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Cognitive disturbances in 5 year old premature children : an Event- Related Potential study (ERP) 1335

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Studies on school-age outcome of premature children indicate that they are significantly more likely than full-term children to show learning problems. **Objective.** We test the assumption that premature children present difficulties to maintain their selective attention in a serial compared to automatic visual task. **Methods:** Ten 5 year old premature children (30.3±1.5 weeks' gestation) with normal follow-up and normal cerebral U.S scans during the neonatal period, were compared to 10 full-term children, matched for age (5 years 3/12), socio-economic status and IQ (mean: 108; range 95-125 on the K-ABC test). Subjects have to detect a random target defined by a feature (pop-out task) or a conjunction of two features (serial task) among 7 distractors. The inter stimulus interval was 2 seconds and the stimulus was presented during 250msec. The percentage of hits, reaction time and ERP were recorded at F7, Fz, F8, T4, Cz, T5, Pz, and Oz sites. Behavioural and (NI, P2, N2, P3) electrophysiological data were analysed in a repeat measure MANOVAs. **Results.** data show a significant group by task effect on P3 amplitude at anterior site (preterm = 18.77 ± 2.97 V vs. Full-term = 4.65 ± 2.21 V; $p = 0.003$). At posterior site P3 amplitude presents significant group by task and by block effect (preterm = 27.01 ± 3.45 V vs. full term = 39.87 ± 4.01 V; $p = 0.018$). **Conclusion:** normal preterm children exhibit at 5 years a selective attention dysfunction during serial information processing. This finding may explain, in part, learning problems of premature children in elementary school.