IDSOG Poster Presentations

1 Does the degree of maternal fever in the setting of chorioamnionitis impact the risk of neonatal morbidity?

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OBJECTIVES: The objective of this study is to assess the impact of high maternal fever (>39C) on neonatal morbidity.

METHODS: Secondary analysis of MFMU Cesarean Registry among singleton gestations with chorioamnionitis. Women with a temperature < 39C(low temp) compared to those with >39C(high temp). Primary outcome was a composite of adverse neonatal outcomes: death, sepsis, necrotizing enterocolitis, Grade 3 or 4 intraventricular hemorrhage, seizure within 24 hours of delivery, intubation within 24 hours of delivery, and requiring cardiopulmonary resuscitation. Demographic characteristics compared using Fisher's exact and Wilcoxon rank-sum test as appropriate. Multivariate logistic regression analysis with stepwise backward regression performed to control for cofounders.

RESULTS: Of 1313 included women, 1200 (91.3%) were in the low temp group and 113(8.7%) in the high temp group. Women in the high temp group were more likely to be African American and GBS positive. No difference in adverse neonatal outcomes was noted between the groups (38.9% high temp vs 35.8% low temp, p=0.54). High temp was associated with increased risk of NICU admission (48.1% vs 50.4%, p=0.02). Further neonatal outcomes are in the Table. When controlling for African American race, preterm birth, and delivery route, patients with high temp were not more likely to have adverse neonatal outcomes (aOR 1.28, 95% CI 0.84, 1.98). In a stratified analysis of only term infants, when controlling for confounders, high temp, similarly, was not associated with increased odds of adverse neonatal outcomes (aOR 1.59, 95% CI 0.96, 2.65).

CONCLUSION: The degree of maternal fever does not appear be associated with increased the likelihood of adverse neonatal outcomes. Better understanding maternal factors that affect neonatal morbidity in the setting of chorioamnionitis is critical.

LEARNING OBJECTIVES: Learners will be able to identify the association between degree of maternal fever and neonatal morbidity.

2 Knowledge, attitudes and barriers to pre-exposure prophylaxis use among women in the United States: a national survey

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OBJECTIVES: This was a national survey of 1293 sexually active, HIV negative women in the United States aimed to assess knowledge, attitudes, and barriers to taking pre-exposure prophylaxis (PrEP). The purpose of this study was to understand the demographic characteristics of PrEP eligible women, their healthcare utilization, and barriers and facilitators of PrEP use.

METHODS: Using Amazon's mTurk, an online survey was distributed to sexually active, HIV negative women. Descriptive statistics and chi-squared test were used to characterize respondents at high risk vs low risk of HIV acquisition. Binomial regression was used to describe knowledge, attitudes and barriers to PrEP use. Women at high risk for HIV infection were defined using CDC criteria for PrEP eligibility.

RESULTS: The cohort was primarily Caucasian women aged 25-44 (70%). Using CDC criteria, there were 194 high risk and 1099 low risk respondents. There was no difference in geographic distribution, age, education level or insurance status between the high and low risk women. High risk and low risk women were equally likely to know about PrEP (60 (30.9%) vs. 354 (32.2%), p = 0.7239). Among women who knew about PrEP, 45.9% learned it from social media/internet, 54.9% from traditional media, 6.3% from a physician, 1.2% from a partner, and 5.8% by word of mouth. In the high-risk group, 42% had seen an OB/GYN provider in the past year. The most commonly identified reason among high risk women for not taking PrEP was lack of perceived risk (58.4%), and most of them did not worry about their risk of HIV acquisition (70.6%)). High risk women identified affordability, combination of PrEP and contraception, lack of lab monitoring as potential facilitators of PrEP use and acceptability.

CONCLUSION: This study demonstrates that PrEP knowledge among women in the United States is still limited with about 30% of women in the survey, including high risk women, aware of this HIV prevention method. Frequent interaction with OB/GYN providers among our cohort highlights a missed opportunity for PrEP counseling and utilization, which is underscored by the fact that few respondents (6%) received counseling regarding PrEP from physicians and were more likely to learn about the medication from social media or traditional media (>90%). Key factors for PrEP implementation will be increasing accessibility by decreasing out of pocket costs, make it easily prescribed like contraceptives, and eliminate the need for lab monitoring.

