DEPARTMENT OF
GYNECOLOGY-OBSTETRICS

Annual
RESIDENT RESEARCH DAY

Visiting Professor:
Jean Wactawski-Wende, Ph.D.
Professor and Associate Chair,
Department of Social and Preventive Medicine
Professor, Gynecology-Obstetrics
Vice Provost for Strategic Initiatives
University at Buffalo

Wednesday, May 26, 2010
8:00am – 10:45am

Women & Children’s Hospital
Alford Auditorium
219 Bryant Street
Buffalo, New York
Resident Research Day Schedule
Wednesday, May 26, 2010

Moderator: Glenna Bett, Ph.D.
8:00 – 8:10 a.m. “Relationship Between Body Mass Index and Indications for Primary Cesarean Deliveries”
Monica J. Chun, M.D.
Mentor: Kenneth Kahn, M.D.

8:15 – 8:25 a.m. “The Incidence of Ovarian Vein Thrombosis after Total Abdominal Hysterectomy”
Christian Dolensek, D.O.
Mentors: Ali Ghomi, M.D. & Reza Askari, M.D.

8:30 – 8:40 a.m. “Physician Attitudes toward Elective Termination in Western New York”
Sara Gerhards, M.D.
Mentors: Kenneth Kahn, M.D. & Glenna Bett, Ph.D.

1st Place WINNER
8:45 – 8:55 a.m. “Gout and Pregnancy”
Sangeeta Gupta, M.B.B.S.
Mentor: Ronald Batt, M.D., Ph.D.

9:00 – 9:15 a.m. BREAK
Moderator: Ronald Batt, M.D., Ph.D.

9:15 – 9:25 a.m. “Assessment of Renal Function During Pregnancy Using Glomerular Filtration Rate (GFR) and Creatinine Clearance (CrCl) Estimation Equations”
Arminda Mauricio, M.D.
Mentor: Bruce Rodgers, M.D.

2nd Place WINNER
9:30 – 9:40 a.m. “Differences in Multiples of median (MOM) in Left and Right Middle Cerebral Artery Dopplers (MCA).”
Sreelatha Pottala, M.B.B.S.
Mentor: Kofi Amankwah, M.D.

Henry Reyes, M.D.
Mentor: Ali Ghomi, M.D.

10:00 – 10:10 a.m. “A Retrospective Analysis of Perioperative Antibiotic Dosing for Cesarean Delivery and Subsequent Infection Rates.”
Kristen Smyers, M.D.
Mentors: Armando Arroyo, M.D. & Farkad Balaya, M.D.

10:15 – 10:30 a.m. BREAK

10:30 a.m. Presentation of Awards

Research Awards
Jean Wactawski-Wende, Ph.D. & Armando Arroyo, M.D.

Chief Resident Award
Chief Residents

10:45 a.m. Luncheon (In Ob/Gyn Classroom)
**ABSTRACTS**

“Relationship Between Body Mass Index and Indications for Primary Cesarean Deliveries”

**Monica J. Chun, M.D.**

Mentor: Kenneth Kahn, M.D.

**Background:** The cesarean delivery rate in the United States began to rise in the mid-nineties. There are many theories as to why this increase has occurred; it may be due to a change in physician’s practices or due to maternal choice. However, one cannot ignore the fact that there has been an overall increase in the prevalence of obesity in the general population, including in women. There are many studies that show an increased risk of cesarean delivery in patients with increased body mass index (BMI), however, there are no good studies demonstrating that the increased risk of cesarean in delivery is due to an increased risk of cephalopelvic disproportion (CPD).

**Objective:** To determine if the higher risk of cesarean delivery for patients with higher body mass index is due to an increase risk of cephalopelvic disproportion.

**Methods:** The primary method was a retrospective chart review of Women and Children’s Hospital at Buffalo’s patients who underwent a primary cesarean delivery during the year 2008 (total n=856). Exclusion criteria included any patients who underwent a primary elective cesarean delivery and delivery prior to 36 weeks. A total of 267 patients were included in the study. Patients were divided into 5 different BMI groups: A (18.5-24.9); B (25-29.9); C (30-34.9); D (35-39.9) & E (>40).

