THU0507

HETEROGENITY OF FIBROMYALGIA: PSYCHOPATHOLOGICAL CHARACTERISTICS OF DIFFERENT SUBTYPES AND EFFICACY OF THERAPY

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Background: fibromyalgia (FM) is one of the most complicated diseases in the rheumatology and therapeutic practice. Despite the relative success in diagnosing pathology and developing new diagnostic criteria, the treatment of FM remains uncertain. This, in particular, may be due to the presence of various subtypes of disease, which differ in their pathogenesis and, therefore, require differentiated therapy.

Objectives: to identify the subtypes of FM, to determine their basic psychopathological characteristics and adherence to therapy.

Methods: the study included 104 patients with FM according to 2010/2011 diagnostic criteria. All patients were questioned about their attitudes towards employment and sports, and determined the level of anxiety and depression by the HADS scale, as well as therapy compliance 2 months later.

Results: the results obtained support the presence of five subtypes of FM. Patients with a high level of anxiety (10.57 ± 2.87) and minimal widespread pain index (WPI) (6.30 ± 0.04) were included in Group 1. This group consisted of 40.35% of the total number of patients with the minimum average age (45 years) and the highest ratio of men/women (8/38). Group 1 was also characterised by the greatest employment (34 of 46 patients) and a relatively rare abandonment of physical exercises (14 of 46 patients). The second group of patients was conditionally called anxious-depressive because of the frequent detection of both anxiety and depression (11.33 ± 4.64 and 11.67 ± 3.64 , respectively) with a moderate number of WPI (10.78 ± 4.09). They differed from the Group 1 by mainly female sex and more frequent avoidance of physical exercises (8 of 18 patients). Group 3 (the proposed name is hysteroid) consisted of women with the maximum number of WPI (14.33 ± 4.22) and low levels of anxiety and depression. Despite the average working age, they were mostly unemployed with the lowest level of adherence to physical activity (4 of 24 patients). The fourth subtype of FM consisted of patients with concomitant chronic diseases. They were expected to be the oldest (68 years on average) with a high number of painful areas (13.44 ± 5.0), low levels of anxiety and depression. All of them refused to perform physical exercises and were unemployed. Finally, Group 5 included patients without concomitant affective and somatic disorders. This group has taken the middle position for all indicators, except the lowest level of anxiety and depression among all groups.

The lowest rates of therapy compliance were demonstrated in Group 3. At the same time, the time of communication with these patients was the maximum.

Conclusions: patients with FM are a heterogeneous group, differing in their psychopathological characteristics. Younger patients are more likely to exhibit an elevated level of anxiety and depression and are prone to catastrophize their sensations, while older patients usually have a severe somatic pathology. They are often found in therapeutic practice, which makes it necessary to conduct educational programs on FM diagnostic and management for general practitioners. We consider it very important to identify the hysteroid subtype of FM, since these patients are not inclined to seek recovery and represent a huge difficulty for the treating doctors. We proposed that they use their disease to attract the attention of others.

Disclosure of Interest: None declared

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THU0508

EVALUATION OF TISSUE SPECIFIC AUTOANTIBODIES IN FIBROMYALGIA PATIENTS WITH SICCA AND/OR XEROSTOMIA

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Background: A significant proportion of patients with fibromyalgia complain of dry eyes and mouth. The 2010 preliminary criteria for fibromyalgia even includes dry eyes and mouth as part of the somatic symptoms severity complex used to diagnose this condition. A significant proportion of Sjögren's syndrome patients also complain of fibromyalgia symptoms, and there is literature that suggests that there is interplay between these two disorders. Recently, the presence of novel tissue specific autoantibodies (TSAs), SP-1, CA6, and PSP, has been observed in the early stages of Sjögren's syndrome (SS). These early markers present themselves before the classic autoantibodies, such as SSA/Ro, SSB/La, ANA, and RF.

Objectives: This study aims to examine the relationship between SS and fibromyalgia by testing patients with fibromyalgia, that also complain of xerostomia and sicca symptoms, for Sjögren's related biomarkers SSA/Ro, SSB/La, SP-1, CA6, and PSP.

