IDSOG Oral Presentations

1 Comparison of obstetric to institutional antibiograms as an approach to advance antimicrobial stewardship in maternal care

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OBJECTIVES: Our objective was to create an antibiogram derived exclusively from our obstetric population and compare the clinical isolates and susceptibilities to our institutional antibiogram.

METHODS: We included all clinical isolates and susceptibility data collected by the University Hospital Clinical Microbiology Laboratory from 01/01/2018-12/31/2018 which generated our institutional antibiogram, For comparison, we created an OB antibiogram using a subset of all clinical isolates collected during the study interval from the OB triage, labor & delivery, antepartum and postpartum wards. The antibiotic susceptibilities of the OB clinical isolates were compared to the institutional clinical isolates. In accordance with The Clinical and Laboratory Safety Institute guidelines, only isolates with greater than 30 patient specimens were compared.

RESULTS: In total, we identified 929 clinical isolates from our OB population over the study interval. Urine was the predominant source of clinical isolates (76.3 %). The remaining sources included wound (10.1%), genital (9.0%), blood and other fluids. Escherichia coli (E. coli) accounted for nearly half of all isolates (48.7%) followed by Group B Streptococcus (10.7%), Enterococcus sp. (9%) and Klebsiella pneumoniae (7.2%). Overall, susceptibilities of the gram-positive organisms in the OB antibiogram are similar to the institutional antibiogram. Conversely, common gram-negative organisms demonstrated less antibiotic resistance in the OB antibiogram compared to the institutional antibiogram. E. coli, Klebsiella pneumoniae and Proteus mirabalis were more susceptible in the OB antibiogram compared to the institutional antibiogram for cefazolin (81%, 91%, 81% versus 62%, 71%, 45%, respectively) and trimethoprim/ sulfamethoxazole (71%, 91%, 90% versus 63%, 77 %, 81%, respectively). E. coli and Klebsiella pneumoniae were also more susceptible in the OB antibiogram compared to the institutional antibiogram for ceftriaxone (94%, 96% versus 83%, 85%, respectively) while Proteus had similar susceptibilities.

CONCLUSION: Compared to our institutional antibiogram, gram-negative clinical isolates in our OB population exhibit less antibiotic resistance. Creation of an OB-specific antibiogram, which more accurately reflects antibiotic resistance patterns, may promote appropriate antimicrobial use by assisting in more informed antibiotic selection and limit unnecessary use of broad-spectrum antibiotics.

LEARNING OBJECTIVES: Learners will be able to: 1.Identify common sources and microorganisms isolated from an Obstetric population. 2.Demonstrate differences in OB antibiogram compared to an institutional antibiogram to promote appropriate antibiotic use.

2 A pharmacokinetic and treatment study of ledipasvir/sofosbuvir in pregnant women with hepatitis C virus

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OBJECTIVES: Hepatitis C virus (HCV) infection is increasing among pregnant women in the United States. Pregnancy is a window of opportunity for health care interventions, including HCV treatment that could improve maternal health and prevent perinatal HCV transmission. Physiologic changes during pregnancy affect the pharmacokinetics (PK) of some medications. The objectives of this study were to compare the PK parameters of ledipasvir/sofosbuvir (LDV/SOF) in pregnant versus nonpregnant women, and to assess adverse events and viral response.

METHODS: In this open-label, phase 1 study, HIV-negative pregnant women with chronic genotype 1 HCV infection were enrolled between 23-24 weeks gestation. At entry, participants began LDV 90mg-SOF 400mg daily for 12-weeks. Three intensive PK visits were performed at 25-26, 29-30, and 33-34 weeksgestation. Plasma was collected pre-dose, 0.5, 1, 2, 3, 4, 5, 8 and 12 hours post-dose to measure LDV, SOF and GS-331007 (the inactive metabolite of SOF) by validated HPLC-MS/MS methods. PK parameters were averaged across the three visits and compared between participants and non-pregnant women from regulatory trials of LDV/SOF by geometric mean ratio and 90% confidence interval. Maternal adverse events, delivery outcomes, and the sustained virologic response 12 (SVR12) weeks after therapy were also determined.

