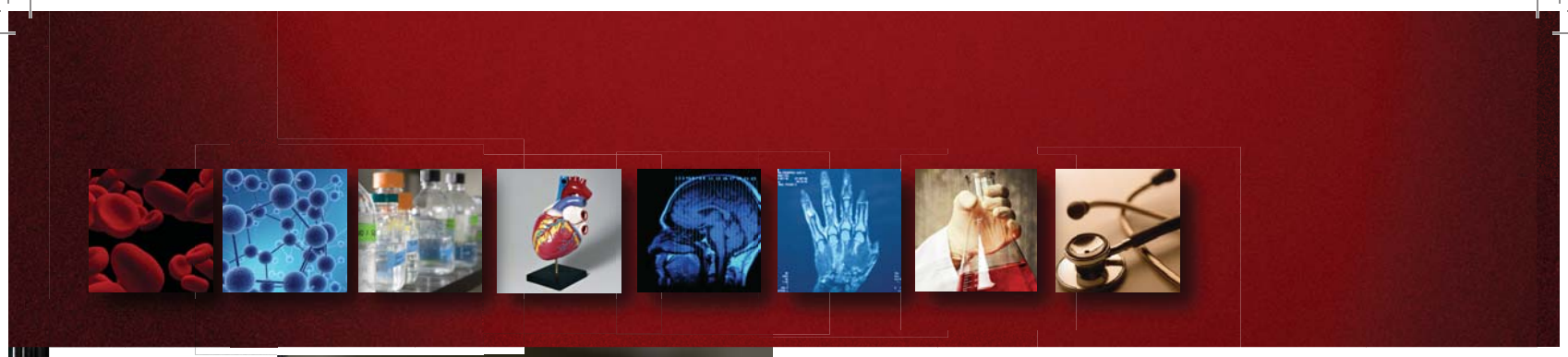
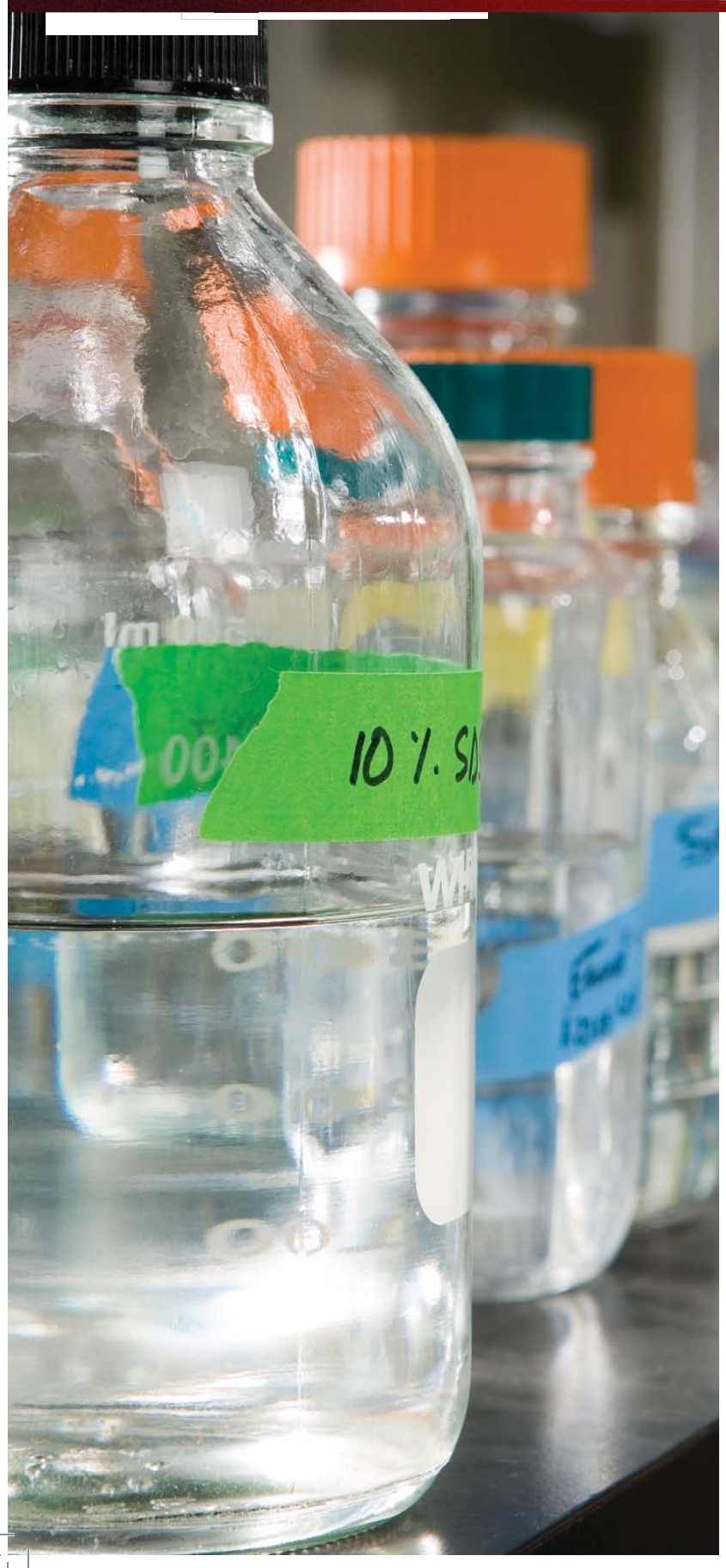
TEXAS TECH UNIVERSITY
HEALTH SCIENCES CENTER™
at the Permian Basin

Twenty-Second Annual Research Day

Permian Basin Campus

May 17, 2013





Oral Presentations

9:00 *Coffee*

9:30 *Welcome*
Gary Ventolini, M.D.
V. Daniel Castracane, Ph.D.

