

Cognitive Dysfunction in Fibromyalgia Syndrome: A Short Review

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Introduction

Fibromyalgia syndrome is a chronic health problem, characterized with pain, constant fatigue, sleep disturbances, cognitive and emotional disturbances [1]. The primary symptom of fibromyalgia is chronic, widespread pain accompanied by diffuse tenderness to light palpation however, a decrease in concentration and memory are further complaints that add significantly to the degree of suffering [1].

Cognitive impairment in mild degree have reported in most of the patients with FM [1,2]. And also; patients with FM have reported that they were unable to perform demanding cognitive tasks at their previous level [2]. Especially patients with jobs that have high cognitive/technical demands are likely to perceive their performance in the workplace to be seriously compromised. In addition many of them have stated that cognitive dysfunction was a more disturbing and disabling symptom even than pain. Thus, perceived decreased cognitive ability is an important factor affecting whether some patients can continue to work or return to their daily life with their previous capacity and it should be handled with care during the course of the disease in patients with FMS [2].

Recently published results of our study showed us that mild cognitive impairment was present in all of the patients with FMS and degree of cognitive dysfunction was similar the older-aged healthy women [3]. Results from neuropsychological tests confirmed our study and showed that patients with FM perform more poorly on a range of cognitive tasks than carefully matched adults of similar age and performed similarly to people 20 years older [3]. However we have found also, some significant differences between them [3]. In patients with FM attention and immediate memory were among the most severe cognitive complaints; however, abstraction, construction, arithmetic and delayed memory were the subsets most significantly impaired in older-aged group [3]. These were striking results of our study.

It has been also known that, some other factors like pain and sleep disorders might contribute to cognitive dysfunction in FMS [3]. Many studies evidence that; sleep disorders are also important problems for patients with FMS and according to results of recent studies; these may cause cognitive dysfunction [4]. Almost %92 of fibromyalgia patients suffer from sleep disorders. The survey studies have shown that; sleep disorders origin from discomfort and pain sense [4]. Since, pain and discomfort may disturb patients and prevent them falling asleep, patients with sleep disorders are constantly awake and their body struggles with alarmed statements. As a result of these situations, patients may be facing some problems such as cognitive disorders, attention deficit and abnormalities in emotional status. After a while the origin of patients emotional and cognitive disorders and fibromyalgia syndrome become a complicated chicken and egg issue [5]. As in many disorders, pain is a serious problem and stimulus in

fibromyalgia syndrome. On the one hand in 1979, The International Association for the Study of Pain (IASP) defined pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”. On the other hand pain is the most common reaction mechanism of the body when it encounters negative situations like a kind of warning signal. In addition, it should be noted that; all of these negative situations may be physical, as may be emotional or cognitive stimuli. So; pain and cognitive dysfunction might become a vicious cycle. According to results of our study; in general, fatigue and pain severity were the strongest contributing factors for complaints of cognitive function in patients with FM but, age and sleep disturbance were the most significant problems influencing the cognitive status in older-aged women [3].

Evaluation of this dysfunction is also problematic because neuropsychiatric tests were not feasible in clinical setting. We have chosen the Short Test of Mental Status in our recent study which was a subjective test [3]. Despite the importance of the cognitive symptoms and the experts' recommendation to evaluate them as a part of the standard FMS assessment in clinical setting, information on the evaluation of cognitive status limited to a few studies. These studies mainly used more complicated and less clinically feasible of neuropsychological test evaluations. The number of studies conducted with subjective cognitive tests in patients with chronic pain including FMS was quite low. Andreu et al. have evaluated the cognitive complaints by using Mini Mental State Examination which was one of the subjective cognitive tests and found that there was high frequency of cognitive impairment in patients with FM compared with the population reference value [6].

In a study published in 2014 which has very interesting results; Leawitt and Katz [7] evaluated cognitive disorders in patients with fibromyalgia syndrome with use of lexical access theory. Normally, preparation of words during speech materialized quickly and according to the purpose. During to the fluent speech; two or three words are produced by mind in a second, and any of the image or object are understood and expressed in 600 msn. In the case of possible cognitive disorders; a delay is observed in these periods. Another study covered a sample group of 209 women patients with cognitive disorders and memory problems reported from physicians. One group of those patients diagnosed as fibromyalgia syndrome and the other group isn't. Both groups were compared and evaluated for their abilities such as selective naming and answering, writing with rules, memory skills, number string test scores and mental performance under constant attention and distractibility. As a result, scientists declared that; patients who have FMS, showed decreased word processing ability. They also reported that, patients with FMS had a speed loss about %48 in word naming test while patients without FMS had just a %25 speed loss [7]. Based on that research it can be stated that, FMS is a serious risk factor for cognitive disorders, but the

mechanism is not fully known. In addition; delay time origins from deformation of neuronal synchronization effects FMS patients more seriously. Also, all of these complaints may derive from pain, discomfort and distractions which conducted to cognitive brain areas.

Although the topic of this short review is cognitive dysfunction, we want to withdraw an attention about Juvenile FMS. FMS doesn't affect only adult population, rarely it may encounter teenagers with another form called juvenile primary fibromyalgia syndrome (JP-FMS). Musculoskeletal pain can occur in 2-6 % of all children and usually affects adolescent girls [8]. Like in adult FMS, JP-FMS vicious cycle includes pain, fatigue, sleep disturbances, cognitive and emotional disorders [8].

In a pilot study scientists applied Fibromyalgia Integrative Training for Teens (FIT teens) program to 17 girls who aged between 12 to 18. As stated; this program consists of 4 stages and all exercises are neuromuscular exercises which specialized from cognitive behavioral therapy (CBT). The content of exercises declared that; Level 1: Holding exercises, includes isometric muscle contractions; Level 2: Creating movement exercises, includes concentric muscle contractions; Level 3: Resistance movement exercises, includes eccentric muscle contractions and Level 4: Functional movement exercises, includes all of these contractions. At the end of the study; scientists applied a survey to patients and participants. As a result of this feedback; these exercises are declared as safe for adolescents. Especially using group exercises enhanced patients' happiness, motivation and self-confidence. On the other hand addition, exercise program from that pilot study evidenced positive effects on pain and fatigue. Scientists suggested that FIT teens may be integrated as an exercise protocol for patients with JP-FMS [9].

Conclusion

Either pain or cognitive dysfunction, symptoms generally got into a vicious cycle and trigger each other constantly. Mild cognitive impairment was present in patients with FMS resembling older-aged people impairing their life quality. Regarding treatment of these symptoms, interdisciplinary work of physiatrists, algologists, sleep specialists, psychologist is very substantial. They should work in

harmony to achieve a tailored treatment specific for patient. Nowadays methods for the treatment of FMS range in a large scale from drugs and exercise to novel approaches of integrative medicine specific for patient. Cognitive therapy, colour and music therapies other kinds of pain management strategies reflect their positive effects for FMS such noticed in many studies.

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