factors, morbidity, and mortality associated with Disseminated Intravascular Coagulation (DIC) in a Nova Scotian obstetrical population over a 30 year period.
Methods: Cases of DIC were identified from the Nova Scotia perinatal database and the hospital charts reviewed. The diagnosis of DIC was confirmed or refuted using a combination of the International Society of Thrombosis and Haemostasis scoring system and an obstetrical DIC-severity staging system (Stage 1 = Low grade compensated DIC; Stage 2 = Uncompensated DIC but no haemostatic failure; Stage 3 = Rampant DIC with haemostatic failure). The cause of DIC was determined from chart review. Maternal morbidity included hysterectomy, massive transfusion (>5 units), ATN requiring dialysis, and ICU stay. Maternal mortality was also examined. Neonatal outcomes included Apgar scores, mortality, and NICU admissions. Treatment of DIC was assessed by blood products administered, postpartum haemorrhage management, and laboratory measurements.
Results: 49 cases of DIC in 151678 deliveries (3 per 10,000) over the 30 years (1980-2009).
Antecedent causes: placental abruption (37%), postpartum haemorrhage/hypovolaemia (29%), preeclampsia/HELLP (14%), acute fatty liver (8%), sepsis (6%), and amniotic fluid embolism (6%).
Maternal morbidity: hysterectomy (18%), transfusion >5 units (57%), ICU admission (38%), ATN/Dialysis (6%). Maternal deaths 3 (6%).
Perinatal outcomes: stillbirth (25%), neonatal death (5%), NICU admission (55%)
Conclusion: Obstetrical DIC is a relatively uncommon diagnosis associated with high morbidity and mortality. Prompt recognition and treatment with timely administration of blood products is crucial in the management of this life-threatening disorder.