

Original Research

Impact of Tinnitus on Quality of Life and Psychosomatic Implications Due to the Covid-19 Pandemic

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Abstract

Tinnitus, the perception of sound in the absence of a corresponding sound, and the distress caused by it, is rarely a static phenomenon. The COVID-19 pandemic is a potential environmental stressor that might influence the individually perceived tinnitus distress. Since not all people are affected by the pandemic in the same way, the situation allows one to identify environmental factors and personality traits that impact tinnitus distress differently. On average, there was increase of tinnitus distress with changes during the lockdown. People perceiving the situation as generally stressful with increased grief, frustration, stress and nervousness reported the worsening of tinnitus distress. People with high values in neuroticism also reported the worsening of tinnitus distress.

INTRODUCTION

As the coronavirus disease (COVID-19) pandemic evolves, the virus's symptoms continue to expand across the human body. Caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the coronavirus infection causes many severe complications in some people, especially those at a higher risk of developing a serious illness. Many complications of the hearing system have been reported, including worsening or the appearance of tinnitus.

Tinnitus, being a multifactorial aetiology disorder, is not attributable exclusively to pathologies or alterations of the auditory system. Consequently, the auditory system is not always the primary cause of the symptom, but the whole organism plays a fundamental role in the genesis of the disorder.

Clinical experience has also shown that the origin of the buzz may be concomitant with or as a consequence of a period of prolonged stress or unregulated rhythms of life, capable of decompensating the organism and causing the onset or worsening of the disorder.

In fact, recently the medical literature has focused a lot on psychological factors not only in terms of comorbidities of tinnitus, but as fundamental mechanisms that generate and guide the maintenance of tinnitus.

MATERIAL AND METHODS

Epidemics and pandemics of whatever etiology represent insidious threats to people's lives and health and they require great efforts to be contained. Their management is problematic in many ways, from the unpredictability and changeability that characterize them, to the necessity of creating a national and international coordination, especially in the current situation of world globalization and fast interconnection of people and goods.

At the end of December 2019, the Wuhan Municipal Health Commission (China) reports to the World Health Organization a cluster of Pneumonia of unknown etiology in Wuhan City, in the Chinese province of Hubei. On January 9, 2020, the Chinese Center of Disease Control and Prevention (CDC) reported that a new strain of Coronavirus has been identified as causative agent of this respiratory disease, later called SARS-CoV-2, causing a severe acute respiratory syndrome [1].

In the first half of February 2020, the World Health Organization (WHO) announced that the respiratory disease caused by the new coronavirus was called COVID-19.

The new abbreviation is the synthesis of the words CO-rona VI-rus D-isease and the year of its identification, 2019 [2].

Due to the rapid spread of the epidemic around the world, the World Health Organization has declared the Coronavirus a global pandemic [2].

Because of person-to-person transmission of the virus [3], most countries introduced restrictions for social distancing and advised the people to stay at home as much as possible [4].

This has caused and is still causing extraordinary interruptions in the provision of some health care services, economic activities and social interactions [5].

Although these measures reduced the spread of the virus, they increased, at the same time, the incidence of depression, reducing well-being and the quality of life in the general population [6].

Although COVID-19 is an infectious disease mainly characterized by respiratory symptoms and musculoskeletal manifestations, some people reported neurological symptoms, with central and peripheral nervous system involvement [7].

The persistence of the pandemic is causing physical and psycho-social consequences worsening clinical conditions exacerbated by situation of stress, anxiety and depression as well as favoring relapses and potential recrudescence of hearing disorders for those already affected

Among these heterogeneous clinical conditions there is an increase of the tinnitus in a high-level rate, probably due to social confinement, to the strong emotional stress and the increased risk of a reduced emotional well-being [8,9]

Tinnitus is an auditory sensation perceived by a person in absence of acoustic input from the external environment.

This disorder can manifest itself acutely or gradually and it can be perceived in one ear, both or inside the head.

They are usually described as very annoying sounds like rustling, ringing, hissing or pulsations that can change in frequency and intensity during the day or during specific physical activities, leading to a very different range of symptoms from individual to individual [10,11]

Epidemiological data highlights an important problem in terms of prevalence, even if it must be underlined that, given the considerable differences between the various publications, the subjectivity of symptoms, its method of definition and sampling criteria are challenging factors to a correct statistical analysis.

However, it is estimated that this disease affects more than 15% of the world population [12] acquiring for its complexity so many disabling characteristics to discriminate negatively the mental health and the quality of life of the affected people like a real disabling disease.

Tinnitus is one of the most frequent chronic conditions, affecting 12-30% of the adult population [13].

