Background and aims The neonatal inflammatory response is associated with adverse outcomes like chronic lung disease. Recent studies suggested that newborn innate immune responses differ from adults. We aim to compare the expression of inflammatory cytokines between newborn and adult monocytes, and to investigate the mechanisms underlying the differential response.

Methods Purified monocytes from 15 healthy term newborns (C-section, no labor or chorioamnionitis) and 15 healthy adults (no infection), were cultured (90 min) and stimulated without or with 0.1 ng/ml or 10 ng/ml LPS for 4 or 24 hours. Cells were harvested and RNA extracted. mRNA expression was determined with real-time PCR and normalized to β2-microglobulin as housekeeping gene. Results were analyzed by ANOVA and Student's t-test with p < 0.05 considered significant.

Results Results are discussed in comparison to control values. Newborn monocytes showed increased IL6 (0.1 ng/ml or 10 ng/ml LPS) and TNFα (0.1 ng/ml LPS) expression after 4h, whereas IL10 mRNA was lower after 4h and 24h LPS compared to adults. LPS-stimulation increased NFKBp65 expression in adults but not in newborns at 24h. IKKα and Toll-interacting protein were comparable between groups. IRAK3 (TLR4-pathway regulator) was elevated in newborns at 4 and 24h with LPS-stimulation, but only at 24h in adults. Dual specificity phosphatase 1 (DUSP1) was significantly lower in newborn monocytes compared to adults after 24h LPS at both concentrations.

Conclusions Newborn compared to adult monocytes show increased expression of inflammatory cytokines. Diminished upregulation of DUSP1 (negative regulator of MAPK-pathway) might explain the enhanced pro-inflammatory profile of newborn compared to adult monocytes after microbial stimulation.

Conclusions When using Scr to estimate renal function in neonates, clinicians should in addition to postnatal changes and other covariates of renal function, also consider the technique applied. There is no fixed conversion factor to correct for differences between both techniques.


1337 NEWBORN AND ADULT MONOCYTES SHOW DIFFERENT INFLAMMATORY RESPONSES TO BACTERIAL INFECTION: POTENTIAL ROLE OF MAPK INHIBITION

doi:10.1136/archdischild-2012-302724.1337

EM Speer, AJ Chander, Pediatrics, Stony Brook University, Stony Brook, NY, USA

Background and Aims The neonatal inflammatory response is associated with adverse outcomes like chronic lung disease. Recent studies suggested that newborn innate immune responses differ from adults. We aim to compare the expression of inflammatory cytokines between newborn and adult monocytes, and to investigate the mechanisms underlying the differential response.

Methods Purified monocytes from 15 healthy term newborns (C-section, no labor or chorioamnionitis) and 15 healthy adults (no infection), were cultured (90 min) and stimulated without or with 0.1 ng/ml or 10 ng/ml LPS for 4 or 24 hours. Cells were harvested and RNA extracted. mRNA expression was determined with real-time PCR and normalized to β2-microglobulin as housekeeping gene. Results were analyzed by ANOVA and Student's t-test with p < 0.05 considered significant.

Results Results are discussed in comparison to control values. Newborn monocytes showed increased IL6 (0.1 ng/ml or 10 ng/ml LPS) and TNFα (0.1 ng/ml LPS) expression after 4h, whereas IL10 mRNA was lower after 4h and 24h LPS compared to adults. LPS-stimulation increased NFKBp65 expression in adults but not in newborns at 24h. IKKα and Toll-interacting protein were comparable between groups. IRAK3 (TLR4-pathway regulator) was elevated in newborns at 4 and 24h with LPS-stimulation, but only at 24h in adults. Dual specificity phosphatase 1 (DUSP1) was significantly lower in newborn monocytes compared to adults after 24h LPS at both concentrations.

Conclusions Newborn compared to adult monocytes show increased expression of inflammatory cytokines. Diminished upregulation of DUSP1 (negative regulator of MAPK-pathway) might explain the enhanced pro-inflammatory profile of newborn compared to adult monocytes after microbial stimulation.

Conclusions When using Scr to estimate renal function in neonates, clinicians should in addition to postnatal changes and other covariates of renal function, also consider the technique applied. There is no fixed conversion factor to correct for differences between both techniques.


1337 THE VALUE OF PLACENTAL PATHOLOGICAL AND MICROBIOLOGICAL ASPECTS ON PRETERM DELIVERY AND OUTCOME

doi:10.1136/archdischild-2012-302724.1339

1A Korraa, 2Z Nabil, 3N Samir, 1E El Geriany. 1Pediatrics; 2Microbiology, Faculty of Medicine for Girls, Al Azhar University; 3Pathology, Ain Shams University, Cairo, Egypt

Background Both clinical findings and the high incidence of decidual inflammation/infection in placenta are associated with preterm deliveries.

Objectives To find out the relation of histopathology and microbiology findings of the placenta and preterm birth and to document the association of placental changes and neonatal outcome.

Methods and results A comparative, analytical study was carried out on Placentas from 100 mothers, 50 with preterm delivery (case group), and 50 with full term delivery (control group). Pathology of the placentas and PCR to detect bacterial SrDNA were performed for the placentae and neonates. Preterm Placentas showed a significantly higher inflammatory lesions than those of full term placentas, (68% in preterm versus 4% in full term). The percentage of bacterial isolation by PCR from preterm placenta was significantly higher than full term placenta (75% vs 22%), suggesting that most of unexplained preterm delivery is inflammation and/or infection related. The study demonstrated significant association between placental and neonatal bacterial SrDNA. Our results showed that placental inflammatory lesions were significantly associated with lower gestational age, lower weight and length of preterm neonates. On follow up of the preterm neonates, the percentage of RDS, SGA, BPD and neonatal mortality rate were higher among preterm with placental inflammation/infection than those without.

Conclusion Infection of the placenta is associated strongly with histological chorioamnionitis and preterm birth. Placental pathology is very useful in identifying undiagnosed subclinical maternal infection. The percentage of neonatal morbidity and neonatal mortality were higher in cases with positive placental findings for inflammation and infection.