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Title of Abstract ELECTROPHYSIOLOGICAL INVESTIGATIONS OF OSTEOPATHIC TECHNIQUES ON THE AUTONOMOUS NERVOUS SYSTEM: A RANDOMIZED STUDY

Text of ABSTRACT

INTRODUCTION: Several osteopathic manipulations are thought to modulate the autonomous nervous system (ANS) by acting on various components such as peripheral ganglions and plexii. Here, we investigated the consequences of osteopathic manipulations on ANS activity as deduced from heart rate variability (HRV) and sympathetic skin response (SSR) electrophysiologically monitored.

MATERIALS/ METHODS: 116 healthy volunteers (mean age = 21,5+/- 2, 40 males and 76 females) were recruited. Of these, 114 originated from the IdHEO Osteopathic School and 2 others. Volunteers were randomly assigned to 4 groups corresponding to untreated (group I, n = 34), sham-treated (group II, n = 28) or two osteopathically-manipulated groups (III, n = 26 and IV, n = 28), through a blinded group assignment procedure.

Electrophysiological activities were monitored by using a Nikon Khoden Neuropack M1 connected to adhesive surface electrodes. Electrocardiogram was recorded during a standing-test that consisted of a postural modification from lying to sitting. Fast Fourier transform analysis of the ECG gave power spectrum from which low frequency (LF) and high frequency (HF) and their respective normalized power (LFnu, HFnu) were determined.

SSR was monitored by electrodes located at anterior and posterior hand surfaces. SSR was elicited by an electrical shock applied on the contra-lateral wrist anterior surface. Latency (SSRL in s) and amplitude (SSRA in mV) were measured before and after treatment.

Each subject was submitted to a protocol in which two sets of recordings were separated by a constant period consisting in no treatment, sham-treatment or osteopathic manipulations. The second recording was collected immediately after this period. Stellar ganglion region was manipulated in order to promote ANS depression (group III) or stimulation (group IV). Sham-treatment consisted of a gentle hand positioning in the cervical region without any movement.

Microsoft Excel software was used for data collection and statistical analysis (T test). Data are expressed as mean +/- sd.

RESULTS: The values of the different parameters measured here are presented in the following table.

	Group I		Group II		Group III		Group IV	
	before	after	before	after	before	after	before	after
HFnu	0.20±0.11	0.19±0.10	0.20±0.12	0.19±0.10	0.18±0.11	0.19±0.10	0.18±0.11	0.17±0.10
LFnu	0.80±0.11	0.81±0.10	0.80±0.12	0.81±0.10	0.82±0.11	0.81±0.10	0.82±0.11	0.83±0.10
SSRL	1.5±0.2	1.4±0.3	1.6±0.2	1.6±0.2	1.6±0.2	1.6±0.2	1.6±0.3	1.6±0.2
SSRA	13.7±7.6	12.7±7.3	11.0±5.2	11.1±5.8	11.0±5.0	11.1±5.4	9.5±4.1	9.0±4.8

The statistical analysis did not confirm any difference before and after the treatment for each group and between untreated, sham-treated or treated groups after their respective treatments.

CONCLUSION:

Our data shows no effect of osteopathic manipulations of the stellar ganglion region on HRV and SSR. As a consequence of this, further experiments are needed for the comprehension of the effect of Osteopathy on human physiology.

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