IDSOG Posters Friday 2017

1 Increasing awareness and promoting strategies for prevention of congenital cytomegalovirus infection among young pregnant women

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OBJECTIVES: Previous data indicate that most women have never heard of congenital cytomegalovirus (cCMV) and the risk of cCMV's damaging sequelae for their newborns, or how to prevent CMV exposures. The objective of this study is to evaluate whether a cognitive-behavioral intervention can, 1) increase knowledge about cCMV and 2) decrease self-reported risk behaviors.

METHODS: We recruited 215 young pregnant women (16-29 years) into a CMV cognitive-behavioral intervention study following their first prenatal visit and randomized them to either a CMV educational/prevention intervention (PREV) or an attention-matched control using an educational stress reduction intervention (CONT). Both groups attended an individualized behavioral skills session, watched a short video, received a take home packet, received weekly text messages for 12 weeks to deliver the experimental and control interventions, and attended 6 and 12 week follow up visits. Pre- and post-intervention CMV knowledge and CMV risk behaviors were assessed via questionnaires in both groups.

RESULTS: Pre- and post-intervention assessments were completed for 196 women (91.2%). The cohort was 91% Black, with 75% being CMV seropositive. Only 14.2% (95% CI, 9.7 − 19.8%) of the women had ever heard of cCMV at study enrollment, and their mean (± standard deviation) CMV risk behavior score was 5.5 ± 6.1 (possible range 0 − 32). Post-intervention, the mean correct CMV knowledge (possible scale 0 − 16) was higher in the PREV group compared to the CONT group (11.3 ± 2.2 vs. 8.5 ± 3.7; $p<0.0001$). Also, post-intervention, the PREV women reported a lower mean CMV risk behavior score compared to the CONT women (1.7 ± 2.6 vs. 3.4 ± 4.6; $p=0.002$).

CONCLUSIONS: Young women lack awareness or accurate knowledge of cCMV and how to protect themselves and their fetuses/infants from CMV infection. This intervention demonstrates that it is possible to raise awareness about cCMV and decrease CMV risk behaviors in young pregnant women.

2 Adverse pregnancy outcomes among women with urinary tract infections: comparison of sensitive and resistant organisms

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OBJECTIVES: Urinary tract infections (UTI) in pregnancy are associated with adverse perinatal outcomes. The purpose of this study was to examine preterm birth comparing resistant versus pan-sensitive uropathogens. We also sought to examine whether uropathogen resistance affects the rate of other perinatal maternal or neonatal infectious morbidity.

METHODS: We conducted a retrospective cohort study of all pregnant women who (1) received obstetric care and delivered at a university medical center between January 1, 2010 and August 31, 2014and (2) had at least one positive urine culture (≥ 100,000 colony-forming units (cfu) per milliliter (mL)) performed through the hospital microbiology lab during their pregnancy. We categorized organisms as "sensitive" or "resistant" based on reported antimicrobial resistance. The primary outcome was preterm birth at <37 weeks of gestation. Secondary outcomes were composite maternal and neonatal infectious morbidities.

RESULTS: 197 women with UTI were identified. 68 (34.5%) women had pregnancies complicated by "sensitive" uropathogens and 129 (65.5%) women had pregnancies complicated by "resistant" uropathogens. In univariate analysis, the overall rate of preterm birth was not statistically different between cohorts; 19.1% among women with sensitive uropathogens and 22.5% among women with resistant uropathogens (P=0.58). There was also no difference in the rate of spontaneous preterm birth (P=0.49). UTI with a "resistant" uropathogen was not associated with an increased risk of preterm birth in multivariable analysis that included risk factors for preterm birth (aOR 1.2, 95% CI 0.58-2.69). We found no statistical difference in composite maternal and neonatal infectious morbidities.

CONCLUSIONS: UTI with a "resistant" uropathogen was not associated with an increased risk for preterm birth or increased risk for composite maternal and neonatal infectious morbidities.

3 Malawian women's experiences of rules regarding participation in HIV prevention and treatment clinical trials during pregnancy

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OBJECTIVES: Clinical trials for non-obstetrical conditions have historically excluded pregnant women. Recent efforts to reduce evidence gaps on preventing and treating infectious diseases during pregnancy raise ethical questions about rules regarding inclusion of pregnant women in the broader HIV research agenda. The objective of this study is to better understand Malawian women's experiences of rules regarding participation in HIV prevention and treatment clinical trials during pregnancy in order to inform development of ethical recommendations for further advancing the evidence base.

METHODS: Seventy semi-structured, in-depth interviews were conducted with a purposive sample of pregnant or recently pregnant women living with (n=35) or at risk for HIV (n=35) in Malawi. Topics discussed included women's decision-making and experiences in the context of enrolling or attempting to enroll in HIV prevention and treatment clinical trials while pregnant, and/or being or becoming pregnant on a clinical trial. Thematic analysis informed the analytic approach. Interviews were transcribed, translated, coded and emergent themes identified.

RESULTS: HIV-infected women described various reasons for enrolling in a Prevention of Mother to Child Transmission and HIV treatment trial while pregnant, including a desire for access to enhanced health care such as supplementary laboratory tests, and a desire to protect their infant from HIV. Women described disappointment at losing study benefits in subsequent pregnancies. Some at-risk women who were denied enrollment into a HIV preventive study while pregnant, or who were taken off of the investigational product when a pregnancy was detected at a study visit, accepted these restrictions as they might protect the fetus from unknown harm from the study drug. Others indicated that they would have enrolled/stayed on the study product during pregnancy for HIV prevention if allowed.