Case Reports

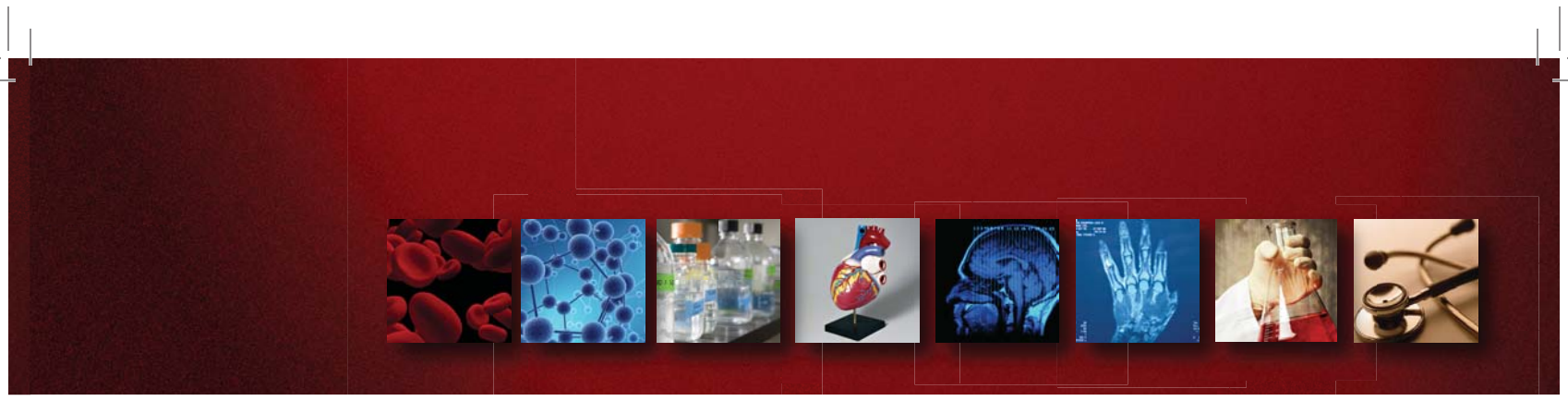
9:45 *"A Review of the Neurological Side Effects of Isotretinoin"*
Chinelo Ikpeama, MS3

10:00 *"Adrenal Crisis in a Patient with Acute Myeloid Leukemia"*
Wang Li, M.D., Ph.D., PGY I, Alaaedin Alhomosh, M.D., PGY II and Karla Toledo-Frazzini, M.D.
Department of Family and Community Medicine

Proposals

10:15 *"The Effect of No Prenatal Care on Maternal and Perinatal Outcome in West Texas"*
Peter Hsu, M.D., PGY II, Obstetrics and Gynecology

10:30 *"Relationship of Maternal Serum Biomarkers at Early or Late Gestation to Predict Fetal Growth"*
Katherine Nelson, M.D., PGY II, Obstetrics and Gynecology



10:45 *"Improving Varicella Zoster Vaccination in Adults Older than 60 Years of Age in Geriatric Clinic"*
Nimat Alam, M.D., PGY IV, Department of Family and Community Medicine/ Geriatric Fellow

11:00 *"The Relationship of Metabolic Changes in Pregnancy to the Incidence of Non-Alcoholic Fatty Liver Disease in Reproductive Aged Women"*
Kathryn Hutton, D.O., PGY I, Obstetrics and Gynecology

11:15 *"Non-Alcoholic Fatty Liver Disease in Mothers and Fetuses at Late Gestation"*
Curtis Boyd, D.O., PGY I, Obstetrics and Gynecology

11:30 "*A Case Study to Evaluate Average Time for Onset of Labor in Healthy Primagravidas with Varied Activity Levels"*
Kaysi Benefield, D.O., PGY II, Obstetrics and Gynecology

11:45 *"Investigation of Non-Alcoholic Fatty Liver Disease in Neonates"*
Leela Sharath Pillarisetty, M.D., PGY II, Obstetrics and Gynecology

12:00 Keynote Speaker –
Joaquin Lado, M.D.,
Professor and Division Chief: Endocrinology
Texas Tech University Health Sciences Center, Lubbock

Lunch will be provided

Completed and Partially Completed Projects

1:30 *"The Relationship of Placental Number (Mass) to the Maternal Serum Levels of Leptin, Adiponectin and Resistin"*
Savitha Singh, M.D., PGY III, Obstetrics and Gynecology

1:45 *"Gestational Weight Gain"*
Lauren Hermann, D.O., PGY III, Obstetrics and Gynecology

2:00 *"Repeat Gonorrhea and Chlamydia Screening during Pregnancy at a Community Based Clinic"*
Audrey Marshall Lundberg, D.O., PGY IV, Obstetrics and Gynecology

Winners will be announced immediately following the presentations.

Adjudicators

Timothy Benton, M.D.

Associate Professor and Regional Chair of the Department of Family & Community Medicine at TTUHSC School of Medicine at the Permian Basin

Dr. Benton obtained his medical degree from TTUHSC School of Medicine and completed residency training at the University of Texas Health Center at Tyler. After residency he practiced in rural west Texas and Amarillo for eight years including medical directorships in home health and hospice agencies, and nursing homes. In 2005, Benton became TTUHSC faculty and has served as residency program director since 2008. During his time as faculty, Benton's scholarship included several peer-reviewed research and review articles, a family medicine textbook chapter, Essential Evidence Plus monograph and BMJ Epocrates Point of Care monographs, as well as serving as a peer-reviewer for the American Family Physician, Postgraduate Medicine and Epocrates Point of Care. Benton is currently Associate Professor, program director and cegional chair in the Department of Family and Community Medicine at TTUHSC Permian Basin.

