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ROBUST EARLY IMMUNE FUNCTION IN PRETERM INFANTS

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Aims: To detail the systemic inflammatory response in the preterm infant by examining functional neutrophil activation over the first week of life.

Method: We prospectively collected serial blood samples from premature infants (n=51; < 32 weeks gestation) on day 0, 1, 2 and 7 of life and from adult controls (n=12). Whole blood CD11b and Toll-like Receptor 4 (TLR4) expression as well as reactive oxygen intermediate (ROI) production were evaluated using appropriate antibodies and fluorescent substrates via flow cytometry at baseline. Premature infants were divided into normal and abnormal outcome groups according to Cranial USS findings [**Normal** (n=41): Grade 0-2 intraventricular haemorrhage (IVH); **Abnormal** (n=10): Grade 3-4 IVH, Periventricular Leukomalacia or death].

Results: Preterm infants in both outcome groups have elevated baseline CD11b, TLR4 expression, and ROI production compared with adults over the first week of life. These results were not associated with the presence or absence of chorioamnionitis.

	ADULTS	PRETERMS			
		DOL 0		DOL 7	
		N	ABN	N	ABN
CD11b	6889 +/- 695	14488 +/- 1750	9346 +/- 1938	11581 +/- 1138	11025 +/- 2233
TLR4	1704 +/- 474	1685 +/- 160	2035 +/- 421	1699 +/- 131	1503 +/- 281
ROI	18922 +/- 1685	23813 +/- 4025	40034 +/- 5647	18829 +/- 1986	14974 +/- 2963

[Results]

Figure 1: Mean +/- Std error; DOL= day of life; N = Grade 0-2 IVH; Abn = Grade 3-4 IVH/ PVL/death

Conclusions: Preterm infants have robust baseline immune responses irrespective of outcome. These results are comparable to the adult immune response.