#00287

AUDITORY OBJECTIVE MEASURES
ELECTROPHYSIOLOGY & AUDITORY EVOKED POTENTIALS

FONOAUDIOLOGIA
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CAPES

Cortical auditory evoked potentials in children with specific learning disorders

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Abstract

The cortical auditory evoked potentials (CAEP) provides data on the functionality of auditory cortical structures, which reflects the cortical activity involved in discrimination, integration and attention, being a procedure that can be used in the evaluation of children with specific learning disorders (SLD).

Objective

To evaluate the sensory and cognitive response of CAEP with verbal and non-verbal stimuli in children with SLD and compare it with those with typical development.

Method

Participants: 40 children, divided into two groups:
20 children with SLD - Study Group (SG) and
20 typically developing children, matched for sex, age, and educational level - Control Group (CG).

Inclusion criteria were not having:

- History of school failure;
- Speech therapy before the study;
- Any evident neurological or psychiatric disorders.

Exclusion criteria were:

- Intelligence quotient (IQ) lower than 80;
- Excess wax verified by meatoscopy;
- No middle ear alterations considering type B or C tympanometric curve;
- Hearing thresholds above 15 dB NA in any frequency from 0.25 to 8 kHz.

Procedures: CAEP with:
Speech stimuli (/ba/ - frequent and /da/ - rare) and
Tone-burst (1000Hz - frequent and 2000Hz - rare).

Results

Longer P3 component latencies (Figure 1) and smaller N2-P3 amplitudes (Figure 2) were observed in children with SLD compared to children with typical development for both verbal and non-verbal stimuli processing. There was no significant difference between the groups for the P1, N1, P2, and N2 latencies, as well as for the P1-N1 and P2-N2 amplitudes.

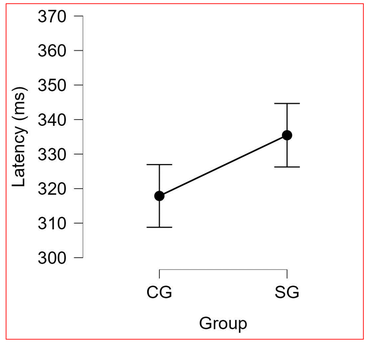

Figure 1- Comparison of P3 latency between groups.

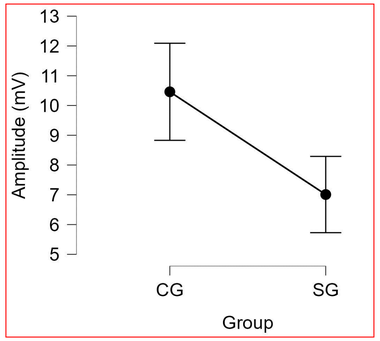

Figure 2- Comparison of P3 amplitude between groups.

Conclusion

Children with SLD showed alterations in the cognitive components of the CAEP, with a reduction in the speed of attentional processing of both verbal and non-verbal stimuli as well as recruiting a smaller number of neurons to process sound information, suggesting impaired attentional processing of information.

References

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