Methods: Over the past 5 years, we identified a cohort of 310 patients that presented with symptoms of fibromyalgia and fulfilled both the 1990 and 2010

preliminary diagnostic criteria. These patients were further questioned about xerostomia and sicca symptoms. Patients that admitted to using artificial tears at least biweekly, drinking water excessively to relieve dry mouth, or have previously experienced a blocked tear duct, but did not meet the strict diagnostic criteria for SS and did not have elevated inflammatory markers ESR or CRP, were selected for this study. Serum from study patients was sent to a tertiary lab, Immco Diagnostics, for testing of the classic autoantibodies (SSA/Ro, SSB/La, ANA and RF) and Tissue Specific Autoantibodies (SP-1, CA6, PSP). Patients testing positive for the TSA markers were provided with literature on the disease and offered appropriate treatment options, such as hydroxychloroquine.

Results: As of November, 2017 310 patients were selected for this study and tested for the SS markers. 91.0% of the patients were female and 8.6% of the patients were male. The average patient age was 56.5 years. 271 of the study patients were tested for both the TSAs and classic autoantibodies, while 39 were tested for only TSAs. Of the patients that were evaluated for both the TSAs and classic Sjögren's autoantibodies, 29.8% (81) tested positive for SS. 22.8% (71) of the patients were positive for TSAs, 9.4%²⁹ were positive for the classic Sjögren's markers, and 2.3%⁷ were positive for both the TSA and classic Sjögren's autoantibodies. Further analysis of all the patients that tested positive for the TSAs (n=71), found 74.5% (53) were positive for SP-1, 8.5%⁶ were positive for CA6% and 44.7%³² were positive for PSP. 68.1%⁴⁸ of these patients were positive for only one of the TSA and 23 (31.9%) were positive for more than one TSA.

Conclusions: In this cohort of 310 fibromyalgia patients, about 1/3 of patients that were tested for both the TSAs and classic Sjögren's markers tested positive for SS, with the majority of those patients being positive for one or more of the TSAs. This suggests that autoimmunity, specifically early-stage Sjögren's syndrome, may be a confounding variable in the pathophysiology of fibromyalgia.

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THU0509

THE ROLE OF THIOL-DISULFIDE HOMEOSTASIS IN THE ETIOPATHOGENESIS OF FIBROMYALGIA

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Background: Fibromyalgia syndrome (FMS) is a chronic disease with unknown etiology, characterised by widespread pain, fatigue, sleep disturbance, cognitive dysfunction and anxiety. Oxidative stress has also been implicated in etiopathogenesis in recent years.

Objectives: In this study we aimed to investigate the role of thiol-disulfide balance in the etiopathogenesis of fibromyalgia, as an indicator of oxidative stress.

Methods: 98 female patients with fibromyalgia, 61 of whom were newly diagnosed and 37 were presently ongoing treatment and 82 healthy female controls were included in the study. Fibromyalgia impact questionnaire, pain visual analogue scale, Pittsburgh sleep quality index, fatigue severity scale, short form-36, tender point count, Beck depression inventory and Beck anxiety inventory were evaluated in both groups. To determine the oxidative balance, the thiol/disulfide balance was investigated by the new automatic measurement method developed by Erel and Neselioglu.

Results: Serum native thiol levels were 394.43 ± 52.43 $\mu\text{mol/L}$ and 418.12 ± 49.95 $\mu\text{mol/L}$ ($p=0.002$), total thiol levels were $429.55^{53.5}$ $\mu\text{mol/L}$ and $440.95^{58.7}$ $\mu\text{mol/L}$ ($p=0.052$) and serum disulphide levels were 17.5 (9.8) $\mu\text{mol/L}$ and 14.8 (10.3) $\mu\text{mol/L}$ in the FMS and control groups, respectively ($p=0.002$). In the FMS group, disulphide/native thiol percent ratios ($p<0.001$) and disulphide/total thiol percent ratios ($p<0.001$) were statistically significantly higher while native/total thiol percent ratios ($p<0.001$) were statistically significantly lower than those of the control group. Serum native thiol levels ($p=0.008$) were 384.2 (76.7) $\mu\text{mol/L}$, 387.6 (65.05) $\mu\text{mol/L}$ and $416.55^{63.4}$ $\mu\text{mol/L}$; disulfide levels were measured as 17.2 (7.5) $\mu\text{mol/L}$, 18.3 (14.55) $\mu\text{mol/L}$ and 14.8 (10.3) $\mu\text{mol/L}$ newly diagnosed patients, treated patients and control groups, respectively. Serum native thiol values at the thiol-disulfide balance did not improve disulfide in spite of being slightly approaching the control group in the treated patients. When the ratio of disulfide-native thiol was examined, it was seen that both newly diagnosed and treated patients remained in a balanced disulfide state. There were statistically significant correlations between tender points (respectively $p=0.02$, $r=-0.241$; $p=0.039$, $r=-0.213$; $p=0.039$, $r=-0.213$; $p=0.039$, $r=0.213$), SF-36 pain subscale (respectively $p=0.032$, $r=0.216$, $p=0.041$, $r=0.206$, $p=0.042$, $r=0.206$, $p=0.041$, $r=0.207$) and Beck anxiety inventory scores (respectively $p=0.009$, $r=-0.216$, $p=0.027$, $r=-0.225$, $p=0.026$, $r=-0.225$, $p=0.026$, $r=0.225$) with disulphide levels, disulphide/native thiol, disulphide total thiol and native thiol/total thiol ratio.

