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Review Article

An Update on Cognitive Behavioural Therapy (CBT) in the treatment of tinnitus

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Abstract

Successfully dealing with the patient who has significant tinnitus has always been a problem for practising otorhinolaryngologists. Options are limited especially when it comes to chronic tinnitus. Cognitive Behavioural Therapy (CBT) for tinnitus is a service provided by trained psychologists and is a well-documented, safe, practical and validated treatment for tinnitus. It involves challenging the negative automatic thoughts and core beliefs, reducing the emotional reactions caused by tinnitus and thereby changing any maladaptive behaviour leading to an increased quality of life. Current literature reviews indicate CBT has a definitive role in the management of tinnitus, especially distress related to tinnitus. Involvement of 'tinnitus trained' psychologists needs to be considered when managing these patients.

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Introduction

Successfully dealing with the patient who has significant tinnitus has always been a problem for practising otorhinolaryngologists. Options are limited especially when it comes to chronic tinnitus for which available therapy has varied success[1]. According to the biopsychosocial model of treatment, when approaching a patient with tinnitus a multidisciplinary approach has a great impact on patient outcomes [2].

Tinnitus

Tinnitus is defined as the perception of sound without a corresponding auditory source and can be either primary (subjective) or secondary (objective). While secondary Tinnitus can be caused by disorders of the central auditory pathway, disorders of the cochlea, or the vestibulocochlear nerve, heart beat synchronous pulsatile tinnitus or certain arteriovenous malformations, primary tinnitus has no identifiable cause. Primary tinnitus affects up to 21% of adults (30% of adults over 50 years of age) of which about 3% have debilitating symptoms[3]. Although most cases of primary tinnitus resolve spontaneously, tinnitus that has lasted for more than three months is unlikely to resolve on its own[3]. It is also significant to note that tinnitus can be associated with other psychological co morbidities such as depression and anxiety[1]

Tinnitus treatment has two components; first is to address the tinnitus itself and second is to treat the emotional response to tinnitus. When an otorhinolaryngologist is approached by a patient with tinnitus, after all organic causes are eliminated, it is traumatizing for the distressed patient to hear the words "nothing can be done" from the clinician. The patient ideally needs to be addressed with compassion as the psychological condition of Tinnitus Distress is a factor that needs to be considered.

Tinnitus Distress

The persistent negative emotional response to tinnitus is regarded as Tinnitus Distress[4]. Characteristics of Tinnitus Distress include insomnia, decreased concentration, and social withdrawal which leads to an impaired quality of life. It can be classified as mild, moderate and severe, where mild means the patient can still live his life with some normalcy, and severe being debilitating enough to affect sleep, relationships and the inability to hold a job.

Although tinnitus distress typically presents with anxiety, the emotional reactions may vary from anger that they have to deal with tinnitus, depressed over loss of quality of life and/or hearing loss, irritability, guilt that some actions of theirs may have triggered it, loneliness due to certain behaviour such as avoiding social gatherings or quiet places that it might worsen their tinnitus, fear that tinnitus may never go away and even shame as to why they cannot disregard it and get on with their lives.

This reaction stems from 'Evolutionary Psychology' where fear and anxiety towards any sounds that do not have a corresponding auditory source such a rustling of leaves or breaking of a twig was perceived as danger by humans and was considered as a protective adaptive mechanism. Thus, suggesting that Tinnitus may have an evolutionary basis and Tinnitus Distress may be a maladaptive protective mechanism to an unidentifiable sound. When a patient first hears tinnitus and when it fails to resolve spontaneously, it evokes the same fear and anxiety and eventually causes tinnitus distress.

The degree of tinnitus distress experienced by individual vary vastly and the contributing factors are poorly understood. Contrary to popular belief, the loudness of the tinnitus is not directly proportionate to the intensity of the tinnitus distress[5]. Severe Tinnitus Distress should not be confused with intensity of tinnitus (Tinnitus loudness) which is the direct perception of tinnitus, for which some studies have shown have little benefit from CBT [6].

The Principles of CBT for Tinnitus

Cognitive Behavioural Therapy (CBT) for tinnitus is a service provided by trained psychologists and is a well-documented, safe, practical and validated treatment for tinnitus [2,7]. The goal of CBT for tinnitus is not to reduce

the acoustic characteristics of the tinnitus itself (e.g. loudness or pitch) but to treat the tinnitus distress[4].CBT is currently the most researched intervention for tinnitus according to the American Academy of Otolaryngology-Head and Neck Surgery and several other meta-analysis[1,8]. Despite evidence-based research regarding the efficacy of CBT for tinnitus, availability of knowledge and expertise in CBT remains inadequate in Sri Lanka. Moreover, in our context, stigma regarding psychological therapies plays a vital role in treatment refusal even when it is available.

CBT was originally developed by Psychiatrist Dr Aaron Beck in 1960 to treat depression [9]. It is based on a general framework called the ABC model. Activating event (A) causes a spontaneous rise of a belief (B)/ automatic thoughts, which causes a consequence (C). In patients with tinnitus, the activating event (A) is the tinnitus and the belief (B)/ automatic thought could be "My life is ruined because of tinnitus" and consequence (C) could be social withdrawal, isolation and depression. CBT focuses on changing this irrational unrealistic automatic thought by questioning the validity by discussing with the patient.