Everardo Cobos, M.D, F.A.C.P.

Professor of Medicine at TTUHSC - Lubbock

Dr. Cobos is professor of medicine and director of the hematology/oncology/ stem cell transplantation division at TTUHSC-Lubbock.

Cobos is also the program director of the Stem Cell Transplantation Program and director of the Oncology Fellowship at TTUHSC. Cobos has been at Texas Tech since 1991 and is board certified in internal medicine, medical oncology and hematology. His clinical interests are in hematologic malignancies and his research interests are in tumor immunology. Cobos is the author of more than 120 publications and hundreds of scientific abstracts. He serves on the editorial board of International Review of Immunology.

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Joaquin Lado, M.D.

Professor & Division Chief of Endocrinology - Department of Internal Medicine at TTUHSC - Lubbock

After receiving his M.D., Ph.D. and medical residency training at the University of Santiago de Compostela in Spain, Dr. Lado continued his research studies as a postdoctoral fellow in reproductive neuroendocrinology at TTUHSC Lubbock. He then completed a fellowship in endocrinology at the University of Chicago before joining the medical faculty at the University of Santiago de Compostela in Spain. While at this institution, he was named vice dean of the school of medicine and director of research facilities at the University of Santiago. In 2009, Lado was recruited as a professor of medicine to the TTUHSC School of Medicine in Lubbock where he is the chief of endocrinology. Lado has published more than 70 manuscripts and book chapters in both basic science and clinical studies. He has held several competitive fellowships and won prizes for his presentations at international scientific meetings.

Case Reports

A REVIEW OF THE NEUROLOGICAL SIDE EFFECTS OF ISOTRETINOIN

Chinelo Ikpeama, MS III

Faculty Advisor: Ikue Shimizu, M.D.

BACKGROUND

Acne vulgaris is arguably the most well-known dermatological condition. While it is more common in adolescents, acne vulgaris is still a significant concern in adults, causing physical and psychological manifestations in all age groups. Most commonly, it is treated medically with topical or systemic antibiotics, topical or systemic retinoids, chemical peels, hormonal therapy or some combination of these. Isotretinoin, a systemic retinoid, is the gold standard for Propionibacterium acne treatment and is used in severe nodulocystic acne refractory and more traditional treatments. The many side effects of isotretinoin including possible neurological consequences, limits its use in patients.

OBJECTIVE

To review the neurological side effects of isotretinoin, a systemic medication used to treat acne vulgaris.

METHODS

A review of 21 selected articles in published, peer-reviewed journals from 1984 to 2012.

RESULTS

Isotretinoin treatment has resulted in neuromuscular side effects, ischemic strokes, cranial mononeuropathies, diplopia, keratitis, cataracts, sacroiliitis, polyneuropathy, demyelinating brain lesions, intracranial hypertension and stiff-person syndrome.

CONCLUSION/SIGNIFICANCE

The widespread use of isotretinoin is limited by its high cost and several systemic side effects. Many organ systems can be adversely affected by the medication, including the kidneys, liver, ancreas, bones, obstetrics and heme. Neurological side effects, while rare, can increase morbidity and mortality of the patient. Intracranial hypertension has been extensively shown to be linked to isotretinoin treatment, while neuromuscular effects, sacroiliitis, polyneuropathy, CNS demyelination, and stiff-person syndrome have also been shown to be related to the systemic retinoid. Clinicians need to be aware of these rarer side effects given the significant morbidity and mortality. Should any of these manifest, isotretinoin should be discontinued.

ADRENAL CRISIS IN A PATIENT WITH ACUTE MYELOID LEUKEMIA

Wang Li, M.D., Ph.D., PGY I, Karla Toledo-Frazzini, M.D., PGY I

& Alaaedin Alhomosh, M.D., PGY II

Department of Family and Community Medicine

Faculty Advisors: Ikemefuna Okwuwa, M.D. and Eric Petersen, M.D.

ABSTRACT

Adrenal crisis is a group of clinic manifestation predominantly with hypotensive shock, electrolyte imbalance in a patient with adrenal insufficiency or abruptly withdrawn from glucocorticoid treatment. Acute myeloid leukemia (AML) is one of the most common acute leukemias in adults. Though above diseases are commonly seen in individual patient, the coexistence of both conditions in the same patient is rare. Here we reported a patient with possible myeloid dysplasia presented as hypotensive crisis. This is a 64-year-old African American male with history of bilateral DVT, who presented initially with fatigue, neutropenia, macrocytic anemia and weight loss of 20 pounds in the last month. Patient developed pseudo-obstruction of small bowel during his first hospital course, which was resolved after an exploratory laparotomy. While waiting for his bone marrow biopsy, the patient developed hypotension, hyponatremia and hyperkalemia for which adrenal crisis was suspected. Later on, the laboratory studies confirmed diagnosis of primary adrenal insufficiency and the bone marrow was conclusive for AML.

Proposed Projects

THE EFFECT OF NO PRENATAL CARE ON MATERNAL AND PERINATAL OUTCOME IN WEST TEXAS

Peter Hsu, M.D., PGY II

Department: Obstetrics and Gynecology

Faculty Advisor: Raymond M. Hampton, M.D., FACOG

BACKGROUND

Prenatal care was established in the early 1900s as a way to combat the high maternal mortality rates. There has been dramatic decrease in maternal mortality rates from 690 per 100,000 births in 1920 to 50 per 100,000 by 1955 to the present maternal mortality rate of 8 per 100,000. Most believe that it is because of the implementation of prenatal care. There are many studies that show the benefits of prenatal care and its ability to mitigate maternal and fetal morbidity and mortality. One such study is a population-based study done by Harper that showed a fivefold decrease in pregnancy-related maternal death in those who receives prenatal care. Other studies have demonstrated a higher pre-term birth and stillbirth rate in those who have not received adequate prenatal care.

