

***Ureaplasma* species multiple banded antigen (MBA) variation is associated with the severity of chorioamnionitis in late preterm placentas**

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Background: Intra-amniotic infection accounts for 30% of all preterm births (PTB), with the human *Ureaplasma* species being the most frequently identified microorganism from the placentas of women who deliver preterm. The highest prevalence of PTB occurs late preterm (32-36 weeks) but no studies have investigated the role of infectious aetiologies associated with late preterm birth.

Method: Placentas from women with late PTB were dissected aseptically and samples of chorioamnion tissue and membrane swabs were collected. These were tested for *Ureaplasma* spp. and aerobic/anaerobic bacteria by culture and real-time PCR. Western blot was used to assess MBA variation in ureaplasma clinical isolates. The presence of microorganisms was correlated with histological chorioamnionitis.

Results: *Ureaplasma* spp. were isolated from 33/466 (7%) of placentas by culture or PCR. The presence of ureaplasmas, but not other microorganisms, was associated with histological chorioamnionitis (21/33 ureaplasma-positive vs. 8/42 other bacteria; $p = 0.001$). *Ureaplasma* clinical isolates demonstrating no MBA variation were associated with histological chorioamnionitis. By contrast, ureaplasmas displaying MBA variation were isolated from placentas with no significant histological chorioamnionitis ($p = 0.001$).

Conclusion: *Ureaplasma* spp. within placentas delivered late preterm (7%) is associated with histological chorioamnionitis ($p = 0.001$). Decreased inflammation within chorioamnion was observed when the clinical ureaplasma isolates demonstrated variation of their surface-exposed lipoproteins (MBA). This variation may be a mechanism by which ureaplasmas modulate and evade the host immune response. So whilst ureaplasmas are present intra-amniotically they are not suspected because of the normal macroscopic appearance of the placentas and the amniotic fluid.