**Results:** The preliminary data has shown that out of 199 patient’s charts that have been reviewed, 8% of the patients were in Group B, 28% in Group C, 29% in Group D, 15% in Group E, and 19.1% in Group F. In Group A, 25% of patients had cesarean delivery due to CDP, 33.33 % in Group B, 53.45 % in Group C, 53.33% in Group D, and 42.11% in Group D.

**Conclusion:** This study has demonstrated that as the body mass index increases, there is a higher risk of cesarean delivery due to cephalopelvic disproportion.

“The Incidence of Ovarian Vein Thrombosis after Total Abdominal Hysterectomy”

**Christian Dolensek, D.O.**

Mentors: Ali Ghomi, M.D. & Reza Askari, M.D.

**Objective:** To determine the incidence of ovarian vein thrombosis in patients who have undergone total abdominal hysterectomy with and without bilateral salpingoophorectomy for benign disease.

**Methods:** Medical records from patients who underwent total abdominal hysterectomy with or without bilateral salpingoophorectomy for benign disease between 2001-2009 were examined. The primary outcome measure was the incidental finding of ovarian vein thrombosis. This was assessed by evaluating CT scans of the pelvis performed within 90 days of surgery.

**Results:** 540 cases of TAH were reviewed, and 58 of those patients had CT scans performed within the specified time frame. Results and patient characteristics are pending.

**Conclusion:** When done for benign disease the incidence of ovarian vein thrombosis after abdominal hysterectomy is low. This contrasts sharply with previously reported results when performed for gynecologic malignancy.
“Physician Attitudes toward Elective Termination in Western New York”

Sara Gerhards, M.D.
Mentors: Kenneth Kahn, M.D. & Glenna Bett, Ph.D.

**Precis:** Physicians report a training deficiency and subsequent practice deficiency in dilation and evacuation Western New York

**Objective:** To identify if physicians in Western New York self report a training deficit in the area of pregnancy termination. To explore why this training deficit exists and the implications of this deficit on access to care.

**Methods:** A survey and cover letter requesting anonymous opt-in participation was sent to all OBGYN physicians in the Buffalo Metro area with affiliations to either of both hospital networks with an OBGYN service; Kaleida & the Catholic Health System. The survey contained 3 demographic questions followed by 17 questions to assess the respondents opinion regarding elective termination, training and surgical competency in performing dilation and evacuation, and if they provide elective termination and/or non-elective D&E. The survey utilizes a Likert scale with 5 gradations from strongly agree to strongly disagree. 180 surveys were distributed. 95 surveys were returned, yielding a 53% response rate. Statistical software was used to evaluate response and identify correlations between questions. A P-value less that 0.05 was considered significant.

**Results:** Most Obstetricians in WNY are not comfortable performing a dilation and evacuation. A correlation exists between participation in elective terminations and self reported surgical competency in elective and non-elective terminations. Most physicians in WNY do not offer D&E to their patients with a 2nd trimester missed abortion or intrauterine fetal demise.

**Conclusion:** There is a general aversion toward elective termination among physicians in Western New York. This aversion has lead to a training deficit in elective and non-elective terminations. This training deficit affects patient access to medical intervention in elective and non-elective termination.

“Gout and Pregnancy”

Sangeeta Gupta, M.B.B.S.
Mentor: Ronald Batt, M.D., Ph.D.

**Objective:** To propose a research project investigating the possible association of an underlying nephropathy and development of gout.

**Methods:** A literature search of case reports on gout in pregnancy between 1943 and 2010. A designated set of search words was applied to a comprehensive set of search engines including pubmed and scopus to ensure that relevant research was included.

**Results:** Only 5% of patients with gout are premenopausal women. Only 9 cases of gout in pregnancy have been reported in the literature in the last 6 decades. On review of preliminary data, our patients fall in the 27-36 age group. 5 had nephropathy diagnosed on the basis of altered urate and creatinine clearance and sonographic findings of a contracted kidney. 2 patients had strong family history of gout but in male relatives. 3 of the cases had pre eclampsia leading to renal insult.

