

ABSTRACT

Vocal and respiratory aspects after COVID-19

Introduction: Post-COVID-19 has caused sequelae in various body systems, including behavioral, central nervous, cardiac, metabolic and renal, in addition to fatigue and muscle weakness. However, there are few studies on vocal and respiratory characteristics in this post-COVID-19 phase. **Objective:** To characterize the vocal aspects observed before, during and after COVID-19, taking into account gender, age, time of onset and degree of severity of the disease, and compare these aspects with individuals not affected by COVID-19. **Methodology:** the study included adult individuals of both sexes who have been proven to have been affected by COVID-19 (COVID group); individuals not affected by COVID, matched according to gender and age group (NCOVID group). After signing the Free and Informed Consent Form (CEP/FOB-USP: opinion 5,335,408), all responded to a remote conversation (google forms). The following were investigated: age, sex, presence of vocal and respiratory complaints, vocal, laryngopharyngeal symptoms and those observed before, during and after COVID-19, as well as questions about the disease. They also responded to the ITDV, ESV, IFV and IDV-10 protocols. After responding to the protocols and protocols, residents of Bauru/SP and region were invited to record their voices (vowel /a/ and count) and for respiratory measures pneumonia (forced vital capacity - FVC, forced expiratory volume in one second - FEV and FEV/FVC ratio). For an auditory-perceptual analysis, three judges who were blinded in relation to the groups classified the voices as: without deviation and altered voice, regarding the parameters general degree of vocal quality, hoarseness, breathiness and tension. The acoustic analysis consisted of the measures: smoothed cepstral peak, alpha ratio and L1 and L0 difference. For sample analysis, parametric and non-parametric statistical tests were applied ($p < 0.05$). The analyzes were divided into three phases: phase 1 - COVID and NCOVID group; phase 2 - COVID group, divided into MILD COVID (no hospitalization), MODERATE COVID (hospitalization) and SEVERE COVID (hospitalization and intubation); phase 3 - COVID and NCOVID groups with assessment of protocols, vocal and respiratory quality. **Results:** There was a predominance of females, aged 18 to 44 years and 11 months, affected by mild COVID, with a predominance of responses from 2 to 4 months after the disease, in the three phases. Phase 1 - composed of 117 participants in each group (COVID and NCOVID), there was a relationship between the time elapsed after the diagnosis of COVID-19 and the presence of vocal complaints after the disease; drinking habits and smoking are related to the non-commitment of the disease. Phase 2 - outline with 145 individuals in the MILD COVID group, seven participants in MODERATE COVID and 13 in SEVERE COVID. It was found that vocal symptoms (burning in the throat, loss of voice and instability) and dyspnea after the onset of the disease are significantly related to the degree of severity of the disease, predominantly for two to four months. Participants with vocal complaints also had significantly more general symptoms of self-reported tiredness after COVID-19. The presence of vocal symptoms, vocal fatigue and vocal disorder are significantly in the degrees of greater involvement of COVID-19. The presence of bronchitis and COPD impacts the degree of severity of COVID-19. Dyspnea is in the most varied degrees of the disease, being impacted by general symptoms such as dry cough and tiredness. Phase 3 consisted of 23 participants in each group (COVID and NCOVID). After mild COVID-19, there is limitation in the use of the voice, with the presence of vocal fatigue. **Conclusion:** The entire conclusion of this study is based on the sample composed mostly of young adult individuals, female, affected by mild COVID-19 and who were investigated between two and four months after the disease. Vocal symptoms, mainly related to limitation in voice use, vocal fatigue and voice disorder, as well as dyspnea, are significantly more present in degrees of greater severity of the disease.

Keywords: respiratory system abnormalities; dysphonia; post-acute COVID-19 syndrome