We have noticed an increasing number of individuals with no prenatal care delivering at our institution, but have not seen the expected increase in maternal and perinatal morbidity and mortality as would be predicted by what the previous studies have shown. Therefore, we would like to evaluate the effect of no prenatal care in our own population in West Texas.

OBJECTIVE

To compare individuals with prenatal care and individuals without prenatal care and see if there has been any effect on maternal and perinatal outcomes in our patient population.

METHODS

Study population was selected from deliveries performed by Texas Tech University Health Sciences Center Department of Obstetrics and Gynecology at Medical Center Hospital from Jan 1st, 2008 to December 31st, 2012. Medical records will be reviewed and data collected, key measurements includes: rates of Cesarean delivery, rates of NICU admission, rate of preterm premature rupture of membrane, rate of hypertensive disorders, rate of preterm delivery, maternal anemia, apgar score, and birth weight. A descriptive analysis will be performed afterwards.

RESULTS

Either maternal or perinatal morbidity increases in accordance to previous studies or no appreciable difference between the maternal and perinatal morbidity is seen in our patient population with no prenatal care when compared to patient with prenatal care.

CONCLUSION/SIGNIFICANCE

To elucidate if the effect of no prenatal care is as significant in our patient population as it has been previously described in other studies and national data.

RELATIONSHIP OF MATERNAL SERUM BIOMARKERS AT EARLY OR LATE GESTATION TO PREDICT FETAL GROWTH

Katherine Nelson, M.D., PGY II

Department of Obstetrics and Gynecology
Faculty Advisor: V. Daniel Castracane, Ph.D

BACKGROUND

The rate of fetal macrosomia was 9.2 percent in 2002, and in Texas in 2010, the rate of low birth weight was 8.4 percent. Infants with low birth weight are at increased risk of hypoglycemia, impaired immune function, polycythemia and impaired thermoregulation. Macrosomic infants are at increased risk of birth injuries, respiratory distress, meconium aspiration, hypoglycemia and polycythemia and put the mother at increased risk of having a c-section or laceration at delivery. All of these morbidities increase the likelihood that these infants will be admitted to a neonatal intensive care unit, potentially increase the length of hospital stay for both mother and infant, and increase health care costs. There are multiple serum makers that have the potential to help diagnose these conditions early to help make adjustments in management and prevention.

HYPOTHESIS

Biomarkers at early (i.e. before 20 weeks gestation) or late (i.e. third trimester) gestation may serve to indicate they are important indicators that can be used clinically to predict fetal growth. Preliminary data done in our department has suggested mean vitamin D levels during gestation may have a positive correlation in relation to fetal weight at delivery.

METHODS

Pregnant women will be enrolled to participate at their first prenatal visit if they are before 20 weeks gestation at that first visit. A blood sample will be taken at enrollment to coincide with new obstetric labs routinely drawn on every patient. A second blood sample with be taken at 35-37 weeks gestation to coincide with labs routinely drawn in the late third trimester. The timing of these two blood samples is timed to obviate the need for any additional blood draws on subjects. Serum will be banked at -70°C until it will be assayed for potential markers of fetal growth including vitamin D, adiponectin and IGF-I and –II. Clinical data will also be obtained for all subjects. We expect to enroll a sufficient number of subjects to provide a valuable bank for this and other studies. A large number of subjects will be required to provide sufficient numbers of macrosomic and intrauterine growth restricted fetuses to adequately power the study. The data will be analyzed using partial correlations to compare fetal weight to vitamin D levels to adjust for multiple variables.

EXPECTED RESULTS

This study will be a pilot study that will provide a useful data bank of information that can be used in the future for a number of different studies. The biomarkers studied may serve in a diagnostic role to indicate changes from normal fetal growth. This protocol has recently received IRB approval, and we will begin enrolling patients this spring.

SIGNIFICANCE

Preliminary studies in our patient population have indicated there is a positive correlation between fetal weight at delivery and vitamin D levels during pregnancy. If this holds true, giving vitamin D during pregnancy may be a possible early intervention to prevent intrauterine growth restriction or small for gestational age infants.

IMPROVING VARICELLA ZOSTER VACCINATION IN ADULTS OLDER THAN 60 YEARS OF AGE IN GERIATRIC CLINIC

Nimat Alam, M.D., PGY IV

Department of Family and Community Medicine/Geriatric Fellow

Faculty Advisor: Chau Le M.D., Jamal Islam M.D., MS

BACKGROUND

Varicella zoster virus (VZV) is a human neurotropic herpes virus that causes varicella (chicken pox) which is usually short lived. After the initial attack, the virus becomes latent in cranial nerve ganglia, dorsal root ganglia and autonomic ganglia. Reactivation of VZV to cause herpes zoster (shingles) can occur years later as cell mediated immunity to VZV declines with age and in suppressed immunity. Though mortality from shingles is low, the morbidity and cost after an attack of herpes zoster can be prolonged, painful and costly to our health system. Patients with herpes zoster are at risk for long term complications such as post herpetic neuralgia, depression and reduced vision caused by herpes zoster ophthalmica. Patients with long standing pain or other complications are likely to experience poor quality of life. To prevent the complications produced by VZV reactivation a VZV vaccine was developed. The efficacy and safety of this vaccine in reducing herpes zoster in adult older than 60 years of age was established and was approved by US FDA in May 2006 for clinical use. Zoster vaccine is safe, effective and highly recommended for immunization of immunocompetent individual over 60 years. If this preventive vaccine is widely used, the risk for and costs of herpes zoster and its debilitating complications could be substantially reduced.

