THE EFFECT OF LOCAL THERMONEUTRAL SEA MUD AND BALNEOLOGICAL PEAT APPLICATION ON COMPUTER USERS' MILD CARPAL TUNNEL SYNDROME

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Introduction. Carpal tunnel syndrome (CTS) is a very common overuse syndrome affecting wrists and hands of computer users. People with this condition may feel pain, numbness and general weakness in the hand and wrist area. Wrist splints, ergonomical technics, physical therapy or surgery are possible treatments. The sea mud and balneological peat mixture (peloid) is a high level bioactive humic acid and mineral composition to treat different musculosceletal overuse syndromes. The aim of the current study is to measure the effect of thermoneutral bioactive peloid application on the wrist pain and functional status of the median nerve in case of mild CTS in the population of people who work with computer more than 5 hours a day.
Materials and methods. 27 people with mean age of 47.6 years, 96% female and 4% male, with mean body mass index of 25.4, with no other musculosceletal diseases and acute medical conditions. The mean working years of the study group were 13.3 years and 96,3% of them were righthanded. All reported to using computer more than 5 hours a day for more than 5 years. Nordic musculosceletal pain questionnaire was used and median nerve conduction velocity (m/s), distal motor latency (ms) and amplitude of potential (mV) was measured by electroneurography (ENG) with Dantec™ Keypoint® in this study before the first peloid application and 1 week after the last peloid application.
An applicator 8x15 cm with thermoneutral homogenized peloid was placed on the carpal tunnel area for 3 hours every day, for 5 consecutive days. The composition of bioactive peloid consisted of 50% sea mud and 50% balneological peat. The Nordic musculosceletal pain questionnaire data was analyzed using two-level Bayesian logistic regression model with cumulative response distribution and median nerve functional measurements were analyzed using two-level Bayesian linear regression model with Student-t response distribution.

Results.
1. Computer users' pain in wrist area decreased: in the group of less than 10 working years pain decreased 2 points on 10-point visual analogue scale (95% credible interval -4.05 to -0.28, posterior probability 0.998) and in group with more than 10 working years pain

decreased 1.5 points on 10-point visual analogue scale (95% CI -3.3 to -0.26, posterior probability 0.993)

2. The functional status of median nerve improved: in the subgroup with prolonged distal motor latency of the median nerve (> 4.2 ms) measured on the 2. digit by ENG before the peloid application distal motor latency decreased 1 week after the last peloid application: with effect size -2.11 ms (95% CI -4.74 to -0.43, posterior probability 0.99)

Conclusion. High concentration of bioactive humic substances and minerals in the sea mud and balneological peat mixture could be beneficial to treat computer users' wrist pain and mild CTS with prolonged distal motor latency (> 4.2 ms) of the median nerve when a thermoneutral applicator was used daily for 3 hours during a 5-day period.