**Conclusion:** We postulate the presence of an underlying renal pathology leading to the development of gout in pregnant females.
Assessment of Renal Function During Pregnancy Using Glomerular Filtration Rate (GFR) and Creatinine Clearance (CrCl) Estimation Equations

Arminda Mauricio, M.D.
Mentor: Bruce Rodgers, M.D.

Introduction/Objective: Renal insufficiency frequently occurs in disorders such as diabetes, hypertension or preeclampsia. It is standard of care to assess baseline and ongoing renal function during pregnancies complicated by these disorders. Failure of the physiologic enhancement of renal function in pregnancy may result in adverse effects (i.e. poor fetal growth, premature delivery, superimposed preeclampsia). GFR is the gold standard for assessing renal function. In research settings it is estimated either by inulin clearance or radioactive isotope. It is clinically estimated by 24-hour urine creatinine clearance which overestimates GFR by 10%. CrCl is cumbersome and frequently hampered by poor patient compliance and inadequate sample collection. In response to this, “estimation equations” were developed to estimate CrCl and GFR in the non-pregnant population. These only require a serum sample and a few patient variables (i.e. gender, race, age, weight). The two best-studied equations are the Modification of Diet in Renal Disease (MDRD) and the Cockcroft-Gault (CG) equations. The MDRD equation was compared to GFR in small cohorts of normal pregnancies and in pregnancies complicated by preeclampsia and renal disease, using inulin clearance as an estimation of GFR. The CG equation was compared to creatinine clearance in a small cohort of normal pregnancies. However, neither equation has been validated in a large group of diverse pregnancies using creatinine clearance as the gold standard.

The purpose of this study was to assess the accuracy of the MDRD and CG equations as an estimate of creatinine clearance in a diverse group of pregnant women with medical and obstetrical disorders in which renal function is traditionally evaluated.

Design: Retrospective review of inpatient and outpatient records from the Women and Children’s Hospital of Buffalo (WCHOB).

Methods: 269 patients from WCHOB who underwent assessment of their renal function (i.e. diabetic, hypertensive, preeclamptic) were in the database that spanned 16 years. 221 patients had completed the data for CrCl, MDRD and CG. Assessment was done predominantly in the second and third trimesters. Data collected from maternal charts include age, race, height and weight at the time of urine collection, pre-pregnancy weight, body mass index, type of medical disorders, estimated date of confinement, gestational age at the time of urine collection, serum creatinine and creatinine clearance. The adequacy of 24-hour urine collection was determined by total urinary creatinine excretion. Only patients with adequate 24-hour urine collection were included. The 24-hour creatinine clearance was compared to the estimated creatinine clearance using MDRD and CG equations. Paired t-test, Pearson correlation coefficient and the Bland Altman plot were used to analyze the data.

Results: The mean CG was higher than the mean CrCl. The difference between the mean CG and the mean CrCl was highly significant. The mean MDRD was not statistically different than the mean CrCl. However, the correlation between CrCl and CG was poor ($r=0.3$), and the correlation between Cr and MDRD was also poor ($r=0.4$). The Bland Altman plots for the MDRD and CrCl showed that the MDRD may measure 90 ml/min above or 90 ml/min below the actual CrCl which would be unsuitable for clinical use. Likewise the plot for the CG and Cr Cl showed a similarly unacceptable measurement discrepancy. The poor correlation between CrCl and either MDRD or CG did not substantially change when controlling for diabetes, hypertension, preeclampsia and obesity.

Conclusion: Neither CG or MDRD are suitable estimates of Creatinine Clearance (CrCl) when measured in pregnant women at risk for renal disease (i.e.: diabetes, hypertension or preeclampsia). 24 hour Creatinine Clearance should be used in this setting.
“Differences in Multiples of median (MOM) in Left and Right Middle Cerebral Artery Dopplers (MCA).”

Sreelatha Pottala, M.B.B.S.
Mentor: Kofi Amankwah, M.D.

