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Clinical report

A case report of the treatment of obsessive compulsive disorder in a patient with Cystic Fibrosis: Potential protective role of contamination fears

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1. Theoretical and research basis for the treatment: the potential protective role of contamination rituals for Cystic Fibrosis (CF)

Obsessive compulsive disorder (OCD) is characterized by the presence of obsessions (e.g., repeated intrusive thoughts and images) and compulsions (e.g., ritualistic behavior) an individual is driven to engage in to rid themselves of the accompanying distress (American Psychiatric Association, 2013). Contamination fears are common in OCD and include an excessive preoccupation with dirt, germs, or coming into contact with contaminants viewed as being potentially harmful (Steketee, Grayson, & Foa, 1984). Common accompanying rituals aimed at decreasing distress include excessive hand-washing, bathing and cleaning rituals, or outright avoidance (Steketee et al., 1984). Cystic fibrosis (CF) is a genetic illness characterized in part by lung pathology that places individuals at risk of respiratory tract infections with the potential to lead to further exacerbations of the illness, and in some instances death (Corey & Farewell, 1996; West et al., 2002). Individuals with CF are at increased risk of infection from general social contact and direct person-to-person bacterial transmission, especially when in contact with other individuals with the illness who can act as carriers of the harmful bacteria (Govan et al., 1993; LiPuma, Darsen, Stull, Nielson, & Stern, 1990). In order to actively manage CF, individuals must adhere to a time-consuming daily behavioral regimen (Quittner, Barker, Marciel, & Grimley, 2009). This regimen can include a complicated medication protocol and engagement in adjunct therapies (e.g., physiotherapy, occupational therapy, exercise therapy) that can take up hours in a day and have a negative impact on both patients and their support systems (Cohen-Cymberknoh, Shoseyov, & Kerem, 2011; David, 2003; Spruit et al., 2013).

Part of this routine may also include efforts to limit exposure to germs and other contaminants in the environment that may increase the risk for developing respiratory tract infections, some of which are recommended as part of current CF infection control guidelines (Saiman & Siegel, 2004; Saiman et al., 2014). Given the negative impact CF has on physical health and well-being, individuals with the illness report higher rates of anxiety and depressive symptoms (Cruz, Marciel, Quittner, & Schechter, 2009). Individuals with CF experience contamination fears that can be highly distressing and negatively impact daily function, as well as active avoidance of social contact for fear of bacterial infection (Ullrich, 2007). In this case, contamination fears and accompanying behavior aimed at decreasing the likelihood of infection, such as washing and cleaning rituals, may play a protective role. For example, engaging in ritualistic washing/cleaning behavior to reduce contact with bacteria and alleviate distress associated with worries of bacterial transmission may be particularly adaptive for individuals with CF (Rapoport & Fiske, 1998; Polemeni, Reiss, & Sareen, 2005). Protection motivation theory proposes that engagement in preventative actions is associated with underlying threat appraisals and beliefs about control over one's own health (Rogers, 1985). This model was proposed by Ullrich (2007) to help differentiate the preventative measures taken by individuals with CF from the excessive ritualistic behavior of individuals with OCD.

Similarly, an important tenet of the cognitive behavior therapy (CBT) model of OCD is the notion that patients struggle with unwanted intrusions to a greater degree when they hold personal significance (Purden & Clark, 1999; Rachman, 1997). Recent work has shown that perceived success or failure in life domains (e.g., being a clean person) may be related to an increased propensity toward experiencing OCD symptoms (Garcia-Soriano, Clark, Belloch, del Palacio, & Castaneiras, 2012). Fears of contracting a respiratory tract infection likely hold personal significance for the individual given that failure to adhere to hygiene practices and limit social contact, especially with other patients with CF, may result in negative outcomes. Therefore, rituals related to alleviating contamination fears present a unique challenge to professionals in the application of CBT with exposure with response prevention (ERP) with individuals with a diagnosis of OCD with co-occurring CF, as they may play an important protective role and need to be approached in a delicate manner.

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To our knowledge and review of the literature (e.g., PubMed, Psych Info), there was only one published brief editorial letter that provides a description of a case of an individual with a diagnosis of OCD who also had a medical diagnosis CF (Chotirmall, Flynn, Kernekamp, & McElvaney, 2009). The present case report describes the unique example of a patient with OCD and CF who participated in CBT with ERP at a hospital-based outpatient program. Clinical implications for attendance in a general adult outpatient psychiatry clinic, the delivery of group and individual CBT with ERP, and approaches for both addressing excessive contamination fears while balancing the potential protective role of contamination rituals are discussed.

2. Case description

Mr. B (pseudonym) was a 42-year-old man who presented at a hospital-based adult outpatient psychiatry clinic for assessment and treatment of his longstanding struggles with OCD. At the time of his referral it was noted that he had a medical diagnosis of CF that he received at birth. Mr. B was born in Europe and described immigrating to Canada with his family as an infant. He reported that the primary reason for the move was to access a Canadian clinic in a large urban center that specialized in the management of CF. Mr. B noted a stable upbringing and resided with his father, mother, and older brother. At the time of his intake assessment, Mr. B was employed in the field of education, had been married for the past 19 years, and reported having a good relationship with his partner. In addition to his medical diagnosis of CF, he noted other concerns including diabetes, osteoporosis, and having undergone a hernia repair historically. Mr. B denied any history of head injuries.

