

Summary

Fibromyalgia and Depression within the Framework of Biopsychosocial Model

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In today's world, many people suffer from disorders of musculoskeletal system including fibromyalgia syndrome (FMS) leading to lower health-related quality of life. Specifically, the development of criteria for the syndrome was formed as 'fibrositis' by Smythe and Moldofsky in 1977. Then, the 1990 American College of Rheumatology (ACR) classification was expanded to a set of criteria including tender points and decreased pain threshold (Wolfe & Hauser, 2011). FMS is characterized by generalized bodily pain and sensitivity at 11 of 18 tender points, chronic widespread pain, fatigue and sleep disturbance during at least 3 months. Besides, tenderness, rigidity, mood disturbances including depression or anxiety, and some cognitive difficulties such as trouble in concentrating, forgetfulness, and disorganized thinking are experienced by the most of patients (Arnold, Clauw, & McCarberg, 2011).

Effects of Fibromyalgia Syndrome

Fibromyalgia is a pervasive and devastating syndrome resulting in a number of financial, physical, psychological, cognitive and social shortcomings that impair all aspects of health status (Bergman, 2005; Bernard, Prince, & Edsall, 2000; Wasseem & Hendrix, 2003). In many industrialized countries, work-related musculoskeletal disorders are considered to be major health issues with respect to job strain, which refers to increased demands and inadequate work control and satisfaction (Bergman, 2005). Moreover, it was argued that the majority of patients experienced depression following the onset of FMS (Bernard, Prince, & Edsall, 2000; Offenbaecher, Glatzeder, & Ackenheil, 1998; Verbunt, Pernot, & Smeets, 2008; Vishne et al., 2008). Extensive research has revealed that FMS patients do also experience greatly intensified cognitive dysfunctions, some of which are attention problems, difficulty with remembering, concentrating, thinking and decision making (Schaefer et al., 2011). The patients did also report

that FMS had an incalculable impact on their romantic relationships causing low relationship satisfaction and separation or divorce (Bernard, Prince, & Edsall, 2000; Kool, Woertman, Prins, Middendorp, & Geenen, 2006; Steiner, Bigatti, Hernandez, Lydon-Lam, & Johnston, 2010; Söderberg, Strand, Haapala, & Lundman, 2002). In fact, biological, psychological and social factors must be incorporated to understand all of the aforementioned effects.

Biopsychosocial Model

The biopsychosocial model (Engel, 1977) is crucial in understanding pain since it includes the roles of psychosocial variables as well as traditional biomedical ones. According to this model, there is a mutual and dynamic influence of mind and body on the occurrence of FMS (Golden & Barbera, 2005, p. 74; Malin & Littlejohn, 2012; Penney, 2010).

Biological, Psychological and Social Factors

To begin with, neurohormonal mechanisms play roles for different sensitization processes in FMS (Masi et al., 2002; Pillemer, Bradley, Crofford, Moldofsky, & Chrousos, 1997; Yunus, 2000). Moreover, recent studies have demonstrated that patients with FMS have hormonal abnormalities including in hypoactivity or hyperactivity in the hypothalamic–pituitary–adrenal axis (HPA) axis and the sympathetic nervous system (Kashkar-Zuck, Graham, Huenefeld, & Powers, 2000; Prist, Wilde, & Masquelier, 2012). In recent studies, reports of FMS patients revealed that there is a strong association between the level of emotional distress and the FMS related symptoms (Davis, Zautra, & Reich, 2001; Uveges et al., 1990). Due to the uncertain nature of the illness and its destructive symptoms, having FMS is an already ongoing stressor for most patients. By considering biological factors mentioned above, the association between FMS and stress may be explained through the disturbed

stress-response system (Torpy et al., 2000). Besides, parental pain history may precede the syndrome (Bergman, 2005; Schanberg, Keefe, Lefebvre, Kredich, & Gil, 1998).

