

Diagnostic value of sympathetic skin responses determined by maximum voluntary jaw contraction in patients with autonomous disorders

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Introduction

There are various methods for determining the sympathetic skin responses, based on the electrical stimulation of various body regions, these being associated with an emotional anticipation stress, which influences the results of investigations in patients with autonomous suprasegmental disorders. Currently there are being researched alternative testing methods, using a more physiologic stimulation.

Keywords: sympathetic skin responses, diagnostic value

Purpose: comparative determination of the diagnostic value of the sympathetic skin responses in conditions of electrical stimulation and standardized maximum voluntary jaw contraction.

Material and methods

In this prospective analytical study, there were enrolled 45 patients (15 - cerebellar tumors in the postop period, 15 - facial myalgias, 15 - hyperactive bladder) and control group (15 patients). There were determined the indices of Vein, Valkova questionnaires, sympathetic skin responses (Amax, mV) in various test conditions (electrical stimulation vs maximum voluntary jaw contraction), with the analysis of the sensitivity (Se), specificity (Sp) and efficiency (Ef) of these methods.

Results

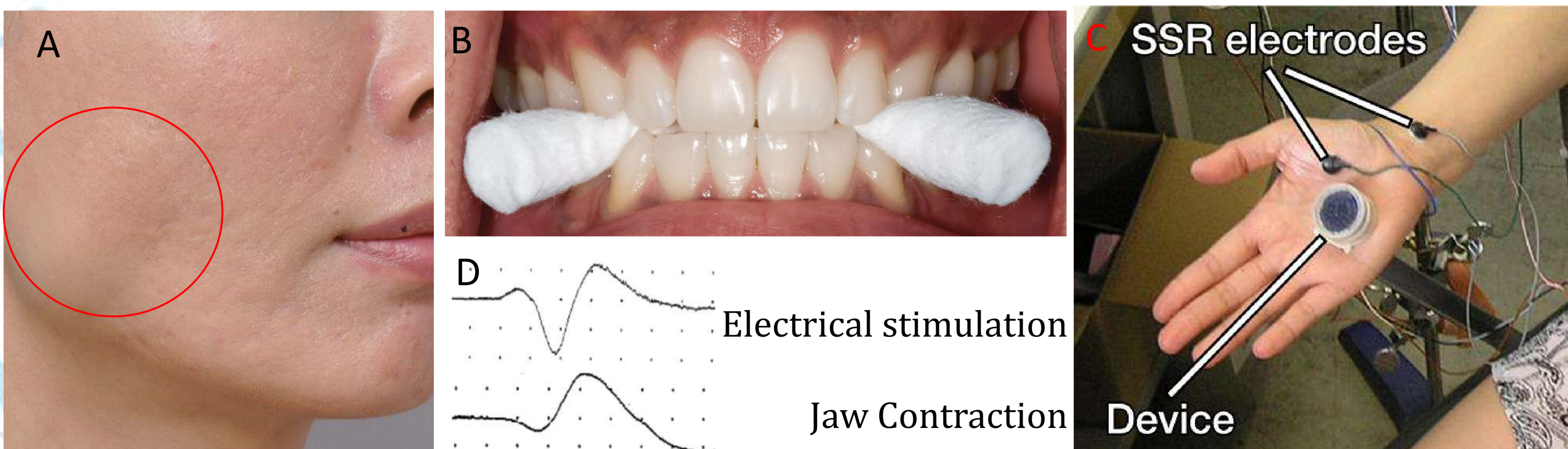
Patients were diagnosed with autonomous suprasegmental clinical disorders of varying intensity under different test conditions (Table 1). The Amax range was between 2.0 and 44 mV. The diagnostic value for percutaneous electrical stimulation: Se = 85%, Sp = 78%, Ef = 81.5%; for standardized maximum voluntary jaw contraction with cotton rolls between molars: Se = 94%, Sp = 90%, Ef = 92%.

Conclusions

The determination of sympathetic skin responses in standardized conditions has a significant diagnostic value, it is performed in physiological conditions, in the absence of anticipation stress, thus optimizing the process of diagnosis and monitoring. The standardized method (maximum voluntary jaw contraction) has several advantages over electrical stimulation, such as: 1. it employs a physiologic stimulus (jaw contraction on cotton rolls); 2. it avoids emotional stress associated with electrical stimulation; 3. it avoids pain due to electrical stimulation; 4. the results are highly reproducible; 5. it can be universally applied in individuals who present conditions that may limit the application of electrical stimulation (autonomous disorders, pacemaker users, individuals with neurosis, epilepsy and other similar conditions, older patients, etc.); 6. high patient compliance and tolerance.

Table 1. Sympathetic skin response values (A, mV), under various test conditions

	Control group (n = 15)	Patient group (n = 45)
Electrical stimulation	2,0 ± 0,25 mV	3,7 ± 0,42 mV
Jaw maximum voluntary contraction	1,3 ± 0,11 mV	2,83 ± 0,21 mV



Note: **A.** Location of measurement (m. masseter); **B.** Cotton roll placement for maximum voluntary jaw contraction; **C.** SSR electrodes placement; **D.** Sympathetic skin response