SPECIFIC AIMS 1

To increase the herpes zoster vaccination rate in patients who are 60yrs and over in the outpatient geriatric clinic of TTUHSC Odessa TX

HYPOTHESIS

We hypothesize that by implementing steps that removes identified barriers for herpes zoster vaccination we will be able to improve the vaccination rate in the outpatient geriatric clinic of TTUHSC Odessa TX.

SPECIFIC AIMS 2

To establish a process in the clinic for continued verification and administering herpes zoster vaccination We hypothesize that by establishing a process in the clinic it will be an integral part of patient care thereby vaccination rates will always be maximized

STUDY DESIGN

Pre and post intervention cohort

POPULATION

Patients who come to attend the TTUHSC Permian Basin outpatient geriatric clinic

SAMPLE SIZE

A convenient sample of all patients who agrees to participate in the study over 6 month period of time

METHODS:

Inclusion Criteria: Immunocompetant adults older than 60 years of age
Exclusion Criteria: - Immunosuppressed individual, Organ transplant recipient, Patient with cancer, Patient with AIDS, Patient on immunosuppessive/chemotherapeutic medication

THE RELATIONSHIP OF METABOLIC CHANGES IN PREGNANCY TO THE INCIDENCE OF NON-ALCOHOLIC FATTY LIVER DISEASE IN REPRODUCTIVE AGE WOMEN

Kathryn Hutton, D.O., PGY I

Department: Obstetrics and Gynecology
Faculty Advisors: R. Moss Hampton, M.D., James Maher, M.D. and V. Daniel Castracane, Ph.D.

BACKGROUND

Non-alcoholic fatty liver disease (NAFLD) has become a leading cause of liver pathology in the U.S. There have been limited studies looking at the incidence of NAFLD in pregnant women. There has been one study recently done at TTUHSC showing that pregnant women show evidence of NAFLD; however there is no comparison between them and non-pregnant women. There have also been recent animal studies to show an association between pregnant women with NAFLD and fetal NAFLD as well as neonatal NAFLD. It is important to determine if there is a pregnancy specific relationship that may be lead to this increase in maternal, fetal and neonatal NAFLD.

OBJECTIVE

To determine if a greater incidence of NAFLD is present in pregnant woman as opposed to non-pregnant reproductive age women. Our hypothesis is the metabolic changes of pregnancy may contribute to the rapid changes in intrahepatic fat accumulation leading to maternal NAFLD and its sequelae.

METHODS

Patients age 18-35 that present to the TTUHSC OB-GYN Permian Basin clinic for early prenatal care with a Body Mass Indez of less than 25 or more than 30 (lean and obese) in the first trimester will be recruited and consented to have a third trimester ultrasound to evaluate for sonographic signs of NAFLD. Non-pregnant reproductive aged patients 18-35 years old not on hormonal contraception who present to the same clinic and have BMI less than25 or more than 30 will also be recruited and consented for an ultrasound to evaluate for sonographic signs of NAFLD. These findings will be compared not only between pregnant and non-pregnant patients, but also between the lean and obese populations.

EXPECTED RESULTS

We expect to find a higher incidence of non-alcoholic fatty liver in pregnant subjects as opposed to the non-pregnant women in the same age range. We also expect to find a higher incidence of non-alcoholic fatty liver in the obese population as opposed to the lean population.

SIGNIFICANCE

The results of this study will help us determine if there is a metabolic change in pregnancy that leads to a higher incidence of fatty liver that does not occur in the non-pregnant female. We expect it will also demonstrate if there is a higher incidence of non-alcoholic fatty liver changes in obese pregnant patients which can aid us in counseling our patients on the further importance of maintaining or achieving appropriate weight prior to and during pregnancy.

NON ALCOHOLIC FATTY LIVER DISEASE IN MOTHERS AND FETUSES AT LATE GESTATION

Curtis Boyd, D.O., PGY I
Department of Obstetrics and Gynecology

Faculty Advisors: V. Daniel Castracane, Ph.D. and J A Maher, M.D.

INTRODUCTION

NAFLD has a well-defined association with obesity and diabetes. The inability to metabolize lipids and glucose leads to central adiposity. The accumulation of fat in the liver leads to inflammation causing insulin resistance. In a population of primates, it was discovered that a high fat diet in one pregnant population compared to a non-fatty diet in another, led to NAFLD in the high-fat diet population as well as in their offspring, particularly in the third trimester. The only study in pregnant human females demonstrated no association between NAFLD and trimester on presentation for first prenatal visit. This study is one of a larger series of studies assessing the livers of at-risk populations; pregnant mothers, fetuses and newborns.

METHODS

Pregnant females will be scanned by ultrasound for assessment of fatty liver disease in the second trimester of pregnancy. Fetuses will be scanned by certified ultrasound technicians for maternal fetal medicine with protocols in place for assessing the fetal liver and its relative position to the fetal kidney, to determine the accumulation of fat in the fetal liver. Positive findings will be demonstrated by any fat noted in this region on ultrasound study. Pregnant women will be separated into non obese and obese populations.

EXPECTED RESULTS

This is the first study to assess maternal and fetal NAFLD in obese and non-obese women. We expect to find whether a positive correlation exists between obesity and NAFLD in fetuses during pregnancy.

