

Session/Poster#

Presenter

A02

Shawn Mathew

Allergy/Immunology Fellow

Advisor(s): Dr. Rauno Joks, Allergy and Immunology

Blood Albumin:Globulin Levels are Associated with Comorbidity Index and Predicted Survival in Coronavirus-19

Introduction: 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 ($r = -0.302$, $p = 0.02$; $r = 0.303$, $p = 0.02$; $r = -0.402$, $p = 0.002$) 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 ($r = 0.098$, $p = 0.453$; $r = -0.95$, $p = 0.466$; $r = -0.162$, $p = 0.215$).

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