The Cognitive model in CBT says that cognition comprises of Core belief (Schema) Intermediate thoughts and Automatic thoughts[10]. Core beliefs are deep beliefs on how one sees oneself and interprets the world and usually develops from childhood and other similar experiences. Intermediate beliefs are conditional rules or assumptions that one sets for himself such as "If X then Y". Automatic thoughts are the spontaneous thoughts on how one interprets the activating event (A) which is influenced by core beliefs and intermediate beliefs. For example, the patient's core belief could be, "I am a failure at everything"; Intermediate thought could be "If I can't stop this tinnitus soon, then this tinnitus is never going away" and an automatic thought could be "my life is ruined because of tinnitus". CBT involves challenging the negative automatic thoughts and core beliefs, reducing the emotional reactions caused by tinnitus and thereby changing any maladaptive behaviour leading to an increased quality of life[11].

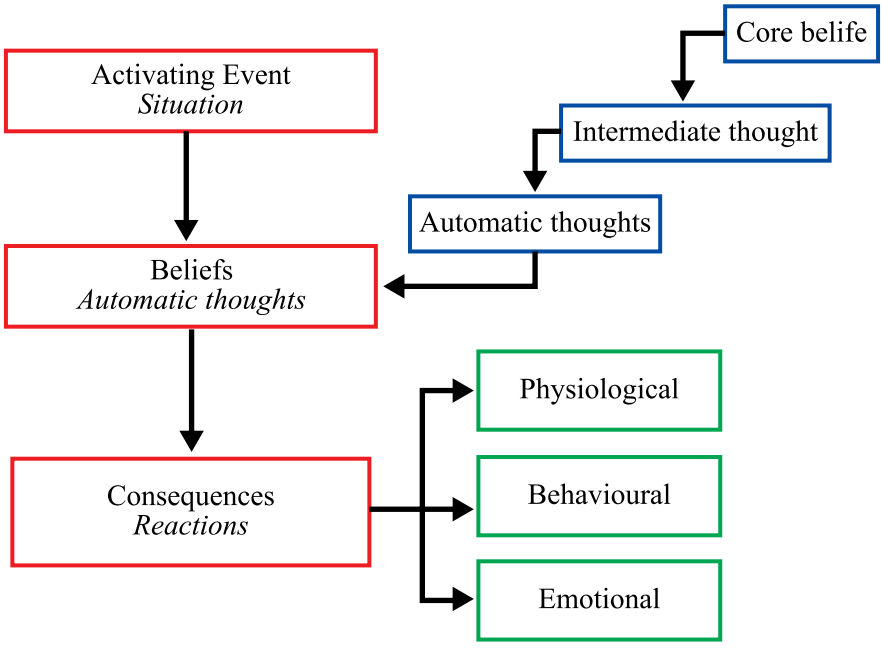

Fig. 1 – The ABC model of CBT (Modified)

During CBT sessions which typically last for 8 to 12 weeks, the psychologist and patient aim to change cognitive distortions regarding tinnitus, and work on behavioural modification. CBT includes cognitive therapy and behavioural therapy which include methods such cognitive restructuring, habituation and desensitization techniques, relaxation therapy etc. The therapist may add other psychotherapy methods such as mindfulness CBT may be done individually, or in small groups after the initial interviews, and currently internet-and mobile app-based CBT methods are under research[12].

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Success of CBT on tinnitus patients

In a systematic review and meta-analysis on CBT for tinnitus done in 2020, CBT was shown to make statistically significant improvements in quality of life, depression and anxiety associated with tinnitus in patients with tinnitus[13]. The Cochrane data base of systematic reviews (2020) confirms that that it is indeed a safe treatment for increasing the quality of life in patients[8]. Internet-based delivery of CBT was also evaluated in a recent randomised control study and showed promising results[14].

Another systematic review and meta-analysis on randomized controlled trials on the effectiveness of CBT for treating insomnia in patients with tinnitus, demonstrates a statistically significant reduction in Insomnia Severity Index in such patients[15].

Otolaryngologic Clinics of North America (2020) states that CBT has the most robust evidence in the management of tinnitus, although accessibility for CBT still remains inadequate[16].

Another randomised controlled study done on a small population (32) comparing CBT with Neuromodulation (Desyncra™) showed comparable results in reducing tinnitus distress[17]. However, whether majority of our population can financially afford such a device is questionable.

Financial Viability and Cost effectiveness

In a recent study done in Australia, CBT for tinnitus proved to be cost-effective from a health system perspective as well as for the patient within a two-year period [18]. As mentioned previously, follow-up sessions can be setup online for groups with minimal drain on resources.

Current Situation

Unfortunately, this specific type of CBT provided by trained psychologists is not widely available for patients suffering from tinnitus even in the United Kingdom [6,19]. There is also controversy surrounding the quality of CBT delivered by audiologists which is still being evaluated [19]

Conclusion

Current literature reviews indicate CBT has a definitive role in the management of tinnitus, especially distress related to tinnitus. Involvement of tinnitus trained psychologists needs to be considered when managing these patients.

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