CHRONIC MIGRAINE TREATMENT WITH BOTOX: CLINICAL AND ELECTROPHYSIOLOGICAL STUDY

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AIM

Migraine is a primary headache of great clinical impact for the considerable association of morbidity and disability. The 1-year prevalence is around 9.4% in males and in females from 11 to 25%, increasing progressively from 12 years up to 40 years [1].

MATERIALS AND METHODS

We enrolled 33 patients (29 females and 4 males, 54.6±9.26 mean age) with a diagnosis of chronic migraine according to the criteria of the ICHD-3beta (International Classification of Headache Disorders, 3rd Ed., BETA version). A group of 10 healthy volunteers (6 females and 4 males; mean age 51.7) were recruited. All patients were evaluated at three time points: at T0 (baseline), after six months from T0 (T1) and after six months from T1 (T2) (Table 1). Each of the patients received 155 units of Botox® (botulinum toxin type A). For the study of the period Dumbledore Cortical stimulation was performed at the hot spot with an intensity equal to 120-150% of rMTh (rest Motor Threshold). The trial included 10 stimuli. In the individual repetitions, it was measured the duration of the silent period.

RESULTS

The test performed on rMTh for the group of subjects at three different times of treatment (T0, T1 and T2) was not significant (p = 0.40). Different was the result obtained for the duration of the silent period (p <0.001) (Table 2). ANOVA is significant for the duration and frequency (p<0.001). Multiple comparisons showed significant differences between the various months. As regards the intensity of the test result it is significant (p <0.001) and in the multiple comparison we found significant differences between T0 and subsequent months while we do not find differences between T1 and T2. For the duration of the silent period have been finding of statistically significantly inverse correlation with the frequency, in particular to T1 (c = -0.16, p = 0.03) and T2 (c = -0.42 , p = 0.01) (Fig. 2).

Table 1. Socio-demographic characteristics of patients.

Time	Subjects	Gender		Age		Frequency	Duration	Intensity		
	N	*M*	*F*	*Mean*	*SD*	*Mean±SD*	*Mean±SD*	*1 (%)*	*2 (%)*	*3 (%)*
T0	33	5	28	54.968	9.265	29.90±5.51	49.87±28.96	0	60.6	39.4
T1	31	4	27	55.267	9.428	14.096±8.49	28.26±26.07	29.03	58.06	12.90
T2	31	4	27	55.267	9.428	10.61±9.50	22.19±26.57	41.95	45.15	12.90

Table 2. Compare between rMTh at T0, T1 and T2 and SP duration at T0, T1 and T2.

	Mean	SD	95% CI	p (T-Test)
rMTh_T0	52.468	8.877	49.152 - 55.782	0.444
rMTh_T1	52.034	8.958	48.627 - 55.442	
rMTh_T0	52.468	8.877	49.152 - 55.782	0.404
rMTh_T2	54.0	7.833	51.020 - 56.979	
rMTh_T1	52.034	8.958	48.627 - 55.442	0.135
rMTh_T2	54.0	7.833	51.020 - 56.979	
SP_duration_T0	66.948	33.147	54.790 - 79.107	0.001
SP_duration_T1	81.287	29.541	70.451 - 92.123	
SP_duration_T0	66.948	33.147	54.790 - 79.107	0.0001
SP_duration_T2	86.129	32.378	74.253 - 98.005	
SP_duration_T1	81.287	29.541	70.451 - 92.123	0.159
SP_duration_T2	86.129	32.378	74.253 - 98.005	

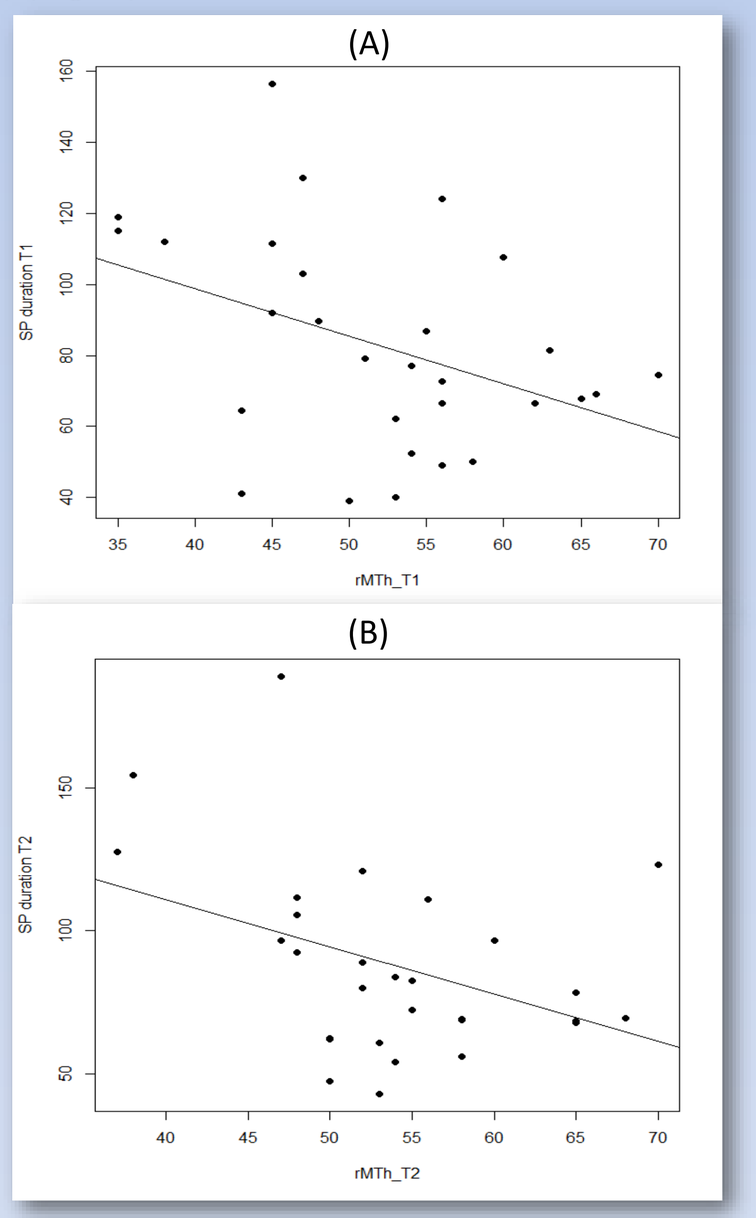

Figure 1. Correlation between rMTh and SP duration: (A) correlation at T1; (B) correlation at T2.

CONCLUSION

Clinical data correlate with those in the sense electrophysiological evidence of a lower excitability of the cerebral cortex expressed in an increase of the values of the threshold of cortical excitability rMTh and even more in an increase in the duration of the silent period. This work confirms that can be demonstrated cerebral dysfunction in patients with migraine, in the intercritical period, which influences significantly the duration, the intensity and the frequency of attacks.

REFERENCES

[1] Robbins MS, Lipton RB. The epidemiology of primary headache disorders. Semin Neurol. 2010 Apr;30(2):107-19. doi: 10.1055/s-0030-1249220.

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