RESULTS: Of 29 women, 20 were excluded due to genotype 2 or 3 infection (n=10), ongoing illicit drug use (n=4), declining participation (n=3), intention to deliver off-site (n=2), and an APRI score of >1 (n=1). All 9 women enrolled were white, with a median age of 31 years. Eight women were HCV infected due to intravenous drug use (4 receiving opioid pharmacotherapy) and one was perinatally infected. Similar LDV and SOF, but lower GS-331007 (inactive SOF metabolite), PK exposure was observed between pregnant and non-pregnant women. Eight of 9 participants had an undetectable viral load at delivery, and all nine achieved SVR12. All adverse events related to LDV/SOF were less than grade 2. One-year follow-up of infants is ongoing and all remain HCV negative.

CONCLUSION: In this first study of HCV treatment during pregnancy, LDV/SOF was safe and effective with similar LDV/SOF PK exposure in pregnancy. Larger studies are needed before this strategy can be recommended. Given the high prevalence of genotype 2 or 3 infection, evaluation of a pan-genotypic regimen is needed.

LEARNING OBJECTIVES: Compare the pharmacokinetics of ledipasvir and sofosbuvir exposure during pregnancy to those of nonpregnant women and describe the safety and efficacy ledipasvir/sofosbuvir treatment during pregnancy.

3 Chorioamnionitis versus intraamniotic infection among preterm deliveries: is postpartum infectious morbidity different?

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OBJECTIVES: With new intraamniotic infection (IAI) diagnostic criteria, fewer women experiencing preterm delivery may qualify for intrapartum antibiotic treatment, potentially resulting in higher postpartum infectious morbidity. Thus, the objective of this study was to estimate whether subjects diagnosed with clinical chorioamnionitis have decreased odds of developing endometritis compared to those subjects meeting criteria for IAI.

METHODS: Secondary analysis of a randomized trial of antenatal magnesium to prevent adverse neonatal outcomes. Subjects were included if they met criteria for chorioamnionitis: a clinical diagnosis of chorioamnionitis and maternal temperature (T) ≥37.8°C. The exposure group included women who met criteria for IAI, defined as a single maternal T≥39.0°C or maternal T 38.0-38.9°C plus one additional clinical risk factor (leukocytosis, purulent cervical drainage, or fetal tachycardia). The primary outcome was postpartum endometritis. The odds of postpartum endometritis were compared between women with IAI and women with clinical chorioamnionitis, after adjusting for potential confounders using multivariate logistic regression.

RESULTS: Of the original study population, 284/2444 (11.6%) subjects were diagnosed with chorioamnionitis and were included. Nearly all received antibiotics between randomization and delivery (279; 98.2%). 153 (53.9%) met criteria for IAI. 48 (16.9%) experienced postpartum endometritis. Women with IAI had higher parity (p=0.01), higher maximum maternal temperature (p<0.001), and were more likely to have received antibiotics (p=0.02). Postpartum endometritis rates were similar between subjects with chorioamnionitis and IAI (15.3% vs. 18.3%; p=0.50). After adjustment for potential confounders, parity and maximum maternal temperature remained significantly associated with postpartum endometritis. The odds of developing postpartum endometritis did not differ between subjects who met criteria for IAI and those who did not after adjusting for confounders (aOR 0.65; 95% CI 0.30-1.44).

CONCLUSION: Preterm parturients with clinical chorioamnionitis appear to have similar odds of developing postpartum endometritis as those meeting ACOG criteria for IAI, suggesting that this group remains at high risk for postpartum infectious complications.

LEARNING OBJECTIVES: The learner will describe the possible implications of the IAI diagnostic criteria on postpartum infectious morbidity.

