Exposure-Based Therapy for Symptom Preoccupation in Atrial Fibrillation: An Uncontrolled Pilot Study

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Atrial fibrillation (AF) is the most common cardiac arrhythmia. Patients often experience a range of symptoms resulting in a markedly reduced quality of life, and commonly show symptom preoccupation in terms of avoidance and control behaviors. Cognitive behavior therapy (CBT) has been shown to improve symptom burden and quality of life in other somatic disorders, but has never been evaluated in patients with AF. The purpose of this study was to evaluate the potential efficacy and feasibility of an AF-specific CBT protocol in an uncontrolled pilot study. The study included 19 patients with symptomatic paroxysmal (intermittent) atrial fibrillation who were assessed pre- and posttreatment and at 6-month follow-up. The CBT lasted 10 weeks and included exposure to physical sensations similar to AF symptoms, exposure to avoided situations or activities, and behavioral activation. We observed large within-group improvements on the primary outcome AF-specific quality of life measurement AFEQT posttreatment (Cohen’s $d = 1.54; p < .001$) and at 6-month follow-up ($d = 1.15; p < .001$). We also observed improvements in self-reported frequency and severity of AF symptoms. All participants completed the treatment and treatment satisfaction was high. This study...
demonstrates the potential efficacy and feasibility of a novel CBT approach to reduce symptoms and increase quality of life in AF patients.

Keywords: atrial fibrillation; arrhythmia; cognitive behavior therapy; quality of life; symptom preoccupation

Atrial Fibrillation (AF) is the most common cardiac arrhythmia, with a prevalence of 3% in the adult population (Björck, Palaszewski, Friberg, & Bergfeldt, 2013). AF is caused by faulty electrical signaling in the heart and is characterized by an irregular and often rapid heartbeat. It is commonly paroxysmal, meaning that the AF episode has a sudden onset, lasts for minutes, hours or days, and then spontaneously converts back to normal cardiac rhythm. AF is associated with a wide range of symptoms, most commonly palpitations, fatigue, breathlessness, or unspecific chest pain (Rienstra et al., 2012). AF is also associated with poor quality of life, anxiety and depression, increased health care utilization and sick leave, thus placing a high burden on health care budgets and society (Le Heuzey et al., 2004; McCabe, 2010). Routine clinical treatment for AF consists of heart rate-controlling medications (mainly beta blockers) and prophylactic anticoagulants to reduce the risk for stroke (European Heart Rhythm Association et al., 2010). Pharmacological and surgical therapies (antiarrhythmic and ablation) that aim to restore normal cardiac rhythm fail to eliminate AF in a substantial proportion of patients, do not affect patients’ prognosis, and are associated with potentially serious complications and side effects (Cosedis Nielsen et al., 2012; Morillo et al., 2014). Thus, the arrhythmia and associated disability persist for many AF patients. Furthermore, there is a low agreement between AF burden (frequency and duration of AF symptoms) and life disruption (Hamer, Blumenthal, McCarthy, Phillips, & Pritchett, 1994), indicating that other factors influence the clinical outcome in AF. Therefore, treatment options that do not primarily target the underlying pathology of AF could potentially be beneficial.

A potential target of treatment for AF is symptom preoccupation. Symptom preoccupation in AF is characterized by fear of experiencing or triggering AF episodes, hypervigilance towards potential cardiac symptoms, persistent worry about complications or other cardiac conditions (e.g., stroke or heart attack), and avoidance of physical and social activities. Symptom preoccupation is a strong predictor of poor quality of life, symptom burden, depression, and anxiety in AF (Ong et al., 2006). There are multiple pathways that can explain this association. First, many AF patients show poor correlation between actual AF episodes and self-reported symptom burden (Garmella et al., 2015). These findings indicate that AF patients often misinterpret normal cardiac activity as arrhythmia (i.e., hypervigilance). Second, anxiety has profound cardiac electrophysiological effects: it increases heart rate and may trigger extra heartbeats and AF episodes (Tan & Verrier, 2014). Thus, when patients misinterpret normal palpitations as AF, they may react with anxiety, triggering an actual AF episode. Third, when AF patients avoid physical and social activities for fear of triggering symptoms, they inhibit the natural process of fear extinction (Myers & Davis, 2006). Social and physical avoidance also increase the risk of developing depression (Pinto Pereira, Geoffroy, & Power, 2014), which is both common in AF patients and associated with symptom hypervigilance and increased health care utilization (Gehi et al., 2012). Thus, current evidence indicates that symptom preoccupation contributes to the clinical outcome in patients with AF.

The symptom preoccupation model is similar to the fear-avoidance models for chronic pain (Vlaeyen & Linton, 2000) and irritable bowel syndrome (IBS) (Labus et al., 2004). The interplay of fear and AF episodes is also analogous to the cognitive model of panic attacks, where fear of somatic symptoms and catastrophic misinterpretation of these sensations drive the cycle of distress, hypervigilance, and avoidance behavior (Clark, 1986). Cognitive behavior therapy (CBT) with emphasis on exposure aims to break the cycle of avoidance behavior, symptom fear, and disability. CBT is effective for chronic pain (Wicksell, Ahlqvist, Bring, Melin, & Olsson, 2008), IBS (Craske et al., 2011; Ljótsson, Hesser, et al., 2014), and panic disorder (Barlow, Gorman, Shear, & Woods, 2000). Exposure therapy involves systematic and repeated contact with a stimulus that evokes conditioned aversive responses (e.g., fear) while abstaining from avoidance and safety behaviors (White & Barlow, 2002). The goal of exposure therapy is to help the patient to develop fear tolerance and form new memories that inhibit the fear response to the aversive stimulus (Craske, Treanor, Conway, Zbozinek, & Vervliet, 2014).

The role of symptom preoccupation in AF and its similarity to other conditions, where exposure therapy has been shown to be effective in reducing somatic symptoms and increasing quality of life, indicates that exposure-based CBT may be effective for this patient group. To our knowledge, there are no published studies of CBT for AF. Therefore, the purpose of the present study was to evaluate the potential efficacy and feasibility of an AF-specific CBT protocol primarily based on exposure exercises to reduce symptom burden and increase quality of life in patients with AF.

Please cite this article as: Josefín Särnholm, et al., Exposure-Based Therapy for Symptom Preoccupation in Atrial Fibrillation: An Uncontrolled Pilot Study, Behavior Therapy (2017), http://dx.doi.org/10.1016/j.beth.2017.06.001
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