LEARNING OBJECTIVES: Identify characteristics of women within the United States at high risk for HIV, recognize limited knowledge of PrEP and areas for improvement to increase PrEP knowledge and uptake among high risk women.

3 Ampicillin and metabolites in vaginal transudates after intravenous administration of ampicillin

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OBJECTIVES: Ampicillin is one of the most widely used antibiotics in obstetrics, with well-established pharmacokinetics and previous studies elucidating ampicillin levels in maternal serum, amniotic fluid and fetal serum after doses maternal administration. However, no studies exist determining whether metabolites of ampicillin are present in vaginal transudates.

METHODS: Pregnant women from 24-42 weeks gestation receiving ampicillin for GBS prophylaxis were eligible for participation. Samples of vaginal secretions were collected from the anterior and posterior vaginal fornices using plastic cytology spatulas at 30, 60 and 90 minutes after a single dose of 2 g ampicillin IV. Levels of ampicillin and two metabolites, ampicilloic acid and diketopiperazine were measured using liquid chromatography/mass spectrometry. Laboratory methods were verified with standard curves for each compound. Clinical information was recorded in addition to information about the appearance of the samples.

RESULTS: Samples of vaginal secretions from 3 women admitted for labor or induction of labor who were receiving IV ampicillin for GBS prophylaxis. The most common indication for admission was preterm labor. The average GA was 35.3 weeks. There were no significant differences in participating patients. Ampicillin concentrations ranged from 7.04-110.61 pg/ul (avg 53.19) at 30 min, 9.43-1765.34 (avg 390.31) at 60 min, 3.63-591.15 (avg 214.11) at 90 min. Ampicilloic acid concentrations ranged from 0.60-38.28 pg/ul (avg 8.70) at 30 min, 5.53-368.39 (avg 73.42) at 60 min, 2.41-101.97 (avg 97.95) at 90 min. Ampicillin diketopiperazine concentrations ranged from 0.56-10.69 pg/ul (avg 5.06) at 30 min, 5.52-368.39 (avg 73.42) at 60 min, 0.23-99.55 (avg 35.34) at 90 min. Ampicillin and both metabolite levels did not correlate with membrane rupture status or cervical dilation. The presence of gross blood or mucus in the sample also did not correlate with an increase in levels.
CONCLUSION: Ampicillin and two urinary metabolites, ampicilloic acid and diketopiperazine are detectable in vaginal transudate within 30 minutes of a single 2 g dose of IV ampicillin, although the concentrations vary widely between patients. No previous studies exist showing the presence of these compounds in the vaginal transudate. The results of this study raise other questions, including the potential effects of ampicillin and its metabolites on the vaginal microbiome and implications for GBS prophylaxis and virulence.
LEARNING OBJECTIVES: Learner can demonstrate knowledge of ampicillin and its metabolites in the vaginal transudate after IV administration of ampicillin.

