TITLE: LESSONS LEARNED DURING COVID-19 – RELATIONSHIPS BETWEEN MACRO AND MICRONUTRIENTS AND PATIENT OUTCOMES

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LEARNING OUTCOME**:** Participants will understand how macronutrient delivery may confound relationships between micronutrient delivery and outcomes among tube fed, vented COVID-19 patients in a university hospital setting.

ABSTRACT:

Background: Current guidelines show that early enteral feeding is beneficial to COVID-19 vented patients. However, the role of vitamin C in improving outcomes among such critically ill patients is mixed. We aim to determine relationships between macronutrients and outcomes (ventilator days, inflammation and length of stay) that may confound relationships between such outcomes and micronutrients (vitamin C) delivered to tube fed, vented, COVID-19 patients.

Methods: We conducted a retrospective chart review of 38 vented, tube fed, COVID-19 patients admitted between March 2020 and December 2020. We recorded demographic data and ventilator days, as well as calories, protein and micronutrients ordered and provided via all routes of administration (IV or enteral) for the first 7 days of ventilation. Lab values, such as C-reactive protein, interleukin-6 and ferritin levels, were also recorded.

Major Findings: Calories and protein ordered were negatively correlated with total ventilator days ($r= -0.19$, $r= -0.19$) and length of stay ($r= -0.16$, $r=-0.12$), although not significantly. There was no correlation between vitamin C provided and inflammation.

Conclusions: Prior research on the relationship between micronutrients, such as vitamin C, and patient outcomes (ventilator days and inflammatory markers) among vented patients has been mixed. This may be due to the underlying relationship between macronutrients delivered and patient outcomes. Macronutrient delivery is challenging to accurately determine, especially during a pandemic. However, our findings suggest that macronutrient delivery may be confounding a beneficial relationship between micronutrients and patient outcomes, and after controlling for macronutrient delivery such relationships may be revealed.

Abstract was updated after additional data was collected.