The role of psychological factors in FMS is a controversial issue. However, distorted personality patterns, high level of life stresses, anxiety and depression, or other psychological symptoms have been reported by numerous studies (Fassbender, Samborsky, Kellner, Muller, & Lautenbacher, 1997; Offenbaecher, Glatzeder, & Ackenheil, 1998; Okifuji & Turk, 2002; Torres et al., 2013). Number of studies documented that there are notable differences in emotion processing styles (e.g., experiencing affects intensely or being alexithymic) and emotion regulation strategies (e.g., expressing or reappraising) between the groups of FMS and non-FMS samples (Geenen, Ooijen-van, Lumley, Bijlsma, & Middendorp 2012; Gillis, Lumley, Mosley-Williams, Leisen, & Roehrs, 2006; Middendorp et al., 2008; Salgueiro, Aira, Buesa, Bilbao, & Azkue., 2012; Weib, Winkelmann, & Duschek, 2013). In addition, a number of studies suggested that there is a significant relation between a history of sexual or physical abuse and increased use of outpatient health care services and medications for pain in FMS patients (Alexander et al., 1998; Walker et al., 1997). Most of the patients feel helplessness because of the lack of standardized explanation and treatment for fibromyalgia. As their behavior levels decrease to avoid pain, it becomes self-fulfilling prophecy resulting in worse symptoms. As a result, physicians may perceive patients' behaviors as unwillingness to treatment and may show little empathy toward them. This deteriorated physician-patient relationship may result in poor prognosis (Hayes et al., 2010). In the light of the literature mentioned above, it can be suggested that biological, psychological and social factors play an interrelated role in the etiology of FMS.

Fibromyalgia and Depression

Among the psychiatric comorbidities, FMS patients present high lifetime and current diagnosis of depression ranging from %20 to %80 (Aguglia, Salvi, Maina, Rossetto, & Aguglia, 2011; Fietta, Fietta, & Manganelli, 2007; Ramiro et al., 2013; Uguz et al., 2010). The shared predisposed genetic and environmental factors may lead to increased risk of developing depression in response to a triggering event (Gracely, Ceko, & Bushnell, 2011). Some studies suggested that the more pain the patients have, the higher depressive symptom scores they report (Aguglia et al., 2011; Gormsen, Rosenberg, Bach, & Jensen, 2010; Martinez, Casagrande, Ferreira, & Rossatto, 2013; Martinez, Ferraz, Fontane, & Atra, 1995; Tander et al., 2008).

In order to understand the nature of depression in FMS patients, their cognitive processing regarding pain should also be considered. Actually, recent evidence revealed that the more pain the FMS patient perceives, the higher his/her level of depressive symptoms (Aparicio et al., 2013). Moreover, some research suggested that individuals with FMS may be prone to depression due to their personality characteristics including low self-esteem, perfectionism, victimization, and avoidance (Fietta, Fietta, & Manganelli, 2007; Keel, 1998; Torres et al., 2013). As one of the personality traits, neuroticism is likely to have an impact on vigilance to pain. In particular, considerable evidence showed that many FMS patients reported higher neuroticism scores that were generally associated with fear of pain and pain catastrophizing (Malin & Littlejohn, 2011; Martinez, Sanchez, Miro, Medina, & Lami, 2011; Tommaso, Federici, Loiacono, Delussi, & Todarell, 2014; Torres et al., 2013). Furthermore, among patients with FMS, it was found that emotionally avoidant strategies are associated with affect intensity (Middendorp et al., 2008).

Due to FMS patients' inabilities, there are some compulsory transitions in their major life areas; and their family life is the one of the most prominently changing domains. As a consequence of lack of strength, the patients could not participate family activities, which bring about irritation and frustration for the whole family (Söderberg, Strand, Haapala, & Lundman, 2002). In that sense, deterioration in relationships with partner and maladaptive family members against changes may result in pain and depression (Kool et al., 2006).

Psychological Treatment Approaches and Suggestions for Fibromyalgia

It is clear that the prognosis and outcome of fibromyalgia are unsatisfactory and conventional medical care does not significantly alter the prognosis or outcome of fibromyalgia (Wolfe et al., 1997). In that sense, it seems crucial to develop appropriate interventions in order to ease psychological burden that fibromyalgia patients experience due their poor prognosis. The patient's care management should be planned based on the biopsychosocial model including psychological and social factors as well as biological variables to comprehend a person's medical condition as a whole (Prist, Wilde, & Masquelier, 2012). In particular, studies showed that cognitive therapy techniques (Bennett & Nelson, 2006), and exposure therapy (Alda et al., 2011) is useful for acceptance of pain and catastrophic thinking style. Moreover, acceptance and commitment therapy provides increased pain acceptance resulting in decreased depression (Parra-Delgado & Latorre-Postigo, 2013).

Conclusion

Fibromyalgia is a destructive syndrome leading to many financial, physical, psychological, cognitive and social difficulties in patients' life (Bergman, 2005). Among comorbid conditions, several studies demonstrate that most of FMS patients suffer from depressive symptoms (Uguz et al., 2010). According to biopsychosocial model, the importance of psychological factors as well as physiological ones should be carefully considered to understand the effects of the illness on FMS patients' different life domains. It may be useful for helping patients and their families to cope with a number of concerns including learning coping skills for pain management, dealing with FMS related depressive symptoms, addressing relationship problems triggered by these symptoms, and enhancing emotional support (Preece & Sandberg, 2005).