4 Pregnancy latency associated with oral compared to intravenous antibiotics following preterm premature rupture of membranes

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OBJECTIVES: To assess pregnancy latency after preterm premature rupture of membranes (PPROM) following treatment with oral (PO) antibiotics alone compared to intravenous (IV) followed by PO antibiotics.

METHODS: This is a retrospective study comparing women with PPROM who were initiated on a 7 day PO-only regimen of azithromycin and amoxicillin (modified regimen) for a 12 month period starting in December 2017 to women who were initiated on a 2 day regimen of IV ampicillin and amoxicillin followed by 5 days of PO azithromycin and amoxicillin (standard regimen) in the prior 12 months. Women were included if they were diagnosed with PPROM <34 weeks and were started on latency antibiotics within 36 hours of rupture and excluded if they had a contraindication to expectant management, a cerclage, or fetal anomalies. The primary outcome was pregnancy latency from the first dose of antibiotics until delivery. In addition composite maternal and neonatal morbidity was assessed. Our sample size was fixed due to the period of time in which IV bags in which to mix antibiotics were unavailable due to national shortages caused by hurricane Maria. Using the mean and standard deviation of latency in our cohort there was 80% power to detect an effect size of 7 days or greater.

RESULTS: The 38 women who received the modified regimen and the 86 who received the standard regimen had similar baseline characteristics. The rate of GBS rectovaginal colonization was 26% in both groups. The majority of women were delivered if they reached 34 weeks gestation. There were no statistically significant differences in pregnancy latency or maternal and neonatal infectious morbidity.

CONCLUSION: This study suggests that adoption of a PO-only regimen for pregnancy latency following PPROM may be a reasonable alternative to a standard combined IV and PO regimen.

LEARNING OBJECTIVES: Learners will be able to demonstrate that there are no clear differences in pregnancy latency, maternal, or fetal outcomes following a PO-only regimen for pregnancy latency following PPROM compared to a standard combined IV and PO regimen.

5 HIV-adapted group prenatal care: assessing viral suppression and postpartum retention in care

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OBJECTIVES: To evaluate postpartum retention in HIV care and viral load suppression following HIV-adapted group prenatal care.

METHODS: Retrospective chart review was performed for women living with HIV who presented for prenatal care in the Harris Health System (Houston, TX) between July 2013 and December 2017. Stillbirths, abortions, and patients who transferred out of the system during their pregnancy were excluded. All women had the option to pursue group or individual prenatal care unless they presented >28 weeks or spoke a language other than English or Spanish, in which case they were assigned to individual care. Group care was based on the standard Centering curriculum with addition of key HIV topics. Demographic and outcome variables were compared using chi-square and t-tests. Analyses were adjusted for variables that were found to be significantly different between groups.

RESULTS: Of 190 total women living with HIV seeking prenatal care in this time period,137 met inclusion criteria. 71 women elected group prenatal care, while 66 continued in individual care. Women electing group care were more likely to be younger (at HIV diagnosis and entry to prenatal care), of lower parity, identify as Hispanic/Latina, be born in Central America, present for prenatal care earlier, and attend more prenatal visits (all p=<0.05). Initial analyses demonstrated increased attendance at postpartum HIV primary care visits and increased likelihood of undetectable viral load (defined as <20) at delivery among women who participated in group prenatal care. After controlling for variables that were significantly different between cohorts, postpartum attendance did not differ between groups but the odds of having a detectable viral load at delivery remained significantly lower in the Centering group (OR 0.34 (0.11-0.95), p=0.04).

CONCLUSION: This study demonstrated a greater likelihood of having an undetectable viral load at delivery for women who participated in the Centering program, although attendance at postpartum HIV visits did not differ. Having an undetectable viral load at delivery is key for decreasing maternal-child transmission, however continuing care after the pregnancy is vital both for risk to future pregnancies and a woman's lifelong health. Further research is needed to identify and address reasons for loss to follow up in the postpartum period within this population.