Using Clinical Indicators to Optimize Therapeutic Outcomes in Geriatric Patients With COVID-19

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PURPOSE: Little is known about which specific clinical aspects of COVID-19 predicts the extent of the decline that will occur or the amount of rehabilitation that would be necessary. This study explored the relationships of two clinical indicators of illness severity-increased blood urea nitrogen (BUN)/creatinine (cr) ratio, an indicator of dehydration, and COVID-19 symptom count-on occupational (OT) and physical therapy (PT) rehabilitation intensities and changes in therapeutic outcomes such as functional dependence and hospitalizations in geriatric patients with COVID-19.

METHOD: Data was extracted from the electronic medical records of all patients who contracted COVID-19 (as determined using COVID-19 PCR testing) at a SNF in NYC between March and May 2020. Clinical reports and labs were extracted for the day of symptom onset and 30 days post-onset. Rehab intensity was defined by average number of minutes per session. Multinomial linear regression and multinomial Poisson loglinear models were run, and all analyses controlled for age, gender, length of stay, and cognitive status, and OT/PT intensity (in analyses where intensity was not the outcome).

RESULTS: Among the 122 subjects, the mean age was 78.94±11.75, and 63% were female. Individuals with more symptoms during COVID-19 illness were at greater risk for functional decline than individuals with fewer symptoms ($p<.001$, OR = 1.32). Symptom count was unrelated to baseline functional status ($p>.05$). The relationships between symptom count and hospitalizations and OT and PT intensities were nonsignificant as well. Patients who were younger ($p = .034$, OR = .993), female ($p<.001$, OR = 2.39), and in post-acute care ($p<.001$, OR = .379) also were more likely to receive OT at higher intensities. Individuals with lower levels of ADL functional dependence prior to COVID-19 are predisposed to higher BUN/cr ratios during the illness ($p = .009$, OR = 1.12). However, BUN/cr ratio was not significantly related to change in functional independence ($p>.05$). Individuals with higher BUN/cr ratios received significantly higher intensities of OT ($p = .003$, OR = .985), but BUN/cr ratios did not significantly relate to PT intensities ($p>.05$). OT intensities were significantly related to decline in functional independence by a diminutive amount ($p = .047$, OR = 1.01). Individuals with higher BUN/cr ratios during illness were hospitalized more often than those with lower levels ($p = .016$, OR = .872).

CONCLUSION: In this study we found a relationship between baseline functional independence levels and higher BUN/cr ratio levels during COVID-19 illness in geriatric patients. As the clinicians specializing in functional independence and recovery, OT(A)s are in a unique position to shed light on patients' risk for dehydration. When working with a patient with or recovering from COVID-19, especially individuals struggling with activities such as eating and drinking, OT(A)s and other rehabilitation professionals should advocate that patients' receive extra feeding and drinking assistance and/or be considered for intravenous fluids. Additionally, patients' number of symptoms during COVID-19 can predict functional decline, and by being aware of patients' symptoms, rehabilitation professionals can better anticipate, and thus hopefully minimize, functional decline.

References

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