

Section 7.1 – Publications by Candidate

COVID-19 Related Laboratory Analyte Changes and the Relationship between SARS-CoV-2 and HIV, TB and HbA1c in South Africa

Reinhardt Hesse, Dieter van der Westhuizen, Jaya George

We conducted a retrospective analysis on data of all adults tested for SARS-CoV-2 across our laboratory network in South Africa over a 4-month period. Out of 842,197 tests 11.7% were positive and 88.3% negative. The prevalence of HIV was 6.25 and 6.31% in the SARS-CoV-2 positive and negative cohort respectively ($p=0.444$). However, the prevalence of HIV positive individuals in the critical cohort (9.15%) was higher than in the non-critical group (6.24%) ($p=0.011$). Active tuberculosis infection was approximately 50% less in SARS-CoV-2 positive than in negative individuals. The prevalence of uncontrolled diabetes was 3.4 times higher in SARS-CoV-2 positive cases, but was not higher in the critical vs. non-critical cases ($p=0.612$). The neutrophil-to-lymphocyte-ratio, coagulation markers, urea, cardiac, and liver related analytes were significantly elevated in the critical compared to non-critical cases. Platelet count and creatinine concentration did not differ significantly between the two groups. These findings do not support increased prevalence of HIV or tuberculosis in individuals with SARS-CoV-2 infection but do suggest an association of increased disease severity with HIV positive status. Uncontrolled diabetes was positively associated with a significantly higher prevalence of SARS-CoV-2 and our investigation into analyte changes associated with SARS-CoV-2 disease severity supported previous findings of raised inflammatory markers, coagulation markers, liver and cardiac related analytes and urea, but not for creatinine and

platelet count.

See the full article (book chapter) below:

https://www.researchgate.net/publication/343650512_COVID-19_Related_Laboratory_Analyte_Changes_and_the_Relationship_between_SARS-CoV-2_and_HIV_TB_and_HbA1c_in_South_Africa

Acute Kidney Injury during the COVID-19 Pandemic – Experience from Two Tertiary Centres in South Africa

Nina E. Diana, Ismail S. Kalla, Nicola Wearne, Sarah Kariv, Bianca Davidson, Jody Rusch, Zibya Barday, Abid M. Sheikh, Samantha Reiche, Farzahna Mohamed, Sara Saffer, Chandni Dayal, Jacqueline P. Venturas, Jarrod M. Zamparini, Dieter van der Westhuizen, Sean Wasserman, Nectarious Papavarnavas, Linda Boloko, Timothy de Wet, Graham Paget, Adam Mahomed, Sagren Naidoo and Erika S.W. Jones

Background: The first case of SARS-CoV-2 in South Africa [SA] was documented in March 2020. By October, the total cases for the Western Cape and Gauteng Provinces were 331,425 with 8456 fatalities. The aim of this study was to describe the prevalence of acute kidney injury [AKI] in hospitalized patients with COVID-19 in two tertiary centres in SA. Methods: SARS-CoV-2 positive patients admitted to two tertiary centres in SA between 18 March and 31 August 2020 were included in the study. Demographic data, pre-existing comorbidities, admission variables, laboratory data, management and hospital outcomes were captured. Exclusion criteria included age <18 years, pre-existing Stage 4 or 5 chronic kidney disease and prior renal transplant. Outcomes assessed were the need for acute dialysis, recovery from AKI, discharge and death. Results: AKI occurred in 374/1102 (33.9%) patients admitted to the two hospitals. Within the AKI cohort, 91 (24.3%) patients required intensive care unit [ICU] management, and 32 (8.6%) received kidney replacement therapy. Older age ($P = 0.001$), pre-existing hypertension [HPT] ($P = <0.0001$) and biochemical

evidence of severe disease, including high ferritin, lactate dehydrogenase, d-dimer and C-reactive protein, were significantly higher in the patients with AKI versus those without. AKI Stage 3 had a higher mortality and lower rates of renal recovery upon discharge. AKI was significantly associated with an increased utilization of ICU resources, prolonged length of stay and mortality. Conclusion: This study reports the largest cohort of COVID-19-associated AKI in Africa. Older age, HPT and severe COVID-19 infection were significantly higher in patients with COVID-19 who developed AKI. This cohort had high rates of AKI which was associated with adverse outcomes, including mortality.

See full article below:

https://www.researchgate.net/publication/345977288_Acute_Kidney_Injury_during_the_COVID-19_Pandemic_-_Experience_from_Two_Tertiary_Centres_in_South_Africa

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