## 077 SARS-CoV-2 Antibody Semi-Quantitative Levels Is Important In The Management Of COVID-19 Vaccinations In Immunodeficiency Disorder Patients.

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**RATIONALE:** The efficacy and durability of SARS-CoV-2 immunological antibody response in Immunodeficiency Disorder (ID) patients (including Primary Immunodeficiency) can be utilized in their clinical management to avoid COVID-19 infection. We correlated SARS-CoV-2 antibody semi-quantitative test results with ID patients' COVID-19 vaccinations, their timing, IVIG infusions, and clinical outcomes.

**METHODS:** Retrospective EMR database review of ID patients from January 2021 to August 2022 tested by the semi-quantitative GenScript SARS-CoV-2 Neutralization Antibody Test. Statistical analysis of compiled data included the correlation between antibody titer test results, vaccinations, IVIG therapy, and chart review for COVID-19-related health outcomes.

**RESULTS:** Antibody testing was performed four weeks after each ID patient was fully vaccinated (n=99); 76% achieved positive antibody titers (low to high levels). Of the 23 initially negative antibody patients, 17 turned positive after 1 booster dose, 2 turned positive after the second booster, and 2 needed the third booster; 2 patients failed to achieve even low titer levels (these 2 patients received Evusheld). Sustained high antibody levels typically persisted from 3 to 6 months. ID patients receiving IVIG tended to have longer sustained antibody titer levels in 2022 after vaccinations compared to 2021; we detected increasing SARS-CoV-2 antibody titers in IVIG products during 2022. No ID patients in this study were hospitalized or died due to COVID-19.

**CONCLUSIONS:** Our immunodeficiency disorder patients generally produced a humoral immune response to the COVID-19 vaccine. However, the level of vaccination response and durability varies, therefore periodic monitoring of SARS-CoV-2 antibody semi-quantitative levels is important in the optimal management of ID patients.

## 078 Blood albumin:globulin levels are associated with comorbidity index and predicted survival in Coronavirus-19

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**RATIONALE:** Studies of potential biomarkers for COVID-19 have shown increased duration of positive nasal PCR for COVID-19 patients and blood albumin:globulin ratio, suggesting low immunoglobulin levels allow for viral persistence. We investigated the relationship of blood albumin:globulin levels with co-morbidities, predicted long term survival, clinical severity on presentation, and length of stay (LOS) in hospitalized adults with COVID-19.

**METHODS:** Total serum protein and albumin levels were measured in hospitalized adults (N=59) and albumin:globulin ratios determined. Vital sign derangement (NEWS2 score), co-morbidities (Charlson comorbidity index, CCI), estimated 10 year survival (C10YES), and LOS were calculated. Listed outcomes were characterized using Spearman correlation analysis and multivariate linear regression adjusted for sex (CCI, C10YES) and age and sex (NEWS2, LOS).

**RESULTS:** Mean total protein, albumin and globulin levels were 7.02±0.84, 3.78±0.61 and 3.13±0.75 g/dL respectively. Mean albumin:-globulin ratio was 1.19±0.23. Greater albumin:globulin ratios were associated with lower comorbidity (CCI) (r= -0.278, p=0.033) and increased estimated survival (r= 0.28, p=0.03), but not NEWS2 or LOS (r=0.016, p=.0.904 and r= -0.170, p=0.203). Albumin was associated with CCI, C10YES, LOS, both in correlation (r=-0.302, p=0.02; r= 0.303, p=0.203; r= -0.402, p=0.002) and adjusted linear regression models (B=-0.339, P=0.01; B=0.373, p=0.004, B=-0.059, p<0.0001). Globulin was marginally significant with NEWS-2 in correlation (r=-0.221, p=0.08), but not when controlling for age and sex (B=-0.145,P=0.292) and did not correlate with CCI, C10YES, or LOS (r=0.098, p=0.453;r=-0.95, p=0.466; r=-0.162, p=0.215).

**CONCLUSIONS:** Greater albumin:globulin ratios and albumin levels are associated with decreased comorbidity, increased estimated survival, and decreased LOS in hospitalized COVID-19 patients.

## 079 Tixagevimab-Cilgavimab Rollout on Common Variable Immunodeficient Patients: Early Lessons from an Academic Allergy and Immunology Clinic

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**RATIONALE:** Tixagevimab-cilgavimab is a combination of two monoclonal antibodies against SARS-CoV-2. In December 2021, the FDA issued emergency use authorization for intramuscular injection of tixagevimab-cilgavimab for prophylaxis against SARS-CoV-2 in immunocompromised patients. Shortly thereafter, our clinic distributed tixagevimab-cilgavimab to patients with Common Variable Immunodeficiency (CVID). **To our knowledge, no prior study has looked at effects of this monoclonal antibody combination on CVID patients.**

**METHODS:** 47 patients with CVID were offered tixagevimab-cilgavimab. 23 chose to receive prophylaxis. Comparative outcomes of treatment and non-treatment groups examined: occurrence of SARS-CoV-2 infection, severity of SARS-CoV-2 infection, and other non-SARS-CoV-2 infections.

**RESULTS:** 70% were female; mean age 49. 23 patients received tixagevimab-cilgavimab and 24 did not receive prophylaxis. In the tixagevimab-cilgavimab group, all were vaccinated for SARS-CoV-2 and 22 were receiving immunoglobulin replacement. In the cohort that did not receive prophylaxis, 21 were vaccinated, and all received immunoglobulin replacement. In the prophylaxis group one patient was infected with SARS-CoV-2, no patients required emergency care, and 7 patients had non- SARS-CoV-2 infection. In the group that did not receive prophylaxis 2 patients tested positive for SARS-CoV-2, one patient required emergency care due to SARS-CoV-2 disease severity, and four patients had a non-SARS-CoV-2 infection. None of the results showed statistical significance.

**CONCLUSIONS:** Although there is preliminary evidence that tixagevimab-cilgavimab can be protective against SARS-CoV-2 in immunocompromised individuals, our data suggests that this benefit may be blunted in CVID patients on immunoglobulin replacement. The additional benefit of tixagevimab-cilgavimab in immunocompromised patients already receiving replacement therapy requires further exploration.