

### **The Impact of COVID-19 on Diabetic Ketoacidosis Patients**

**Objective:** Describe the prevalence/outcomes of DKA patients comparing pre- (March-April 2019) and pandemic (March-April 2020) periods.

**Methods:** Design: Retrospective cohort of admitted pandemic DKA/COVID-19+ patients comparing prevalence/outcomes to pre-pandemic DKA patients using electronic health record Setting: Eleven hospitals of New York City Health & Hospitals. Participants: Inclusion: Pandemic period: admitted COVID-19+ patients (>18 years). Pre-pandemic period: admissions (>18 years) selected through the medical record. Main Outcome(s) and Measure(s): Mortality: death during the index hospitalization. Demographics, medical histories and triage vital signs, and laboratory tests. Definition of DKA: Beta-Hydroxybutyrate (BHBA) (> 0.4 mmol/L) and bicarbonate (< 15 mmol/L) or pH (< 7.3).

**Results:** Demographics and past medical histories were similar during the pre-pandemic (n=6938) vs. pandemic (n=7962) periods. DKA prevalence was greater during pandemic (3.14%, 2.66-3.68) vs. pre-pandemic period (0.72%, 0.54-0.95) (p<0.001). DKA/COVID-19+ mortality rates were greater (46.3% (38.4-54.3) vs. pre-pandemic period (18%, 8.6-31.4) (p<0.001). There was an increased odds of dying for patients with DKA and COVID-19 for the following parameters: O2 Sat. < 95%, OR 9.27 (4.09 - 21.05) (p<0.001); Sys. BP < 100 mmHg OR 9.98 (4.17 - 23.89) (p< 0.001); BUN > 20 mg/dl OR 2.53 (1.11 - 5.77) (p=0.040); and Cre > 0.9 mg/d OR 5.07 (1.40 - 18.39) (p=0.015).

**Discussion:** We found that COVID-19 had significant impacts on DKA patients. Comparing our pre- to pandemic periods, we found a greater than a 4+-fold increase in DKA prevalence (0.72% vs. 3.14%) with a 2+times higher DKA/COVID-19+ mortality rate (46.3% vs. 18.0%). High mortality rates of DKA/COVID-19+ were associated with COVID-19 biomarkers of lower oxygen saturations and blood pressures, higher degrees of renal insufficiency with higher SOFA and qSOFA scores, not DKA severity.