

Plasma umbilical vein pro-inflammatory cytokine levels in gestations complicated with severe preeclampsia

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Objective: To measure pro-inflammatory cytokine levels in fetal circulation in gestations complicated with preeclampsia. **Method:** An umbilical vein sample was assessed upon birth of twenty six gestations 36 or more weeks complicated with severe preeclampsia in order to measure plasma levels of interleukin 6 (IL-6), interleukin 8 (IL-8) and tumor necrosis factor alpha (TNF- α). These values were compared with those obtained among controls matched for maternal age, parity and gestational age. Rho Spearman coefficients were calculated to determine correlations between cytokine values and various numeric variables. Cytokine levels assayed using ELISA method and expressed in pg/ml. **Results:** Gestations with preeclampsia presented higher mid arm circumference and their neonates weighed less than those of controls.

Median levels of IL-6 and TNF- α between preeclampsia cases and controls did not differ (TNF- α : 47.9 vs. 50.2 pg/mL; IL-6: 43.9 vs. 44.0 pg/mL, $p>0.05$). Cases displayed lower IL-8 levels (IL-8: 41.7 vs. 43.1 pg/ml, $p=0.0001$). A significant correlation was found between cytokine values in cases and controls ($r^2=0.63$, $p=0.01$). **Conclusion:** Contrary to what has been reported in maternal plasma of preeclampsia complicated gestations, umbilical vein plasma cytokine levels were similar and even lower than control values. The pathophysiological significance of this finding is still to be determined and requires more research, but could refer to a lower degree of cytokine expression by the trophoblast or macrophages in the fetal circuit.

Basal characteristics and neonatal data of studied women

Parameter	Cases	Controls	p value
Age (yrs)	28.0	26.0	0.13
Parity	1.0	1.0	0.90
Educational level	11.0	10.0	0.70
Antenatal visits	11.0	10.0	0.70
Arm circumference (cm)	30.0	28.0	0.002
Systolic BP (mmHg)	150.0	110.0	0.001
Neonatal weight (gr)	2,850	3,010	0.02
Ponderal index (gr/cm ³)	2.6	2.8	0.02
Placental weight (gr)	650.0	689	0.02
Low birth weight (%)	36.0	12.0	0.04
Neonatal death (%)	0.0	0.0	0.90
Admittance to NICU (%)	0.0	0.0	0.90

Plasma umbilical vein level of pro-inflammatory levels among studied women

Parameters.	Cases (median)	Controls (median)	p value
IL-6 (pg/mL)	43.9	44.0	> 0.05
TNF- α (pg/mL)	47.9	50.2	> 0.05
IL-8 (pg/mL)	41.7	43.1	0.0001

