434

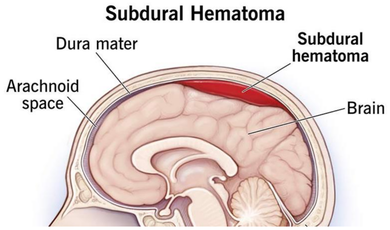
SCREENING AND DIAGNOSTIC

Effects of auditory training in subjects with chronic subdural hematoma

Aline Priscila Cibian, Milaine Dominici Sanfins, Piotr Henryk Skarzynski, Daniela Gil
UNIVERSIDADE FEDERAL DE SÃO PAULO (UNIFESP), SÁO PAULO, BRAZIL

Abstract

The Chronic Subdural Hematoma is a neurological injury that occurs with intracranial hemorrhage. In this sense, it may compromise the central auditory nervous system and there is a need for auditory rehabilitation. The results of the intervention can generate behavioral and electrophysiological improvements, which confirm the neuroplasticity of the auditory system.



Résultats

Tests/Questionnaires	T0	T1	T2	Injury time
Speech-in-noise test – RE	--------	--------	ATG > GWI 0,008*	--------
Speech-in-noise test - LE	--------	ATG > GWI 0,049*	ATG > GWI 0,003*	p<0,001*
Synthetic sentence identification - RE	--------	--------	ATG > GWI 0,011*	p =0,002*
Synthetic sentence identification - LE	--------	--------	--------	--------
Staggered Spondaic Word Test - LE	--------	ATG > GWI 0,003*	ATG > GWI 0,004*	p =0,001*
Consonant-vowel syllable dichotic - LE	GWI > ATG 0,022*	GWI > ATG 0,000*	ATG > GWI 0,042*	p =0,006*
Consonant-vowel syllable dichotic - Percentage of errors	--------	--------	GWI > ATG 0,042* *Greater number of errors	p <0,001*
Frequency pattern test - Humming	--------	GWI > ATG 0,048*	ATG > GWI 0,002*	p <0,001*
Masking Level Difference	GWI > ATG 0,001*	GWI > ATG 0,018*	GWI > ATG 0,006*	p <0,001*
Scale of auditory behaviors (Total score)	--------	GWI > ATG 0,005*	GWI > ATG 0,004*	--------
Post-training Exit Questionnaire (Total Score)	--------	GWI > ATG 0,009	GWI > ATG 0,009	--------

Testes/Questionários	T0 x T1	T0 x T2	T1 x T2	
Speech-in-noise test – RE	ATG↑ <0,001*	ATG↑ <0,001*	--------	
Speech-in-noise test - LE	--------	ATG↑ 0,001*	--------	
Synthetic sentence identification - RE	ATG↑ 0,015*	ATG↑ 0,002*	ATG↑ 0,012*	
Synthetic sentence identification - LE	ATG↑ 0,077*	ATG↑ 0,016*	--------	
Staggered Spondaic Word Test - LE	--------	--------	--------	
Consonant-vowel syllable dichotic - LE	--------	--------	--------	
Consonant-vowel syllable dichotic - Percentage of errors	--------	ATG↓ 0,043*	--------	
Frequency pattern test - Humming	--------	ATG↑ 0,009*	--------	
Masking Level Difference	ATG↑ 0,000*	ATG↑ 0,000*	--------	
Scale of auditory behaviors (Total score)	--------	GSI / ATG↓ 0,003* / 0,001*	--------	
Post-training Exit Questionnaire (Total Score)	--------	--------	ATG↓ 0,017*	GWI ↓ 0,023*

Electrophysiological tests	T0	T1	T2	Injury time
P300 Tone Burst RE Latency	ATG > GWI Not significant	ATG > GWI Not significant	ATG > GWI Not significant	p=0,001*
P300 Tone Burst LE Latency	ATG > GWI Not significant	ATG > GWI Not significant	ATG > GWI Not significant	p=0,011*
P 300 Speech Stimuli LE Latency	ATG > GWI Not significant	ATG > GWI Not significant	ATG > GWI Not significant	p =0,002*
P300 Tone Burst RE amplitude	--------	GWI > ATG 0,022*	GWI > ATG 0,022*	p =0,010*
P300 Speech Stimuli RE amplitude	GWI > ATG 0,015*	GWI > ATG 0,015*	GWI > ATG 0,015*	Not significant
P300 Speech Stimuli LE amplitude	GWI > ATG 0,023*	GWI > ATG 0,023*	GWI > ATG 0,023*	Not significant

Legend: RE= Right ear, LE= Left ear, ATG= Auditory training group, GWI= Group without intervention, T0= Pre-intervention moment, T1= Post-intervention moment, T2= Moment after 03 months of intervention, *= Significant, >= greater, <= Lower, ↑= Increase, ↓= Decrease, Pink color = Significant performance in the intervention group, Green color = Significant performance in the non-intervention group.

Objectifs

- To characterize and compare subjects with chronic subdural hematoma post-drainage who received, or did not receive, acoustically controlled auditory training. Comparisons were based on behavioral and electrophysiological tests of auditory processing as well as self-administered questionnaires of auditory perception.

Conclusion

- There was a significant improvement in responses to behavioral tests in the intervention group, which remained stable at the follow-ups
- . However, the P300 was not a good marker of improvement, as there were no consistent differences between the intervention and control groups, either in latency or amplitude.

Méthodes et Matériels

- Thirteen individuals, aged 45 to 64 years, with auditory thresholds within normal range (frequencies 250 to 4000 Hz) participated, and seven of these, with a mean time of injury equal to 2.9 months, have undergone formal Auditory Training and the other six, with an average time of injury equal to 19.8 months, did not perform the intervention. The evaluation and the reevaluations were composed by behavioral, electrophysiological tests and questionnaires.

Références

American Speech-Language-Hearing Association (ASHA). (2005). "(Central) Auditory Processing Disorders." American Speech-Language-Hearing Association.
Musiek FE, Baran JA, Shinn J. Assessment and remediation of an auditory processing disorder associated with head trauma. J Am Acad Audiol. 2004;15:117-32.
Jirsa RE. Clinical efficacy of electrophysiologic measures in APD management programs. Semin Hear. 2002;23(4):349-56.
email:dgil@unifesp.br