

GENETIC AND EPIGENETIC FINDINGS ON MONOAMINE OXIDASE A GENE IN THE SEE-PTSD COHORT

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Introduction: Posttraumatic stress disorder (PTSD) is a syndrome that develops following exposure to traumatic events. There is substantial interindividual variability in the risk of PTSD, which is influenced by a genetic predisposition, specific characteristics of the stress, and epigenetic mechanisms. Association studies for PTSD showed that various neurotransmitter systems may confer susceptibility to PTSD. Monoaminergic transmission is central to wide-ranging behavioral and physiologic functions, including stress responses and mental health. In this paper we provide an overview of genetic and epigenetic findings on monoamine oxidase A gene in the SEE-PTSD cohort.

Subjects and methods: The study involved a total of 794 subjects from five sites in three SEE countries (Croatia, Bosnia and Herzegovina and Kosovo) whose population has experienced war trauma. The sample is gender-balanced. The subjects were assessed with standardized psychometric instruments (CAPS, CSRI, BSI and Folkman Lazarus Coping Scale), socio-demographic questionnaire and Life stressor list. We genotyped 385 patients with PTSD (234 with current PTSD and 151 with lifetime PTSD), and 355 healthy probands with no PTSD. Genotypes and alleles distribution of the monoamine oxidase A gene were compared between groups. Monoamine oxidase A methylation was analyzed via direct sequencing of sodium bisulfite-treated DNA extracted from blood cells in a total sample.

Results: We found nominally significant genetic associations in PTSD, but none of the associations remain significant when Bonferroni correction was strictly applied. The epigenetic analysis showed hypermethylation of 3 CpGs (CpG3 = 43,656,362; CpG12 = 43,656,514; CpG13 = 43,656,553, GRCh38.p2 Primary Assembly) in the MAOA gene exon1/intron1 region in male with current PTSD, as well as PTSD symptom severity significantly correlated with MAOA methylation.

Conclusion: Only nominally significant association was found for the monoamine oxidase A gene in relation to PTSD. The epigenetic findings suggest a role of MAOA hypermethylation as an epigenetic marker of PTSD.

Key words: posttraumatic stress disorder, MAOA gene, DNA methylation, epigenetics

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LOCAL CRYOTHERAPY, COMPARISON OF COLD AIR AND ICE MASSAGE ON PAIN AND HANDGRIP STRENGTH IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Background: The main benefits of cryotherapy in rheumatoid arthritis (RA) are in reducing inflammation and swelling and in relieving joint pain. This study aimed to compare the short-term effects of cold air therapy vs. ice massage, on pain and handgrip strength (HGS) in patients with RA.

Subjects and methods: The study is a non-randomized clinical trial. Patients were recruited if they had disease activity score (DAS28) ≥ 3.2 with at least 2 swollen joints on the dominant hand and were consecutively divided into two groups of 15 patients. There was no statistically significant difference in DAS28 score between groups. The first group received cold air therapy at $-30\text{ }^{\circ}\text{C}$ and the second ice massage of the hands. The pain (visual analogue scale, 0-10), and HGS (kg) were measured immediately prior and after cryotherapy, and 30 and 60 minutes after cryotherapy. Descriptive statistics, Independent Samples T-test, and Paired Samples T-test were used for statistical analysis.

Results: Pain intensities for cold air therapy were as follows: 5.33 (± 2.44), 3.13 (± 2.67), 2.87 (± 2.56), 2.80 (± 2.73), and for ice massage were: 5.20 (± 2.37), 2.87 (± 2.42), 2.60 (± 2.23), 2.67 (± 2.28). In both groups pain was significantly lower immediately after, 30 and 60 minutes after the treatment compared to the baseline ($p=0.001$). There was no significant difference in pain alleviation between the groups regarding the used method of cryotherapy on all three measured time points. Nonsignificant improvement in HGS occurred after both methods of cryotherapy. There was no significant correlation between pain intensity and HGS.

Conclusions: A single application of cold air therapy and ice massage equally provides immediate and significant pain alleviation in patients with active RA, which is maintained for one hour.

There is scientific evidence that HGS is influenced greatly by the disease activity. A single application of cryotherapy could not reduce disease activity explaining recorded nonsignificant effect on HGS.

Key words: rheumatoid arthritis - cryotherapy - pain - handgrip strength

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ANTI-TNF THERAPY AND THE RISK OF MALIGNANCIES AND INFECTIONS IN INFLAMMATORY RHEUMATIC DISEASES - OUR EXPERIENCE

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Background: Early diagnosis is the key to successful treatment of inflammatory rheumatic diseases and the use of conventional disease-modifying antirheumatic drugs (csDMARD) and biologic disease-modifying antirheumatic drugs (bDMARD) or biologics have substantially contributed to better disease control. Biological drugs have been approved for the treatment of rheumatoid arthritis (RA), juvenile arthritis (JIA), ankylosing spondylitis (AS) and psoriatic arthritis (PsA).

Subjects and methods: The study involved 79 adult patients with rheumatoid arthritis (RA) and ankylosing spondylitis (AS), psoriatic arthritis (PsA) or undifferentiated spondyloarthropathy (USpA) - the