Mr. B had good insight into his OCD symptoms and was cognizant that several of his rituals and routines were excessive, including contamination fears associated with his diagnosis of CF. At intake assessment he described some ability to control OCD symptoms in order to minimize the level of disruption to his activities of daily living. He expressed motivation to further decrease symptoms and learn skills for managing OCD. Mr. B had prior self-reported involvement in mindfulness and meditation-based practices to manage anxiety. He reported that he was prone to worrying, and was noted to have elevated levels of anxiety in general. While Mr. B had been formally diagnosed with OCD prior to his attendance at our clinic, it was difficult to discern by history when his symptoms first emerged. However, he was able to vividly describe instances as a child when he displayed checking behavior as well as obsessions about morality and whether he was responsible for the safety of strangers if he did not perform a certain task. This example was seemingly unrelated to fears of contamination or compulsions associated with his diagnosis of CF.

3. Assessment

3.1. Psychiatric interview

Mr. B's first clinical contact with our team was a one hour assessment with the psychiatrist. This assessment did not include the administration of diagnostic tools, which were later administered by the team clinical psychologist pre-treatment. By psychiatric interview, Mr. B had both obsessions, which fell under several thematic domains including contamination fears and obsessions related to harm befalling self and others, and compulsions (i.e., both behavioral and mental rituals) including engagement in checking (e.g., appliances, locks, car rear view mirror, etc.). At that time, a *Diagnostic and Statistical Manual of Mental Disorders, 5th Edition* (DSM-5; APA, 2013) diagnosis of OCD was re-confirmed. The psychiatric interview also included screening for anxiety and mood disorders and any other co-morbid psychiatric symptoms or diagnoses. Medical, psychiatric, family, and personal history were all reviewed. No other major presenting concerns were diagnosed at the visit. His only medication at that time was a moderate dose of the SSRI escitalopram. His mental status at the initial consultation was of a well-groomed man with well-organized and linear thought processes. He could supply many examples of both obsessions and compulsions that were long-standing, and into which he had extensive insight. His mood was recently improved, which he hoped that he could improve further, and he had plans for the future.

3.2. Beck Depression Inventory – 2nd edition

Mr. B completed the 21-item Beck Depression Inventory, 2nd Edition (BDI-II; Beck, Steer, & Brown, 1996), which is a standardized measure of depressive symptoms experienced over the past two weeks. The BDI-II was administered at pre-treatment only to assess for the presence of depressive symptoms. Mr. B. rated each item on a 4-point scale (range 0–3). The BDI-II provides an overall score for depression ranging between 0 and 63. Clinical descriptions for the score ranges include: 0–13=*minimal depression*, 14–19=*mild depression*, 20–28=*moderate depression*, and 29–63=*major depression* (Muller & Erford, 2012). The BDI-II has excellent reliability, Chronbach's alpha is .92 (Beck et al., 1996). His pre-treatment score was “4” or *minimal depression*, which was consistent with his initial psychiatric interview (Table 1).

3.3. Beck Anxiety Inventory

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) is a standardized measure of anxiety symptoms experienced over the past week that was completed pre-treatment only. Clinical descriptions for the score ranges include: 0–7=*minimal anxiety*, 8–15=*mild anxiety*, 16–25=*moderate anxiety*, and 26–63=*severe anxiety* (Beck et al., 1988). Items were rated on a 4-point scale (range 0–3) to yield an overall score for anxiety. The BAI has excellent internal reliability, Cronbach's alpha =.94 (Fydrich, Dowdall, & Chambless, 1992). His pre-treatment score was “4” or *minimal anxiety*, which was again consistent with his initial psychiatric interview (Table 1).

3.4. The Yale-Brown Obsessive Compulsive Scale

The Yale-Brown Obsessive Compulsive Scale (YBOCs; Goodman et al., 1989) was administered in an interview format by a clinical psychologist pre-treatment. Mr. B's pre-treatment YBOCs scores are presented in Table 1. His YBOCs total score was “30″ or “severe symptoms”, “14″ points for Obsessions or “moderate symptoms”, and “16″ points for Compulsions or “moderate symptoms” (Storch et al., 2015). OCD symptom clusters identified included contamination obsessions and washing/cleaning compulsions related to his diagnosis of CF, past and current obsessions associated with order and symmetry, morality, checking compulsions (e.g., evening routine for checking

Table 1
Pre- and post-treatment scores and change scores.

	Pre-treatment	Post-treatment	Change score
BDI-II	4	–	–
BAI	4	–	–
YBOCs			
Obsessions subscale	14	6	8
Compulsions subscale	16	6	10
Total score	30	12	18
CBOCI			
Obsessions subscale	25	17	8
Compulsions subscale	19	9	10
Total score	44	26	18

Note. BDI-II=Beck Depression Inventory – 2nd Edition; BAI=Back Anxiety Inventory; YBOCs=Yale-Brown Obsessive Compulsive Scale; CBOCI=Clark-Beck Obsessive Compulsive Inventory.