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Impact of pain catastrophizing on persistent headache associated with fibromyalgia: a case report

Ana Carolina Figueiredo Siqueira[1], Gabriel Figueiredo de Almeida[1], Júlia Maria da Silva Cahino Pereira[1] Julia Passos Aguiar[1], João Pedro Figueiredo de Almeida[1], Taís Xavier de Oliveira Souza[1], Luílla Araújo Magnavita Jacobina[1], Maria Clara Figueiredo Cabral[1], Maria Eduarda Parente Campos[1], Thayanne Reis Barbosa de Santana[1], Ana Victoria Oliveira Sousa[1], Mauricio Porto de Oliveira Pimenta Filho[2]

[1]Tiradentes University, Aracaju, Sergipe, Brazil
[2]Bahian Cardiology Foundation, Salvador, Bahia, Brazil

Ana Carolina Figueiredo Siqueira
ana.fsiqueira@souunit.com.br

Introduction
Persistent headache and fibromyalgia share central sensitization mechanisms influenced by emotional factors and alterations in pain modulation, involving serotonergic and noradrenergic pathways. Chronic stress, sleep deprivation, and emotional overload increase vulnerability and favor dysfunctional coping. In this scenario, catastrophizing intensifies pain and amplifies disability. This report addresses the impact of this phenomenon on the clinical evolution of a patient with both conditions.

Case presentation
A 52-year-old female patient was diagnosed with fibromyalgia and persistent headache (ICHD-3). She reported a daily and continuous headache for five years, with significant worsening over the last year. The pain was holocranial, pressing, of severe intensity (VAS=8), and exacerbated by minimal light and sound stimuli, mimicking superimposed migraine attacks. The condition was accompanied by generalized allodynia, non-restorative chronic fatigue, prolonged morning stiffness, and frequent episodes of "fibrofog" (memory lapses and attention deficit). There was clear emotional distress, marked by anticipatory anxiety and a constant fear of pain progression. She was taking Pregabalin, Duloxetine, and Cyclobenzaprine, with only partial improvement of musculoskeletal symptoms. Upon assessment, she scored 38 on the Pain Catastrophizing Scale (PCS), indicating severe rumination and hopelessness. Physical examination revealed multiple active trigger points in the cervical region, trapezius, and pericranial muscles. An interdisciplinary approach was instituted: maintenance of current medications, cervical physical therapy (myofascial release), light aerobic exercises, and cognitive-behavioral psychotherapy. After six months, the headache decreased to VAS=4, with significant improvement in sleep, attenuation of allodynia, and restoration of daily functionality, accompanied by a reduction in PCS scores.

Discussion
The case illustrates the relationship between pain modulation failures and the comorbidity of chronic headache with fibromyalgia, as well as the interdisciplinary approach. Catastrophizing enhances central sensitization by dysregulating the 5-HT1 serotonin receptor pathway, which is consistent with the history of this patient, whose attacks were severe. The combined intervention eliminated the hyperalgesia cycle and controlled central hyperactivity, safely addressing both cognitive components and physical pain. The favorable outcome suggests the effectiveness of the approach.

Conclusion
Interconnected emotional and neurobiological mechanisms shape chronic pain. The interdisciplinary approach targeted at catastrophizing and central dysfunction provided significant clinical improvement in this case, reiterating the importance of integrated care and breaking the pain facilitation cycle in these pathologies.

Keywords:
Fibromyalgia
Persistent headache
Pain catastrophizing
5-HT3 serotonergic receptors

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