

PAINFUL PROCEDURES PRODUCE OXIDATIVE STRESS IN NEWBORNS**C. Bellieni, M. Longini, M. Tei, L. Iantorno, G. Buonocore***University of Siena, Siena, Italy*

Stressful events can damage neonatal brain through a complexity of events including free radical (FR) generation. We examined whether pain provoked by a routine heel prick can generate an increase in potentially harmful FR in neonatal blood. To this aim, advanced oxidation protein products (AOPP) and total hydroperoxide (TH) concentrations were measured at the beginning (sample A) and at the end (sample B) of each sampling in 109 babies (corrected age: 37.4 \pm 2.5 weeks) who underwent heel prick for routine blood tests. We scored pain of every procedure in all newborns. No differences were detected between AOPP and TH blood concentrations at the beginning and at the end of heel prick sampling, considering the whole cohort of babies. Conversely, a significant increase was observed between AOPP and TH blood concentrations considering only those babies who showed the highest pain intensity. When babies' pain was high (ABC score \geq 4), mean AOPP and TH blood levels increased significantly; in this case, mean AOPP values increased from 54.9 micromol/l (SD=41.63) to 61.5 micromol/l (SD=44.08) and TH values from 220.71 UCarr (SD=83.72) to 230.87 UCarr (SD=89.5), with a significant p value of 0.03 and 0.02, respectively. These data show that even common routine procedures can be potentially harmful for the newborn if they provoke a high level of pain.