IMPACT

This study is being undertaken with the objective of determining the fetal effects in pregnant mothers with NAFLD. It is the first step toward determining the long term complications of the neonate born to mothers with NAFLD. If results demonstrate positive correlation between mothers with NAFLD as well as their fetuses, it may prompt future studies discussing how long this carries on into neonatal life as well as adulthood. It also may lead to potential future studies which may seek to correlate NAFLD with insulin resistance and obesity into childhood and adulthood.

A CASE STUDY TO EVALUATE AVERAGE TIME FOR ONSET OF LABOR IN HEALTHY PRIMAGRAVIDAS WITH VARIED ACTIVITY LEVELS

Kaysi Benefield, D.O., PGY II
Department: Obstetrics and Gynecology

Faculty Advisor: Randall Kelly, M.D.

BACKGROUND

In the world, the mean gestational age of pregnancy is 40 weeks. The perinatal mortality rate is lowest for infants who deliver at 39-40 weeks gestation. Perinatal mortality begins to rise at 41 weeks gestation. There have been many studies of the effects of aerobic exercise in pregnancy and its influence on pregnancy outcomes, but there has never been a study on extra walking during the last four weeks of pregnancy and gestational age at onset of labor. There is also a question of whether obesity versus non-obesity has any relationship to the onset of labor.

OBJECTIVE

To gather pregnancy, labor and delivery data on primagravida women to determine the gestational age at which they go into labor.

METHODS

Case series study of 100 primagravida patients seen at TTUHSC OB-GYN clinic, Odessa, Texas between January 1, 2012 and July 31, 2012. The medical records to be reviewed will be determined by reviewing the Medical Center Hospital Labor and Delivery Unit records to identify the specific patients meeting the study delivery criteria, time frame, and TTUHSC faculty as their physician. This master list will be used to collect the data needed for the newborn, and to identify the associated maternal medical records in the TTUHSC OB-GYN clinic to be screened for study inclusion. The mean duration and standard deviation of gestational age will be reported for the sample, along with the mean and standard deviation of the obese (BMI greater than 30) and non-obese (BMI less than 30) groups as categorized at the beginning of pregnancy. A P-value will then be reported for the corresponding two-sample T-test, in the event there is any significant difference to be detected in this secondary point of interest.

RESULTS

Expected result will be the mean gestational age at which primagravida TTUHSC patients deliver. A secondary result will be the difference between gestational ages of obese versus non-obese patients, if there is a difference. A total of 78 patients have made it through the first screening process of reviewing the MCH Labor and Delivery book.

CONCLUSION/SIGNIFICANCE

This data will establish a historical control for a prospective study. The prospective study will then evaluate whether a formal walking program, in addition to other normal daily activities, will help primagravida pregnant patients go into labor earlier compared to the historical controls whose activity levels are unknown, but can include any and all activity levels during pregnancy and during the last four weeks of pregnancy.

INVESTIGATION OF NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD) IN NEONATES

Leela Sharath Pillarisetty, M.D., PGY I
Department of Obstetrics and Gynecology

Faculty Advisors: V. Daniel Castracane, Ph.D., J A Maher, M.D.

INTRODUCTION

Childhood obesity has increased significantly in the United States over the past several decades. According to the most recent National Health and Nutrition Examination Survey data, almost one-third of children between 6 and 19 years of age, and 12 percent of infants are overweight. Maternal obesity and high-fat diet consumption in pregnancy is thought to increase the neonates risk of juvenile obesity and metabolic diseases like Type 2 diabetes and (NAFLD). The prevalence of NAFLD is increasing in parallel with the prevalence of obesity; both processes are closely linked to insulin resistance. The worldwide epidemic of obesity and the prevalence of NAFLD are most certainly heavily influenced by, if not directly related to, the diet and relative lack of exercise of the Western lifestyle.

OBJECTIVE

We expect to determine whether maternal obesity in pregnancy will increase the risk of neonate`s juvenile obesity and metabolic diseases like NAFLD and insulin resistance. There is increasing interest in the hypothesis that exposure to maternal obesity during pregnancy may have adverse lifelong consequences in the mother and neonate. There are no human studies in this field of interest. But, there is a non-human study on pregnant primates done at Oregon National Primate Research Center which demonstrates that chronic consumption of high-fat diet provokes NAFLD and insulin resistance in pregnant primates and also impacts lipotoxicity in the fetal livers which may subsequently lead to early onset obesity, NAFLD and also metabolic diseases in the neonates.

METHODS

Pregnant women at TTUHSC will be recruited in the third trimester. Subjects will be subdivided into lean and obese using BMI from their first trimester records, and then both mother and neonates will be evaluated for the presence of NAFLD using abdominal ultrasound scans using accepted criteria. Infants will be scanned at the time of their first pediatric visit. Liver biopsies will not be performed since this invasive procedure would present undue risks in a neonatal population. Gestational diabetes is defined in third trimester subjects using standard criteria developed by Carpenter and Coustan.