4 Distribution of ampicillin in vaginal transudates on anterior and posterior fornix sampling

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OBJECTIVES: Ampicillin is one of the most widely used antibiotics in obstetrics, with well-established pharmacokinetics and previous studies elucidating ampicillin levels in maternal serum, amniotic fluid and fetal serum after doses maternal administration. However, no studies exist examining the effects of ampicillin on the vaginal transudate, including the potential differences in ampicillin concentration in different areas in the vagina.
METHODS: Pregnant women from 24-42 weeks gestation receiving ampicillin for GBS prophylaxis were eligible for participation. Samples of vaginal secretions were collected from the anterior and posterior vaginal fornixes using plastic cytology spatulas at 30, 60 and 90 minutes after a single dose of 2 g ampicillin IV. Ampicillin levels were measured using liquid chromatography/mass spectrometry. Clinical information, including rupture status was recorded in addition to information about the appearance and timing sampled for each sample.
RESULTS: 78 samples of vaginal secretions were collected from 10 women admitted for labor or induction of labor who were receiving IV ampicillin for GBS prophylaxis. The most common indication for admission was induction of labor. The average GA was 37.1 weeks. 7 patients had intact membranes, 2 patients were admitted with ruptured membranes and 1 patient ruptured while enrolled. Anterior and posterior vaginal samples were obtained at the level of the cervix. For anterior samples, ampicillin concentrations ranged from 0.007-0.503 ug/ml (mean 0.064) at 30 min, 0.009-0.298 ug/ml (mean 0.134) at 60 min and 0.004-0.218 ug/ml (mean 0.144) at 90 min. For posterior fornix samples, ampicillin concentrations ranged from 0.009-0.329 ug/ml (mean 0.061) at 30 min, 0.016-1.765 ug/ml (mean 0.223) at 60 min and 0.007-1.442 ug/ml (mean 0.209) at 90 min. Levels were noted to be higher in posterior compared to anterior with subsequent timed sampling.
CONCLUSION: Ampicillin is detectable in vaginal transudate within 30 minutes of a single 2 g dose, although in highly variable concentrations between patients. Samples collected from the posterior fornix had higher levels than samples collected from the anterior fornix. This could be explained by gravity causing pooling of ampicillin and metabolites in the posterior fornix over time after intravenous ampicillin administration. Variable distribution of ampicillin in the vagina could have implications for the microbiome as well as prophylaxis for GBS.
LEARNING OBJECTIVES: Learners will be able to identify trends in ampicillin levels in different areas of the vagina.

5 Prognosis and long term outcome of women with idiopathic recurrent vulvovaginal candidiasis caused by Candida albicans

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OBJECTIVES: The prognosis and most effective long-term management of women with recurrent candida vulvovaginitis (RVVC) remains poorly understood, and few studies focus on patients with idiopathic disease. The aim of this study is to evaluate the use of long-term antifungal therapy beyond an initial six month maintenance course of weekly fluconazole, with a unique focus on premenopausal patients with idiopathic RVVC due to C.albicans.
METHODS: A retrospective chart review was performed of women seen in WSU Vaginitis Clinic identified as having confirmed idiopathic RVVC due to Candida albicans during a ten year period (January 2006 through December 2015). Only patients who were without recognized risk factors for secondary VVC and initiated a 6-month course of once-weekly maintenance fluconazole therapy were selected. Data collected included long-term use of fluconazole therapy, treatment efficacy, and development of fluconazole resistance. Follow-up questionnaires were mailed to gain perspective into the patient's subjective experience after fluconazole therapy.
RESULTS: Of 883 patients with diagnosis of RVVC based on clinical records, 191 were found to have confirmed culture positive idiopathic RVVC due to C. albicans. One hundred forty seven (77.0%) completed the initial therapy of fluconazole induction with six months of weekly maintenance dosing, and 107 (72.8%) continued maintenance past the 6 month benchmark. The most common reason for continuation of fluconazole therapy was confirmed post-treatment VVC recurrence seen in (55.1%), with secondary reasons being partial symptom resolution (18, 16.8%), patient preference in absence of clinical relapse (11, 10.3%), and undocumented reason (6, 5.6%) Mean duration of fluconazole maintenance was 35.7 (range 7-288) months. Upon questionnaire follow-up, 92.2% of the 51 respondents reported benefit during the maintenance regimen, however 80.9% described relapse of symptoms after discontinuation of weekly fluconazole therapy. Fluconazole resistance emerged in 6.8% of all 191 women.
CONCLUSION: Fluconazole suppression therapy was highly effective in preventing VVC symptoms, but the disease was rarely curative and VVC relapse occurred frequently after discontinuation of maintenance therapy. Long term fluconazole was remarkably safe, with minimal adverse effects. Drug resistance although uncommon is a previously unrecognized complication. The majority of patients report benefit from fluconazole, even after years of treatment, however cure remain elusive.