PHYSIOLOGICAL MARKERS OF THE SENSORY PROCESSING OF THE NEWBORN

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Objectives: To understand and identify visual, auditory and olfactory ERPs components to different stimuli intensities.

Methods: Sixty-one newborns were recruited, thirteen families came to the hospital and thirteen infants were assessed. All infants were healthy full-term, with birth weights ranging from 2620 to 4270g and had normal Apgar scores. The data for one baby was lost due to technical problems. ERP data for twelve caucasian infants with ages ranging from 23 to 41 days were recorded. Study objectives and procedures were described to parents and informed consent was obtained. When they arrived, the newborn was placed in their mother’s lap and the researcher offered the different stimuli in the following order: Olfactory – a 3mm of inner diameter tube was placed approximately 5mm into the infants’ nostril and the olfactory stimulus was offered; this tube was connected with Olfactometer OM2s (Burghart Instruments, Wedel, Germany, lent by the Department of Otorhinolaryngology of the University of Dresden’s Medical School), which allowed the distribution of the stimulus; Visual – white flashes were offered while the researcher was holding the lamp of a Grass PS33-Plus (Astro-Med Inc.) flash stimulator, positioned at 20 cm distance from the infant and directed towards their eyes; Auditory – researcher held the speakers positioned at 10 cm distance from them and directed towards their ears. All the different stimuli were offered in three different intensities. Data was recorded using a QuickAmp amplifier linked to a 32 channels ActiCap and Vision Recorder 1.10 Software (Brain Products, Brainvision Inc.).

Results and Conclusions: All the infants showed visual, auditory and olfactory evoked responses and ERPs components were identified. This knowledge can help professionals to make early diagnosis and adjust more direct and appropriate treatment plans for infants with sensorial processing difficulties.
**Discussion:** At an early age, the healthy newborn infant shows different physiological responses associated to specific sensorial stimuli. Although we were able to identify individual ERP components, we could not observe significant differences between intensities.

**Publications:**


**Keywords:** ERPs; Newborns, Sensory Processing