Conclusions: The disulfide shift of the thiol-disulfide balance and the correlation between the clinical parameters and the thiol-disulfide balance components suggesting the presence of oxidative stress in FMS patients suggests that the role of thiol-disulfide balance in the etiopathogenesis of FMS.

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THU0510

HYPERSENSITIVITY, ALEXITHYMIA AND DISEASE CHARACTERISTICS OF PATIENTS PRESENTING WITH SYMPTOMS OF FIBROMYALGIA

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Background: Fibromyalgia (FM) is characterised by chronic widespread pain and other symptoms such as fatigue, sleep disturbances and cognitive problems. Psychosocial factors and personality traits may be present in a variable degree and may play a role in the perception, coping and treatment of FM.

Objectives: We looked for symptoms of hyperventilation, depression, anxiety and burn-out as well as for personality traits such as hypersensitivity and alexithymia in a large sample of patients. We looked at differences in prevalence of these symptoms in the population when selected by the 1990 FM classification criteria and by the 2010 diagnostic FM criteria.

Methods: A large group of patients presenting on the Unit of Physical Medicine between 2014 and 2017 with chronic widespread pain was analysed and grouped depending on the 1990 ACR classification criteria for FM on one hand and the 2010 ACR diagnostic criteria for FM on the other hand. Self-administered tools used were the Nijmegen questionnaire (hyperventilation), the Aron questionnaire (hypersensitivity), the HADS questionnaire (anxiety and depression), the BMS-10 questionnaire (burn-out) and the TAS alexithymia questionnaire.

Results: Out of 1085 patients, 828 (76%) fulfilled the 1990 ACR classification criteria for FM. Hyperventilation (score ≥ 12) was found in 97% and hypersensitivity (score ≥ 12) in 75%. Symptoms of anxiety and depression (scores ≥ 11) were observed in 59% and 36% respectively. Burn-out (score ≥ 4.5) was seen in 40% of patients while a high TAS score (≥ 8) was found in 70% of patients. Overall, 906 patients fulfilled the 2010 ACR diagnostic criteria for FM. The distributions of disease characteristics and personality traits in this population were very similar. Only 38 out of these 906 patients had a wide spread pain index (WPI) of 3 to 6.

Conclusions: A significant number of patients demonstrated high levels of anxiety, more than depression. Hypersensitivity and alexithymia were also found to be highly prevalent. There was a substantial level of hyperventilation. It may be useful to consider all these characteristics in the development of treatment programs for FM patients. Results were similar when groups were selected by 1990 ACR classification criteria for FM or by the 2010 ACR diagnostic criteria for FM. Only a minority of patients had a WPI of 3 to 6.

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THU0511

EFFECTS OF ADD-ON TRANSCRANIAL DIRECT CURRENT STIMULATION ON PAIN IN KOREAN PATIENTS WITH FIBROMYALGIA

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Objectives: Despite promising preliminary results of transcranial direct current stimulation (tDCS) treatment in patients with fibromyalgia (FM), several issues need to be addressed, including its limited efficacy, low response rate, and poor tolerability. We investigated the efficacy and safety of tDCS as an add-on treatment for chronic widespread pain in Korean patients with FM.

