ICU and 34% of NCG were admitted to ICU (p=0.003). Median LOS (days) in discharged patients was 8 in CG and 5 in NCG (p=0.02). Mortality was 40% in CG and 3.41% in NCG (p<0.0001). 12 patients in CG and 2 patients in NCG developed new-onset diabetes. In the subset of DKA, interestingly, mean age (years) was 61.63 (SD±17.73) in CG and 39.67 in NCG (SD±13.39) (p=0.001). **Conclusion:** In our study, patients in the CG carry worse laboratory parameters, unfavorable clinical outcomes and strikingly higher mortality. We discovered increased incidence of new-onset diabetes and elderly DKA in CG. In an inner city population like ours, the burden of DM with significant social and health care disparities is quite severe. Diabetic patients with concurrent C-19 infection can have particularly negative outcomes and C-19 possibly damages the pancreatic islets resulting in acute hyperglycemic crisis. Further research on larger population is required. **References:** (1)https://dx.doi.org/10.1016%2Fj.diabres.2020.108142(2) https://doi.org/10.2337/dc20-0723(3)https://www.nejm.org/doi/full/10.1056/NEJMc2018688

Diabetes Mellitus and Glucose Metabolism

COVID-19 AND DIABETES

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

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Introduction: A relationship between hyperglycemia and outcomes in patients with COVID-19 has been proposed, however there is a paucity of literature on this. In this study, we examined the effect of admission glucose in diabetics and non-diabetics on outcomes in patients hospitalized with COVID-19. Our study uniquely examines this association in a largely African American cohort, a population disproportionately affected by COVID-19.
Methods: In this retrospective cohort study, we analyzed all adults admitted with COVID-19 to a designated COVID hospital in Brooklyn, NY from March 1 to May 15, 2020. Diabetics were compared to non-diabetics, and were further stratified based on admission glucoses of 140 and 180 mg/dL. Diagnosis of diabetes was based on history and/or Hba1c > 6.5%. 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, while controlling for age, gender, lab values (serum creatinine and WBC), and comorbidities including *hypertension, cardiovascular disease,* and *obesity*. Outcomes are presented as an adjusted odds ratio (OR) with 95% confidence interval (95% CI).
Results: 708 patients were analyzed; 54% diabetics, 83.5% non-Hispanic Blacks, 51% male with a mean age of 68, BMI of 29 kg/m^2 and crude mortality rate of 40%. The length of hospital stay was greater in diabetics than non-diabetics, (13±26 days vs 9.5±18.5 days, p<0.05). *Diabetics* with an admission glucose > 140 mg/dL (vs<140 g/dL) had a 2.4-fold increased odds of both intubation and ICU admission (95% CI: 1.2, 4.5; 1.3, 4.6). *Diabetics* with admission glucoses > 180 mg/dL (vs <180 g/dL) had a 1.8-fold increased mortality (95% CI: 1.2, 2.9). *Non-diabetics* with admission glucoses >140 mg/dL (vs<140 g/dL) had a two-fold increased mortality (95% CI: 1.2, 3.5), 3.5-fold increased odds of ICU admission (95% CI: 1.8,6.6) and a 2.3-fold increased odds of both intubation and AKI (95% CI: 1.3, 4.2; 1.3,4.2). *Non-diabetics* with a glucose >180 mg/dL (vs <180 g/dL) had a four-fold increased mortality (95% CI: 1.8, 8.8), 2.7-fold increased odds of intubation (95% CI: 1.3, 5.6) and 2.9-fold increased odds of ICU admission (95% CI: 1.3, 6.2).
Conclusion: Our results show hyperglycemia portends worse outcomes in diabetics and non-diabetics with COVID-19. Elevated admitting glucoses >180 mg/dL increased odds of mortality four-fold in non-diabetics and 1.8- fold in diabetics. In COVID-19, diabetic patients had a 37% greater length of hospital stay than non-diabetics. Whether hyperglycemia is a marker or a cause of more severe COVID-19 is unknown. These findings suggest that patients presenting with hyperglycemia require closer observation and more aggressive therapies. This raises the testable hypothesis that intensive glucose control may improve outcomes in patients with COVID-19.

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The Impact of Diabetes and African American Race in COVID-19 Severity

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Introduction: COVID-19, an illness caused by the novel coronavirus usually presents as a mild to moderate flu like illness, but can lead to pneumonia, acute respiratory distress syndrome and death in some patients. Since the onset of the COVID-19 pandemic there has been special attention towards patients with diabetes. Not only is diabetes highly prevalent in patients with COVID-19, but diabetes has been reported as a significant predictor of morbidity and mortality. Furthermore, race seems to be a predictor of severity with black people dying at 2.3 times the rate of white people. **Methods:** Here we performed a retrospective study of 524 cases of COVID-19 at an academic center in Chicago between March 2020 until August 2020. Data were obtained from patients that consented to the study to examine the relationship between diabetes, BMI, age, and race with degree of COVID-19 severity. Not all patients had all clinical and demographic data available. COVID-19 severity was determined using a severity index obtained from the measured SpO2 divided by the FiO2/fraction of inspired oxygen times 100. Numbers ≥ 315 mmHg were defined as low severity with patients generally requiring outpatient care, while 235–314 mm Hg were classified as moderate severity generally requiring inpatient care and≤ 234 mm Hg