CONCLUSIONS: While the HIV research agenda is increasingly responsive to the needs of pregnant women, many continue to experience exclusionary research practices. Some participants expressed a desire to enroll and/or remain on studies of products to prevent or treat HIV that were denied them due to pregnancy. Further consideration of women's views, in the context of meaningful informed consent, should inform efforts to advance a more inclusive approach.

4 Surgical site infection after cesarean delivery: incidence and risk factors at an academic institution

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OBJECTIVES: To identify the rate of surgical site infection (SSI) after Cesarean delivery (CD) within a modern cohort of patients receiving prophylactic antibiotics and determine risk factors predictive for infection at a large academic institution.

METHODS: This was a retrospective cohort study in women undergoing CD during 2013. SSIs were defined by CDC NHSN criteria. Chi square and t-tests were used for bivariate analysis and multivariate logistic regression was used to identify SSI risk factors.

RESULTS: In 2419 patients, the rate of SSI was 5.5% (n=133) with cellulitis in 4.9% (n=118), deep incisional infection in 0.6% (n=15) and intra-abdominal infection in 0.3% (n=7). On multivariate analysis, SSI was higher among CD for labor arrest (OR 2.4; 95% CI 1.6-3.5; p <0.001). Preterm labor (OR 2.8; 95% CI 1.3-6.0; p=0.01) and general anesthesia (OR 4.4; 95% CI 2.0-9.8; p=0.003) were predictive for SSI. Increasing BMI (OR 1.1; 95% CI 1.05-1.09; p=0.02), asthma (OR 1.9; 95% CI 1.1-3.2; p=0.02) and smoking (OR 1.9; 95% CI 1.1-3.2; p=0.02) were associated with increased SSI.

CONCLUSIONS: Several patient and surgical variables are associated with increased rate of SSI after CD. Identification of risk factors for SSI after CD is important for targeted implementation of quality improvement measures and infection control interventions.

5 Post-discharge infections and healthcare contact in ugandan women hospitalized for delivery

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OBJECTIVES: Postpartum infection is a common cause of pregnancy-related morbidity. Data are lacking from resource-limited settings on post-discharge febrile morbidity and healthcare contact in women with in-hospital postpartum fever. We hypothesized that women febrile postpartum were more likely to report post-discharge fever and infection, seek healthcare, receive antibiotics, and report ill health within 6 weeks postpartum than women normothermic postpartum.

METHODS: 4,231 largely rural-dwelling women presenting to Mbarara Regional Referral Hospital for delivery or postpartum care were prospectively enrolled. Vital signs were monitored every 8 hours after delivery. Febrile women were evaluated clinically and microbiologically for fever source. All febrile and 1,574 randomly selected normothermic women underwent interview and chart review to collect demographic, health, obstetric, and outcomes data; and were followed by telephone until 6 weeks postpartum. Categorical variables were analyzed using Chi squared and Fisher's exact tests, and multivariable logistic regression was used to determine whether in-hospital postpartum fever was an independent predictor of new postpartum infection and health care contact.

RESULTS: Temperature was measured for 4,176 women (99%); 121 (2.9%) developed in-hospital postpartum fever. Febrile women were significantly more likely to report new post-discharge antibiotic prescription (n=64, 9.9 vs. 3.8%, P=0.002), readmission (4.5 vs. 1.5%, P=0.02), infection diagnosis (endometritis, wound, and urinary tract infections, n=51, 7.2 vs. 3.0%, P=0.02), wound infection (n=29, 6.1 vs. 1.5%, P<0.001), and poor health (n=58, 8.1 vs. 3.4%, P=0.01) within 6 weeks postpartum than normothermic women. Of 51 new post-discharge infections, 39 (76%) occurred after cesarean delivery (4.6% of cesarean vs. 1.6% of vaginal deliveries, P=0.001), 36 (71%) within 2 weeks of discharge, and 8 (15.7%) in women with in-hospital postpartum fever, of whom 6 (75%) had endometritis in-hospital. When controlling for potential confounders, in-hospital postpartum fever was associated with increased odds of new post-discharge infection (aOR 2.5, 95% CI 1.1-5.7, P=0.03), but not healthcare contact (aOR 1.0, 95% CI 0.4-2.4, P=0.96).

CONCLUSIONS: In Uganda, in-hospital postpartum fever was associated with post-discharge hospitalization, infection diagnosis, and poor health. In-hospital postpartum fever should be evaluated and treated more thoroughly to prevent post-discharge febrile morbidity.

6 Prevalence of candida africana among women with Vulvovaginal Candidiasis (VVC) and/or Bacterial Vaginosis (BV) in the United States

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OBJECTIVES: Candida africana, an emerging pathogen, is a species or biovar closely related to C. albicans that produces germ tubes. However, C africana lacks the capacity to produce chlamydospores, assimilate N-acetylglucosamine (NAG) and glucosamine (GLN), and has a lower adherence to human epithelial cells and production of biofilms than C albicans. Our objective was to assess the prevalence of C. africana in women diagnosed with VVC and/or BV.

METHODS: Women were enrolled in a multicenter trial to test the safety and efficacy of investigational products for treatment of BV and/or VVC. BV was diagnosed based on 4 Amsel criteria and Nugent score >3. VVC was diagnosed using a composite signs and symptoms score, and the budding yeast on wet mount. A vaginal swab sent to a central lab for yeast culture was inoculated onto