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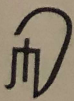
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ACTIVITY OF THE AUDITORY CORTEX IN LANGUAGE IMPAIRMENT

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Objective. Language impairment may be caused by basic deficits of auditory processing. The late auditory evoked potentials (LAEP) are considered a neurophysiological correlate of central auditory perception. Since the potentials are recorded on the surface, they consist of overlapping activities of multiple generators. A component analysis is required to distinguish the different components and to evaluate their significance for language impairment.

Method. The component structure of LAEP was studied in two groups of language impaired children (20 expressively and 20 receptively disturbed) and 20 age matched normal children. The LAEP were recorded at 23 derivations. Pure tone stimuli were used. Dipole models were derived for all groups.

Results. There were only minor differences in localization and orientation of the generating structures. Evaluation of the multiple time components suggests that disturbed auditory perception influences language acquisition.

Conclusion. The method of source analysis has proved to be a useful tool for investigating disturbed function of the auditory cortex.

287 P3 IN CHILDREN WITH DEVELOPMENTAL DYSLEXIA 289

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Although some neuropsychological studies suggest that dyslexia may be caused by deficits of basic cognitive processing, it could be a consequence of abnormalities of auditory perception. The P3 has been associated with different cognitive, perceptual, and attentional processes and it has been shown to be a reliable indicator of cognitive dysfunction in different cerebral diseases. We determined whether children with dyslexia show specific changes of auditory evoked P3 in comparison to visual P3.

We examined 20 dyslexic children, ages 7 to 12, and 20 normal children, closely matched in age and sex. Auditory and visual P3 were recorded in a standard "oddball" paradigm. Amplitudes, latencies, and distributions were calculated. P3 parameters for auditory and visual conditions were compared between the two groups. The significance of the results for disturbances of auditory information processing in children with dyslexia is discussed.

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Mismatch Negativity in language-impaired children

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Objective. The Mismatch Negativity (MMN) is an automatic cortical evoked potential that reflects the detection of acoustic changes. It provides a tool for studying central auditory processing mechanisms involved in the perception of simple acoustic stimuli and of speech sounds. Since it does not require that subjects pay attention to the stimuli, it might be useful in assessing language-impaired children who often suffer from attention deficits as well.

Methods. Auditory event related potentials were recorded from expressive (ICD F80.1) and receptive (F80.2) language-impaired children and healthy controls (for each group n = 21, age 5-10). Pure tones (standard 1000 Hz, 1.5 ms, frequency deviant 1200 Hz, duration deviant 100 ms) and digitized consonant-vowel syllables (standard da, deviants ga and ba) served as stimuli for eliciting the MMN.

Results. Preliminary analyses showed no differences between patients and controls in the pure tone condition, the MMN was either attenuated in amplitude or absent under the speech-stimuli condition in language-disturbed children.

Conclusions. The findings support the hypothesis that there is a specific processing deficit in language-impaired children. Perspectives and limitations at the clinical applications of the MMN in children are discussed.

EDR BIOFEEDBACK IN PEDIATRIC PATIENTS

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The modern biopsychological view recognizes the importance of mind/body interrelations, especially for the developing human organism.

In this context biofeedback is appearing as a non-pharmacological treatment strategy for children and adolescents, evolving the links between emotions, cognition, behavior and physiologic responses.

In the paper we present the results of the computer aided second type biofeedback based on electrodermal activity. The method was applied to assessment and therapy of different groups of pediatric patients (ticks, enuresis/encopresis, somatisation, anxious-phobic reactions, ADHD, anorexia/bulimia, stuttering, and nightmare). The statistics showed significant improvement in all groups ($p < 0.05$).

Finally, we pointed out that biofeedback care in pediatrics is highly cost-effective, with good discriminativity for the actual level of stress as well as good therapeutic result through relaxation, when used in combination with the standard psychometric and psychotherapeutic methods.

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