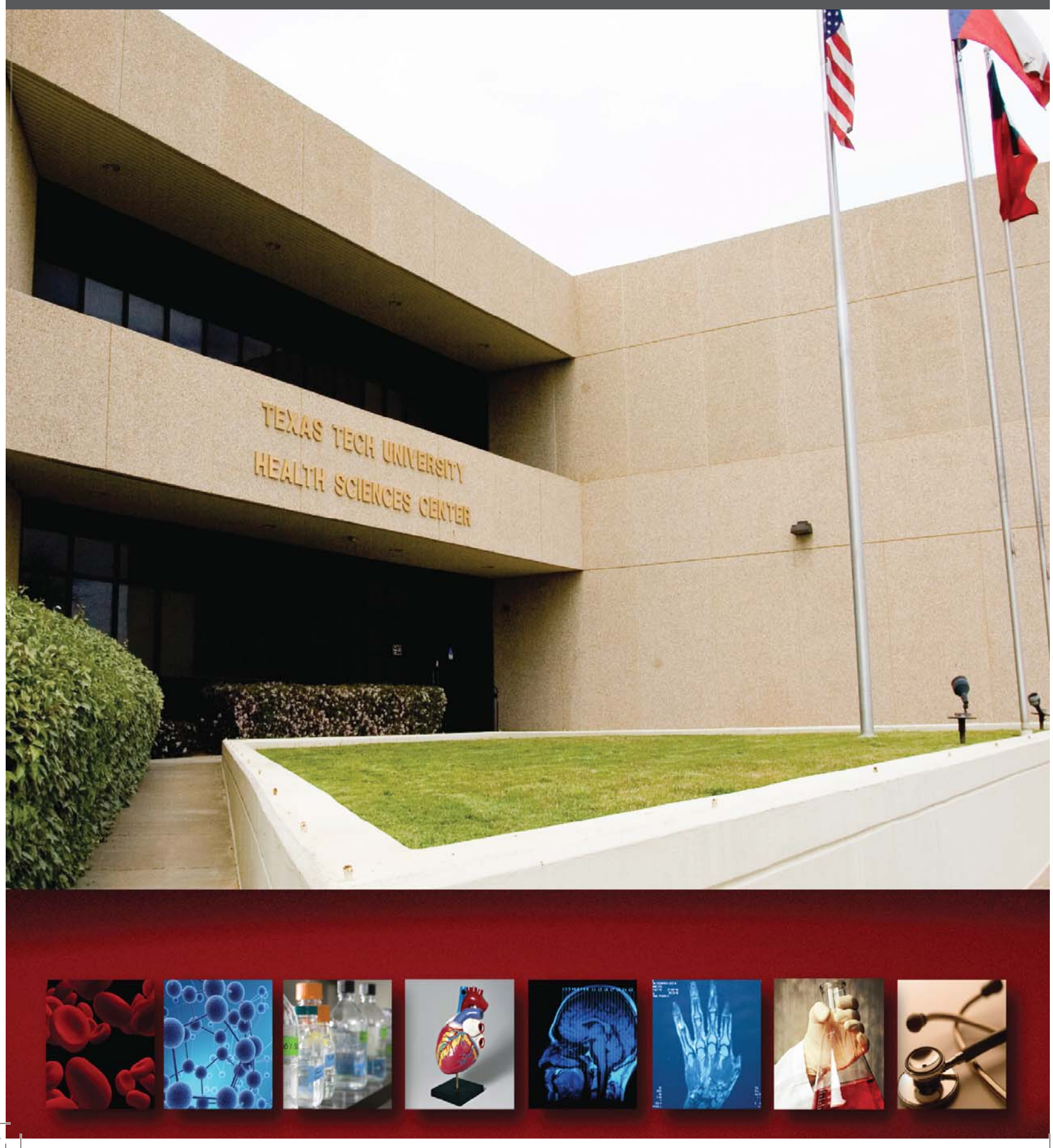
RESULTS

Expected results will be the finding of NAFLD in some neonates examined and the relationship to the presence of NAFLD, maternal weight or weight gain in pregnancy and neonatal weight.

CONCLUSION/SIGNIFICANCE

This study will be the first human study on NAFLD in pregnancy and its consequences in the neonate, the results of which may be used to prevent early onset obesity or metabolic diseases in children by educating pregnant women about nutrition in pregnancy.

Completed and Partially Completed Projects



THE RELATIONSHIP OF PLACENTAL NUMBER (MASS) TO THE MATERNAL SERUM LEVELS OF LEPTIN, ADIPONECTIN AND RESISTIN

Savitha Singh, M.D., PGY III

Department of Obstetrics and Gynecology

Faculty Advisor: V. Daniel Castracane, Ph.D

BACKGROUND

After the discovery of leptin in 1994, the placenta was identified as the first extra-adipose tissues which expressed the leptin message. It was soon established that maternal serum levels of leptin were elevated in pregnancy. This led to the assumption that the placenta contributes to increase in maternal serum leptin levels without any physiological evidence to prove such a conclusion. In our previous studies at 15-20 weeks gestation we demonstrated that two placentas in twin gestation did not result in greater maternal serum levels of leptin over those of singleton pregnancies and indicated no or minimal placental contribution when compared against BMI. We demonstrated that two placentas in twin pregnancies did not produce higher leptin levels but the linear relationship to BMI showed that adipose tissue is the predominant source of maternal serum leptin. In the present study we will also examine the placental contribution of leptin and other adipokines (adiponectin and resistin) known to be expressed in the placenta at a later stage of gestation. We hypothesize these placental adipokines are not released from the placenta at this later stage of gestation and that pathological conditions like gestational diabetes also have the same physiology.

OBJECTIVE

The objectives of the present study are: Validate our findings from the previous study and to determine if changes in placental physiology may contribute to elevated maternal serum leptin levels in the later weeks of gestation; Establish whether maternal adiposity influenced leptin levels during later pregnancy; See if there is any significant placental contribution to changes in leptin levels in pathological conditions like preeclampsia and gestational diabetes. Several studies have stated that serum levels of leptin are elevated in diabetes, but lack any experimental validity for this conclusion.

STUDY DESIGN

In this pilot study control subjects are pregnant women between 34-37 weeks gestation with normal glucose tolerance. The experimental group includes women with preeclampsia, gestational diabetes and twins over a broad range of BMI. Leptin and other placental hormones will be determined using a specific ELISA assay. Statistical analysis was performed using linear regression analysis.

