#118 Samara Skwiersky

Sugar Is Not Always Sweet: Exploring the Relationship Between Hyperglycemia and COVID-19 in a Predominantly African American Population

Whether hyperglycemia is a marker or a cause of more severe COVID-19 is unknown. In this retrospective cohort study, we examined the effect of admission glucose in patients hospitalized with COVID-19. Our cohort was composed largely of African Americans, a population disproportionately affected by COVID-19.

We analyzed 708 patients admitted with COVID-19 to SUNY Downstate Medical Center from 3/1 -5/15/2020. Patients with diabetes (DM) were compared to those without, and were further stratified based on admission blood glucose (BG) of 140 and 180 mg/dL. Univariate, multiple and logistic regressions were used for analyses, examining outcomes of mortality, intubation, ICU admission, acute kidney injury (AKI), and length of stay based on admission glucose levels.

Patients with DM had a 16% greater length of stay than those without. Patients with DM with an admission BG > 140 mg/dL (vs<140 g/dL) had a 2.4-fold increased odds of both intubation and ICU admission (95% CI 1.3, 4.6, p 0.006; 1.2, 4.6, p 0.01). Patients with DM with admission BG > 180 mg/dL (vs <180 g/dL) had a 1.8-fold increased mortality (95% CI: 1.2, 2.9, p 0.01). Patients without DM with admission BG > 140 mg/dL had a two-fold increased mortality (95% CI: 1.2, 3.5, p 0.01), 3.5-fold increased odds of ICU admission (95% CI: 1.8, 6.6, p < 0.001) and a 2.3-fold increased odds of both intubation and AKI (95% CI: 1.3, 4.2, p 0.005; 1.3, 4.2, p 0.004). Patients without DM with a BG >180 mg/dL had a four-fold increased mortality (95% CI 1.8, 8.8, p <0.001), 2.7-fold increased odds of intubation (95% CI: 1.3, 5.6, p 0.008) and 2.9-fold increased odds of ICU admission (95% CI admission (95% CI: 1.3, 6.2, p 0.008).

Our results show hyperglycemia portends worse outcomes in individuals with and without DM infected with COVID-19. This suggests that patients presenting with hyperglycemia require more aggressive therapies and raises the testable hypothesis that intensive glucose control may improve outcomes in patients with COVID-19.

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