Neuro-physio-pathological studies related to this disorder defined neuronal models that identify the source of tinnitus in the auditory periphery, the presence and processing of the auditory stimulus in the subcortical auditory center, the perception, memory and attention in the cortex and in the auditory areas, while they attribute to the limbic system the emotional component linked to tinnitus and to the activation of the autonomic nervous system and the discomfort linked to it, all connected in a complex network [14].

Although the issues that lead to the expression of the symptom are very different, these patients very often have in common the psychosomatic consequences related to the perception of this disorder.

However, the mechanisms through which these disorders interact with each other are not yet fully understood, even if the most recent neurophysiological findings concerning auditory function, the neuronal activation of extra-auditory subcortical structures explain the complex interaction between tinnitus, stress and depression, and why they can trigger, exacerbate, and reinforce each other [15].

However, what remains unclear is whether tinnitus produces mental disorders, or the mental disorders produce tinnitus. Psychological factors have recently been considered not only like comorbidities related to tinnitus, but as important mechanisms that lead to the maintenance of tinnitus. In fact, tinnitus frequently increases or even begins during stress [16].

Modification of the lifestyle imposed by the pandemic seems to be one of the factors that considerably worsen tinnitus and because of the pandemic itself, it is more difficult to receive health care for conditions that are not considered life-threatening by the caregivers.

It has been proven that the pandemic increased fear and concern in the general population [17] and can potentially worsen tinnitus levels due to the clear relationship between emotional distress and increasing of tinnitus [18].

WHO recently give the definition of Pandemic Fatigue [19], or pandemic stress that leads to a real behavior syndrome caused by the emergency we are experiencing. Symptoms are emotional stress, feelings of fear and high physical and psychological fatigue. Every certainty seems to be weakened because we constantly live in a threatening environment; we move between fear and strong constraint caused by the pressing limitations on our personal freedom that are constantly changing.

Perception of tinnitus, in addition to the relationship problems due to being confined, is exacerbated by the negative feelings of frustration and concern about the possible contraction of the virus, the difficulties for the food supplying, and also the financial worries about the reduction of work, work termination and the reduction in the value of investments [20].

Patients affected by tinnitus may have a directly observable deterioration in the quality of life which leads into a greater social isolation or, on the contrary, in the continuous search for stimulations or company that can hide the sound [21].

Many psychosomatic and neurocognitive effects can occur following the perception of tinnitus and are usually described as modifications of the psychophysical sphere associated with: anxiety, fear, stress, catastrophic and irrational negative thoughts, poor quality of sleep and feeding, social withdrawal, avoidance strategies of certain places and/or situations and in the most severe cases even suicidal ideations [22].

Those affected by tinnitus can feel extreme discomfort in silent places during the late afternoon and evening, when they are usually alone and when most of the external sounds begin

to subside. It is not surprising that a large amount of patients with tinnitus describes the moment when they fall asleep as problematic and difficult, with countless awakenings during the night and an unrefreshing sleep causing greater fatigue during the morning and a lack of mental sharpness.

In addition, tinnitus seems to take up all the “space of attention” of the person/patient who suffer this disease and feel alone and misunderstood as no one seems to be able to understand their great illness due to an invisible and not easily described condition.

Traditionally but in an erroneous manner, tinnitus was often labeled as not curable and for this reason patients in the past were invited to live with it without offering any therapy, increasing their illness and discomfort. Today, many treatments can help those affected by tinnitus and particular attention is given to early diagnosis thanks to the aid of specific questionnaires that give the chance to the caregiver to diagnose the disease in its early stages and therefore have better therapeutic results [23].

Given its clinical complexity and its very heterogeneous symptomatology which varies from individual to individual, patient management must be multidisciplinary.

As COVID-19 pandemic may persist in the near future, this health, social and emotional implications are likely to continue for a while. Therefore, it is important to improve therapeutic strategies and support those are suffering the most deleterious effects of this pandemic.

Significant help can come from telemedicine that make possible the realization of masking sound therapies or cognitive-behavioral therapies, guiding these people to regain possession of their lives, providing strategies for containment of anxiety, re-education of attention and acceptance of pain.

CONCLUSION

Further epidemiological, clinical and basic scientific studies applicable to the general population are needed, involving several centers at the same time, which can clarify the impact of the COVID-19 pandemic on people with tinnitus and the pathogenetic mechanisms underlying the development of this huge symptomatology, trying to early diagnose auditory, psychosomatic and psycho-cognitive disorders, in order to avoid chronicity and minimize the negative impact of tinnitus in the quality of life.

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