Mean gestation at seroconversion was 20 weeks (range 4-29 weeks), 37.5% seroconverted prior to 20 weeks and 62.5% at 20 weeks or later. There were no differences between the rate of anemia in those that seroconverted at early versus late gestations. 2 of the 3 cases of IUFD occurred in the group that seroconverted after 20 weeks, despite IUT being performed in both cases.

CONCLUSION: In our cohort we noted a higher rate of fetal anemia secondary to infection with parvovirus than previously expected. Over one third of cases demonstrated spontaneous resolution, reinforcing the importance of intense fetal surveillance with judicious use of fetal intervention. Additionally fetal demise was not limited to seroconversion in the first half of pregnancy as previously reported, with 2/3 cases of fetal demise following late seroconversion.

22 Midtrimester microbial invasion of the amniotic cavity and the risk of very preterm birth

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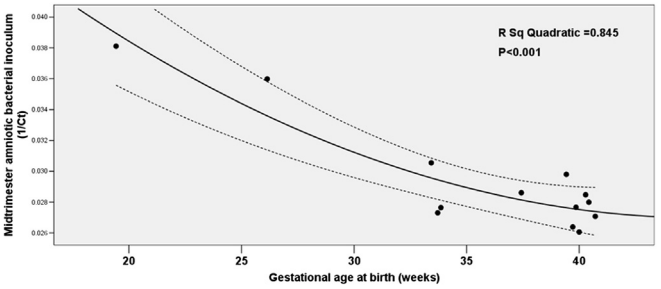
OBJECTIVE: To evaluate the prevalence of microbial invasion of the amniotic cavity (MIAC) in the second trimester of pregnancy and its association with very preterm birth.

STUDY DESIGN: A case-control study nested in a prospective cohort study was conducted in women undergoing mid-trimester amniocentesis for fetal karyotyping between 14 and 24 weeks. Amniotic fluid samples were collected and stored at -80 degree Celsius and all participants were followed until delivery. Each woman who had a spontaneous preterm birth before 35 weeks' gestation was matched with two women who delivered at term without pregnancy complications. Genomic DNA was extracted and specific quantitative PCR was used to evaluate the presence of intra-amniotic Mycoplasma species, Fusobacterium sp., Gardnerella vaginalis, Porphyromonas gingivalis, Bacteroides sp., Group B Streptococcus and Lactobacillus sp. Broad-range (16S rDNA) PCR was also performed.

RESULTS: 3438 women were recruited over a 4-year period including 52 (1.5%) women who had a spontaneous preterm birth before 35 weeks. We observed 5 (9.6%) cases of midtrimester MIAC in our cases and 8 (7.7%) in the control group (p=0.68) using specific PCR. However, we observed a strong (p<0.001) correlation between the bacterial inoculum (using PCR cycle threshold - Ct) and the risk of spontaneous preterm birth (Figure). All three cases with a high bacterial inoculum (Ct<33) delivered before 35 weeks. Using 16S PCR, we observed additional bacteria that affected 21.2% of our cases and 25% of our controls.

CONCLUSION: Midtrimester MIAC is commonly found in low-risk population and is not necessarily associated with preterm birth. Our findings suggest that the amniotic cavity is not completely sterile in normal conditions. However the risk of very preterm birth increases significantly with the level of midtrimester amniotic bacterial inoculum.



23 Synergistic effect of thrombin and bacterial LPS on human endometrial endothelial cell inflammatory cytokine response

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OBJECTIVE: Risk factors for preterm birth include abruption, arising from excessive decidual thrombin, and intrauterine infection. We previously demonstrated that human endometrial endothelial cells (HEECs) express Toll-like receptors (TLRs), and following activation by infection-derived agonists, trigger specific innate immune inflammatory responses. Since thrombin, in addition to inducing coagulation can also trigger inflammation, we investigated its effect on HEEC responses to the TLR4 agonist, bacterial lipopolysaccharide (LPS).

STUDY DESIGN: HEECs were pretreated with or without thrombin (0.25U/ml) for 1hr followed by treatment with or without LPS (1μg/ml) for 48hrs (n=3). Supernatants were measured by multiplex analysis (BioRad) for: IL-1β, IL-6, IL-8, IL-10, IL-12, IL-17, G-CSF, GM-CSF, IFNγ, MCP-1, MIP-1α, MIP-1β, RANTES, TNFα, VEGF, GROα, and IP-10.

RESULTS: Treatment of HEECs with thrombin alone significantly upregulated the secretion of IL-6, IL-8, G-CSF, MCP-1, GROα and IP-10 when compared to the untreated control ($p<0.05$). Compared to the untreated control, LPS alone significantly upregulated HEEC secretion of IL-6, IL-8, G-CSF, MCP-1, GROα, IFNγ, and IP-10 ($p<0.05$). Pretreatment of HEECs with thrombin significantly augmented LPS induced secretion of IL-6 by 3.1 fold, IL-8 by 2.0 fold, G-CSF by 2.9 fold, MCP-1 by 1.7 fold, and GROα by 1.7 fold ($p<0.05$). However, thrombin had no significant effect on LPS-induced secretion of IP-10 or IFNγ, which were either minimally or not upregulated by thrombin alone.

CONCLUSION: Thrombin alone induces HEECs to generate a pro-inflammatory cytokine response, similar to that triggered by bacterial LPS. Moreover, thrombin in combination with LPS induces a synergistic effect on this HEEC cytokine profile. These findings suggest that preterm birth in the context of abruption and a bacterial infection may be associated with an aggravated inflammatory response. Supported by PO1HD054713.