Methods: This study enrolled 38 patients, who were refractory to pain medications, seen at Chonnam National University Hospital from May 2016 to December 2016. A conventional tDCS device was used to supply 2 mA of current for 20 min on 5 consecutive days. The anode was placed over the primary motor cortex (M1)

and the cathode was located contralateral supraorbital area. The primary end point was a change in visual analogue scale (VAS) pain score at the end of treatment and secondary end points included changes in Fibromyalgia Impact Questionnaire (FIQ), Brief Pain Inventory (BPI), Brief Fatigue Inventory (BFI), Beck Depression Inventory (BDI), State-Trait Anxiety Inventory (STAI), and Medical Outcomes Study Sleep Scale scores.

Results: After tDCS, 38 patients showed clinical improvements in the VAS pain score on days 6, 13 and 36 compared with day 0 ($p < 0.001$). However, improvement of FIQ scores was only seen at day 36. The BPI and BDI were significantly decreased on days 6 and 13, while BFI and STAI-I were significantly improved only at day 6. The most of improved indices were not maintained until day 36. There were no significant improvements in Sleep Scale scores after tDCS at days 6, 13, and 36. No serious adverse event was observed.

Conclusions: Our results suggest that tDCS has the potential to produce significant pain relief in FM patients, and may constitute an effective add-on treatment for these patients.

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THU0512

HYPERBARIC OXYGEN THERAPY (HBOT) TREATMENT IN FIBROMYALGIA

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Background: Chronic pain conditions, such as fibromyalgia(FM), are among the most common health problems managed by general practitioners, rheumatologists, clinical psychologists. FM is characterised by multifocal pain, fatigue, non-restorative sleep, cognitive complaints high levels of distress, associated with greater affect intensity. There's evidence from randomised controlled trials that some treatments like pharmacotherapy, patient education, behavioural therapy and physiotherapy are effective in reducing symptoms; however the majority of the patients aren't satisfied with the current treatments. HBOT showed some clinical effects that may induce a significant improvement of the FM symptoms.

Objectives: The goal of this work was to evaluate the effect of HBOT on FM symptoms.

Methods: 33 female patients aged 29–63 y, with FM were included in this work. Patients initially pharmacologically treated (Pregabalin 150 mg/die, Duloxetine 60 mg/die) with unsatisfactory clinical improvement, were enrolled at the Rheumatology Unit San Cesario-Italy. The HBOT protocol comprised 20 sessions, 3d/w, 90 min, 100% oxygen at 2.5 ATA. Patients were randomly assigned to treated and control groups and evaluated every month for the next 4 months: patients in group A were treated with 20 sessions of HBOT in the first 2 months and evaluated for the following 2 months; patients in group B used the pharmacological treatment for the first 2 months and then were treated with 20 session of HBOT in the last 2 months. During HBOT no pharmacological treatment was allowed. The treated group patients were evaluated at baseline and after 10 and 20 HBOT sessions. Evaluations consisted of physical examination, including tender point count, and socio-demographic and clinimetric questionnaires: Fibromyalgia Impact Questionnaire (FIQ), Functional Assessment of Chronic Illness Therapy, Pittsburgh Sleep Quality Index, Quality of life, Beck Depression Inventory, State Trait Anxiety Inventory, Pain Catastrophizing Scale.

Results: 5 patients withdrew from the HBOT treatment for claustrophobia. HBOT led to significant amelioration of all FM symptoms, with significant improvement in life quality. HBOT leads to a reduction in the number of tender points in the 2 groups. This reduction occurs in the group A without changing during the following 2 months of observation. In the group B the improvement is more related to the HBOT than to the therapy. The FIQ score improves in group A. No improvement was observed in the control group.

Conclusions: The analgesic effects of HBOT have been studied in nociceptive, in inflammatory and neuropathic pain models, and may be useful for the treatment of various chronic pain syndromes. Excessive pain in FM may be due to hyperexcitability of the pain processing pathways and under-activity of the pain inhibiting pathways in the brain. It has been shown that HBOT increases cell metabolism, reduces apoptosis, alleviates oxidative stress, increases neurotrophin and nitric oxide levels by enhancing mitochondrial function in neurons and glial cells, it may even promote the neurogenesis of endogenous neural stem cells. HBOT-induced neuroplasticity also leads to the repair of chronically impaired brain functions. Our data confirm the efficacy of HBOT in treating FM. Further studies are required to evaluate the protocol and to understand the duration of the clinical effect.

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