PRELIMNARY RESULTS

In our preliminary results we have 26 normal singleton subjects, six twin pregnancies and five gestational diabetics. Individual leptin data was plotted against BMI and a linear regression line was superimposed over this data. The slopes of the normal singleton subjects and of the twins are virtually identical. The slope of the gestational diabetic group is similar to the other groups and the correlation with BMI is similar for the three groups. These preliminary results support our hypothesis that leptin (and other adipokines) are not released from the placenta, even in later gestation, but serve as paracrine hormones within the placenta. Other adipokine data on adiponectin and resistin is forthcoming.

CONCLUSIONS

Our previous study demonstrated there was no difference in the maternal serum levels of leptin between singleton and twin pregnancies. We wish to determine if placental physiology changes in late gestation and whether differences in any placental adipokine contribution to the maternal circulation may develop. This study would help us understand the role of the placenta in adipokine regulation in the maternal circulation and adipokine relationship to pathological conditions like preeclampsia and gestational diabetes. These preliminary results support our hypothesis, but more data is required.

GESTATIONAL WEIGHT GAIN

Author: Lauren Hermann D.O., PGY III
Co-author(s): Urvi Shah, Boyd MS IV, Nutti MS IV, Sharma MS IV, Von Bergen MS IV

Department of Obstetrics and Gynecology
Faculty Advisors: V. Daniel Castracane, Ph.D.

BACKGROUND

BMI has increasingly become a significant factor in medicine. Americans are educated that obesity worsens outcomes in disease. Pregnancy is one of the times in a woman's life when she gains more weight than she thought possible and not all women return to their former waist size. Obese pregnant women have more difficult pregnancies, labors and postpartum courses. The total amount of weight gain for normal weight, overweight and obese pregnant women has been examined, but the pattern of weight gain in each trimester in each of these groups and how it effects maternal/fetal outcome has been overlooked.

OBJECTIVE

Study the pattern of weight gain in different BMI groups, and correlate the rate weight gain to maternal and fetal outcomes. We will test the hypothesis that the pattern of gestational weight gain is different in gestational diabetics compared to the normal pregnant woman.

METHODS

This is a retrospective cohort study from 2009 of 494 pregnant women in the TTUHSC-Odessa Obstetrics clinic. Women were separated into BMI groups: normal, overweight and obese. If a woman saw the doctor by the early second trimester, had 10 weights recorded during gestation and delivered at MCH hospital, then she was included. Weight and complications from each visit were recorded and plotted on a graph. GDM, weeks gestation, mode of delivery, fetal weigh, and APGARS were recorded. A pattern of weight gain was elucidated from each BMI group, and this was correlated to clinical outcomes. This study included 230 women. The other remaining women were included in a sub-study which examined possible barriers to the first prenatal visit.

RESULTS

The prelimary results suggest most women's weight gain follows a linear distribution. Gestational diabetics' weight rises with a more rapid slope through all trimesters.

CONCLUSIONS/SIGNIFICANCE

This study will stimulate more aggressive nutritional counseling and referral to a dietician before and during pregnancy.

REPEAT GONORRHEA AND CHLAMYDIA SCREENING DURING PREGNANCY AT A COMMUNITY-BASED CLINIC

Audrey Marshall Lundberg, D.O,. PGY IV

Faculty Advisors: Virginia Rauth, M.D. and R. Moss Hampton, M.D.

OBJECTIVE

The Centers for Disease Control and Prevention currently recommends all pregnant women receive routine testing for Chlamydia trachomatis and at risk women for Neisseria gonorrhea at their first prenatal visit. In addition, women with increased risks and age less than 25 years old should receive repeat screening in the third trimester. The testing and treating of Chlamydia and gonorrhea is imperative since the frequencies of premature rupture of the membranes, premature contractions and small-for-gestational-age infants are significantly higher in patients with untreated disease. The currently published research that supports repeat screening, however, is based predominately on studies that are done in urban settings with predominately African American patients and only one study does not support the need for repeat screening for gonorrhea in high-risk populations at all.

Since the majority of our patients in the clinic are Mexican–American, in which there is little information for rescreening for Chlamydia and gonorrhea in late pregnancy, the purpose of this study is to determine whether it is necessary to rescreen for Chlamydia and gonorrhea in the third trimester in our predominately Mexican-American population.

METHODS

At TTUHSC-Permian Basin, we evaluated our rates of Chlamydia and gonorrhea infection and assessed the need for repeat screening in our population at our community-based clinic. We did a retrospective chart review on patients that delivered in 2010 and 2011 at MCH and received prenatal care in our clinic starting prior to 27 weeks. We included patients that had at least one gonorrhea/Chlamydia culture done. The number of positive tests determined if our population should be considered high risk for repeat infections. Also, in those patients that had a first and late screenings done, a comparison of the results will be done to determine the repeat infection rate in this population. Infection rates will be compared to county, state and national rates. The patient's age, ethnicity and gravidity and parity was reviewed and analyzed as potential risk factors.

RESULTS

Of the 1,425 deliveries by TTUHSC in 2010 to 2011, 897 had prenatal care in our clinic prior to 27 weeks. 60 percent of patients were younger than 25 years old with 75 percent of the population being of Hispanic decent. Of the 897, 812 patients were tested at least once for gonorrhea and Chlamydia with 285 third trimester screening performed. 6.7percent tested positive for Chlamydia and 0.6 percent tested positive for gonorrhea with the first test. Only six of the 285 third trimester screens tested positive for Chlamydia (2.1 percent) and one patient tested positive for gonorrhea (0.3 percent).

CONCLUSION

Based on our data, we would recommend reconsideration of the current CDC guidelines to repeat screening in the third trimester.

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