

The Impact of Patient Background on Swallowing Outcomes of Patients Diagnosed with COVID-19

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The Impact of Patient Background on Swallowing Outcomes of Patients Diagnosed with COVID-19

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Introduction

The manifestation and spread of COVID-19 has caused researchers and health care workers to begin looking for effective ways to identify people who are at increased risk of experiencing heightened symptoms from infection, including hospitalization, the need for invasive mechanical ventilation, and even death. Current research has identified age, gender, ethnicity, and body mass index (BMI) as possible patient characteristics that could impact the severity of symptoms and patient outcomes (Davies et al., 2020; Gebhard et al., 2020; Kim et al., 2021; Klein et al., 2020; Liu et al., 2020; Pan et al., 2020; Sattar et al., 2020).

Currently, limited research exists regarding risk for developing post-extubation dysphagia in the COVID-19 population. One study stated that dysphagia was identified in one third of the patients examined who were intubated and diagnosed with ARDS (Frajkova et al., 2020). As the pandemic continues, medical professionals may find an increased number of COVID-19 survivors reporting symptoms of dysphagia. The purpose of this study is to attempt to identify patient characteristics that may have negatively impacted the presence of dysphagia and patients' abilities to resume an oral diet during their acute hospital stay.

Methods

A retrospective exploratory study was completed to analyze 46 patients who were admitted to the acute care hospital between March 1, 2020- June 30, 2020 with COVID-19 to determine the impact of patient background on swallowing outcomes.

Inclusion Criteria:

1. 18+ years of age
2. COVID-19 diagnosis
3. Required intubation
4. Received a speech-language pathology consult

- 46 patients met inclusion criteria and were analyzed for the study
 - 34 patients received at least 1 videofluoroscopic swallow study (VFSS)
 - 12 patients did not receive a study for various medical reasons

- Data was collected regarding patient background (e.g., age, gender, race, BMI, and comorbidities, baseline diet and history of dysphagia)

To statistically test for an association between patient background and resuming an oral diet, the chi-square test for independence (or Fisher's exact test) was used for categorical variables, and an Independent Samples t-test (or Mann-Whitney U test) was used for continuous variables. Pearson's correlation coefficient was reported to determine the relationship between length of stay, age, and BMI with the number of days required to resume an oral diet. The number of days to resume an oral diet was also compared between genders and the categorized total number of comorbidities (<3, ≥3), where an Independent Samples t-test (or Mann-Whitney U test) was used.

Results

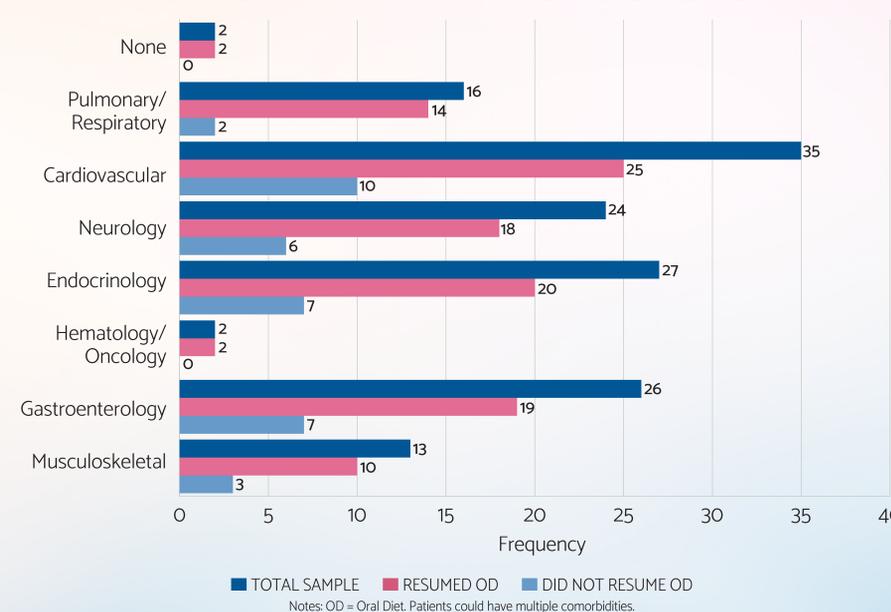
In the assessment of patient demographics (e.g., age, gender, race) and medical history (e.g., BMI, comorbidities, and/or history of dysphagia) with the outcome of resuming an oral diet (yes/no), there were no significant associations or differences found.

However, there is a strong, positive correlation between length of stay and the number of days to resume an oral diet (Pearson's $r=0.6599$). In other words, as length of stay increases, the number of days to resume an oral diet increases ($p<0.0001$).

Important Descriptive Statistics Identified:

- The median number of days to resume an oral diet in male patients was 6 days (IQR: 5.0-10.0), and 9.5 days (IQR: 6.0-15.5) in female patients.
- Those with fewer comorbidities (<3) had a greater median number of days to resume an oral diet (9.0 [IQR: 6.0-12.0]) compared to those with greater than 3 comorbidities (7.0 [IQR: 5.0-11.0]).
- Patients who were able to resume an oral diet had a higher median BMI (30.9 [IQR: 27.1-34.1]) compared to patients who did not resume an oral diet (28.1 [IQR: 25.3-34.4])

DISTRIBUTION OF COMORBIDITIES IN THE ENTIRE SAMPLE AND STRATIFIED BY RESUMING AND ORAL DIET



Discussion

In conclusion, given the small sample size and currently absent statistically significant findings, it is important that clinicians continue to assess COVID-19 patients with a comprehensive individualized examination. In addition, given the clinical presentation of the COVID-19 virus, it was found to be frequently necessary to supplement clinical bedside evaluations with VFSSs.

It is also important to discuss the limitations of this study and the acute care SLP practices during the COVID-19 pandemic. In this study, patients who experienced a longer time to resume a PO diet were found to have a statistically significant increase in length of stay. This is important to note as our hospital network currently only has access to VFSSs to formally assess patients' oropharyngeal swallow. The implementation of FEES is currently in processes and could potentially improve the length of time it takes patients diagnosed with COVID-19 to resume a diet and subsequently discharge from the hospital. Repeated patient/staff radiation and staff exposure to patients who were critically ill with COVID-19 was also a concern in the early stages of the pandemic. Future analysis is also planned to assess the possible impact of critical care interventions (e.g. number of intubations, length of intubation, presence of a tracheostomy, proning, and use of paralytics) on the ability for these patients to resume an oral diet.

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