**Introduction:** Middle cerebral artery Doppler is used to predict fetal anemia. Fetal anemia is associated with decreased blood viscosity resulting in increased blood velocities. Peak velocity in MCA employed to study fetal anemia, values of 1.5 Multiples of Median (MOM) for corresponding gestational age, predicts moderate to severe anemia with a sensitivity of 88% and specificity of 89%. As per available literature, 60% of time either the right or left MCA is associated with a Berry aneurism.

**Objective:** MCA Doppler measurements are routinely done on a single artery. A case study done in New Mexico showed normal Doppler of the right MCA and persistent discordant Doppler in the left MCA. This fetus had low hematocrit with abnormal Doppler isolated to one MCA. The purpose of this study is to do right and left MCA Doppler measurements, and to identify any difference in MOM values.

**Design:** Prospective study done on patients from perinatal center.

**Method:** The study was conducted in the time frame of 2yrs, which is from 2007 to 2009. Our study included 13 patients. Serial sonograms conducted on gestational ages from 18-34 weeks. Right and left MCA Dopplers are conducted at 2mm after its origin from Internal Carotid Artery. Patients included in our study were RH sensitized mothers.

**Result:** We calculated MOM on both right and left MCA. Preliminary data shows no difference in MOM in either right or left of MCA.

**Conclusion:** Our preliminary data does not show any difference between MOM values of the right and left MCA. However we believe from now on we should mention whether Dopplers were done on right or left MCA.

“Vaginal Hysterectomy Using Traditional and New Surgical Devices: A Comparative Analysis.”

Henry Reyes, M.D.
Mentor: Ali Ghomi, M.D.

**Objective:** The purpose of this study is to determine if there is any difference in surgical outcomes and patient morbidity among the various traditional and emerging surgical devices used in performing vaginal hysterectomies. It aims to compare the efficacy, safety and complications associated with using electrosurgery, endoloop and endostaples versus traditional clamping and suture ligation.

**Methods:** A retrospective chart review of 460 patients who have undergone vaginal hysterectomies in Millard Fillmore Suburban Hospital in Buffalo, NY, between year 2007 and 2009 is currently being undertaken. Information collected from the patient records include: age, gravidity and parity, ethnicity, Body Mass Index, previous abdominal laparotomies, uterine weight, indication and concomitant procedures, length of total operating time, pre and post-op hemoglobin, duration of hospital stay, complications, and device/ instrument used on the vascular pedicles. A retrospective analysis will then be performed.

**Results/ Conclusion:** Once all of the charts are reviewed, parameters from the cases using electrosurgery, endoloop and endostaples will be compared with traditional clamping and suture ligation. Data collection is ongoing and there are currently 160 charts reviewed. Completion of data collection is anticipated by the 1st week of May 2010.
Introduction/Objective: it is known that different perioperative antibiotic dosing regimens are utilized for cesarean section. It is hypothesized that more doses result in fewer post-operative wound infections. Women who developed post-cesarean wound infection were selected and their antibiotic dosing regimen established. This was then compared to the antibiotic dosing regimen of women who did not develop infection post-cesarean delivery.

Methods: a retrospective chart review was conducted and a case controlled study undertaken. Charts of patients who developed infections were studied first. Charts of non-infected patients were then requested by year in direct proportion to the number of infected patients within the same year, in order to control for any institution wide policy changes that may have occurred in any given year. Variables relating to antibiotic administration were analyzed including type of antibiotic and number of doses administered. Other variables including method of skin closure, indication to perform cesarean delivery, and day of bandage removal were all recorded.

Results: 200 charts reviewed from Women and Children’s Hospital of Buffalo – final statistical data pending. Regression analysis utilized. Zero wound infections developed after patients received multiple antibiotic doses in the perioperative period.

Conclusion: Preliminarily, multiple doses of perioperative antibiotics are superior in infection prevention within the same patient population. They almost exclusively prevented development of wound infection when compared with single dose administration which is the current recommendation. Specific antibiotic type does not seem to influence outcome. Whether increased antibiotic dosing is cost effective will require further study.