indicated high severity generally requiring intubation/ICU care. The Pearson correlation coefficient was used for linear correlation analyses. Proportion for categorical values were compared using the Chi squared test, the means for continuous variables were compared using two-tailed t tests or one way ANOVA (with Tukey post-test) for comparisons involving more than two conditions. A multiple linear regression model was used to assess the contribution of different variables. Differences were considered statistically significant at p<0.05 **Results:** Among 120 patients with an A1c, 55 (46%) patients had diabetes and 65 (54%) did not have diabetes. More patients with a high severity index were seen in the cohort with diabetes compared to those without diabetes (72% compared to 28% p=0.004). Univariate analyses revealed statistically significant positive correlations with higher COVID-19 severity and older age, BMI, and African American race. ANOVA analysis revealed a statistically significant difference between increasing BMI and worse severity category with a BMI mean of 29.3 kg/m^2 in the low severity category compared to 34.9 kg/m^2 in the moderate severity category (p=0.006). A multi-variate analysis adjusting for all variables revealed that A1c, older age and race were positively associated with higher COVID-19 severity. **Conclusion:** Increased A1c, older age and race are positively and independently associated with a higher COVID-19 severity index. Further research regarding the relationship between COVID-19 and these associations is urgently needed.

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The Relationship Between Age, Gender, Race, Diabetes and Obesity on Clinical Outcomes in a Large Cohort of Patients Hospitalized for Covid-19 in Metropolitan Detroit

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The Severe Acute Respiratory Syndrome Coronavirus-2 infection has resulted in a global pandemic with survival statistics 95–99%, however severe disease has been described. This is a retrospective cohort study of patients > age 18 admitted to Henry Ford Health System in Detroit from March 1 - June 1, 2020 for COVID-19 infection with aims to: 1. Determine the incidence of poor outcomes (mechanical ventilation (MV), ICU admission, death, and venous thromboembolism (VTE)), 2. Describe the clinical characteristics of this group, and 3. Evaluate relationships between demographics, diabetes mellitus (DM), obesity, and inflammatory markers on outcomes. We hypothesized that older age, male gender, African American ethnicity, DM, obesity, and elevated inflammatory markers would predict poor outcomes. 8751 inpatients were included, of whom 682 (7.79%) required MV, 867 (9.91%) were admitted to the ICU, 753 (8.6%) died, and 430 (4.91%) had VTE. 4447 (50.8%) were African American, 4951 (56.6%) female, 5152 (58.9%) > age 50, and 2068 (23.6%) had DM. Of those who had BMI and A1c recorded, 2556 (50.2%) had BMI >30 kg/m^2 and 1138 (74.3%) had A1c >5.7%. Analyses controlling for demographics and

comorbidities found that age and male gender were significant predictors of MV (OR = 1.031; CI= 1.025–1.037; P < 0.0001, OR =2.023; CI= 1.700–2.407; P<0.0001), ICU admission (OR 1.024; CI= 1.018–1.029; P<0.0001, OR 1.824; CI= 1.561–2.130; P<0.001), death (OR 1.077; CI= 1.069–1.085; P<0.0001, OR 1.823; CI= 1.521–2.185; P<0.0001), and VTE (OR 1.021; CI= 1.014–1.028; P<0.001, OR 1.293; CI= 1.043–1.603; P=0.0193). African American, compared to Caucasian ethnicity, was significantly associated with MV (OR 1.437; CI= 1.131–1.825; P=0.0009) and ICU admission (OR 1.428; CI= 1.150–1.773; P=0.0002), but not VTE. African Americans had significantly lower odds of death relative to Caucasians (OR 0.765; CI=0.604–0.969; P=0.0200). DM predicted MV (OR 1.999; CI= 1.677–2.383; P<0.0001), ICU admission (OR 2.014; CI= 1.717–2.364; P<0.0001), death (OR 1.501; CI= 1.250–1.803; P<0.0001), and VTE (OR 1.468; CI= 1.171–1.840; P=0.0009). Obesity predicted MV (OR 1.540; CI= 1.284–1.847; P<0.0001) and ICU admission (OR 1.395; CI= 1.186–1.642; P<0.0001) but not death or VTE. All inflammatory markers (D-dimer, ferritin, CRP, IL-6 and procalcitonin) were significantly correlated with MV and death. 3 of the 5 markers were also predictive of both ICU admission and VTE. This large retrospective study of a diverse population with a significant proportion of African Americans highlights the importance of taking age, male gender, African American ethnicity, presence of DM and obesity into account when determining risk of poor outcomes. These results contribute to the growing data on disparities in health care which have become more evident during this pandemic and the need to address this when designing public policy.

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Type ll Diabetic Patients' Attitudes Toward Influenza and Covid-19 Vaccination

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Influenza vaccination (fluv) is free and easily accessible to diabetics in Quebec. The importance of vaccination (v) during the Covid19 (CV19) pandemic has been widely discussed in the media. To ascertain the receptiveness of type 2 diabetics (T2D) to fluv during the CV19 pandemic and their acceptance of an eventual CV19 vaccine (CVv) we carried out telephone interviews with 34 unselected T2D pts in Montreal, Quebec post the 1st wave of CV19 in that region. Pts were asked if they planned taking the fluv and/or an eventual CVv, reasons for reticence to v, and attitudes toward and compliance with public health (PH) directives. They were also asked their primary source of health related information. Recent HbA1c and insulin use were recorded. Thirty four T2Ds were surveyed, 22 M 50–87 yrs (mean 69.2) and 12 F 49–84 yrs (mean 68.8). Eleven M and 5 F were on insulin. HbA1c ranged from 5.9–13.0 (mean 7.3). None of the pts had recently discussed v with a healthcare provider (HCP). One pt received his health related information from Facebook, the others from mainstream media. None had contraindications to v. None had been diagnosed