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Editorial

Advanced Cancer Patients with SARS-CoV-2 Breakthrough Infections with Antibody Response After Booster Vaccination

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Even after triple COVID-19 vaccination, several population-based studies have demonstrated that patients with cancer continue to be at an increase risk of COVID-19 infections, depending on specific cancer types and different active therapies [1]. Higher cumulative risk was identified in vaccinated patients with lung, colorectal, liver, and pancreatic cancer, whereas lower risk was seen in vaccinated patients with prostate, breast, and gynecological cancer [1]. Data from several retrospective studies confirmed the improvement the short-term clinical outcomes by decreasing hospitalization and 30-day mortality among patients with cancer [2,3]. Additionally, regularity-of-antineoplastic-therapeutics disruption can be caused by mild COVID-19 infection [4] that is similar to hematological malignancies [5]. A recent study revealed that antibody titers higher than 800 binding antibody unit (BAU) were efficiently correlated to SARS-CoV-2-variant-infection-immunological protection and severe symptomatic COVID-19 (Figure 1, 2) [6].

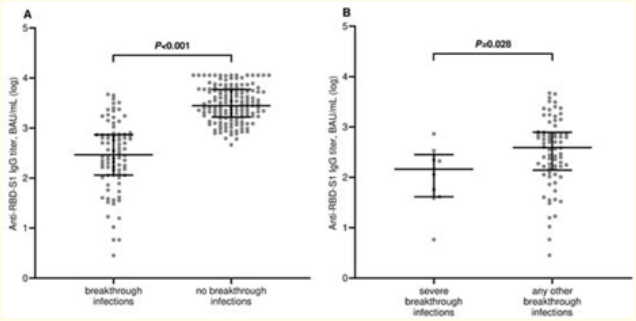

Figure 1: Demonstrating the comparison of scatter plot distributions and medians of antibody titers. (A) Comparison of antibody titers between breakthrough infection cases and non-cases. (B) Comparison of antibody titers between severe breakthrough infection cases and any other cases.RBD-S1, receptor-binding domain (RBD) of the SARS-CoV-2 Spike protein (S1); binding antibody unit (BAU); log, logarithmic values. Bars represent median values with a 95% confidence interval (CI) [6].

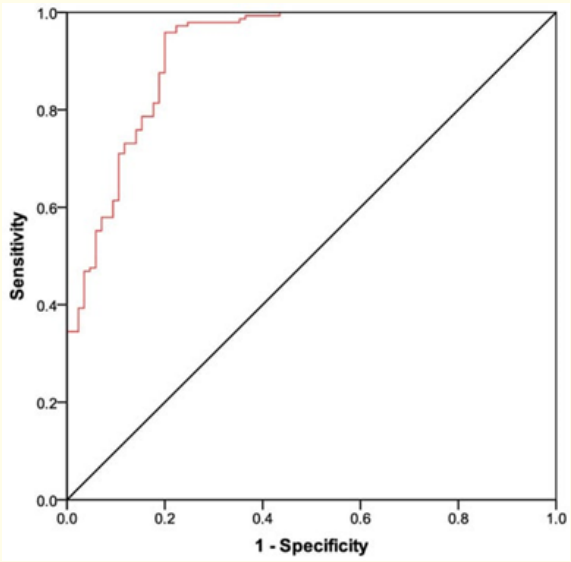

Figure 2: Demonstrating the ROC curve analysis of anti-RBD-S1 IgG titers on the SARS-CoV-2 breakthrough infections AUC relative value: 0.92 (95% confidence interval (CI) 0.88–0.95), p < 0.001., receiver operating characteristic (ROC); RBD-S1, receptor-binding domain (RBD) of the SARS-CoV-2 Spike protein (S1); area under the curve (AUC) [6].

In conclusion, in patients with advanced cancer, active treatment should be prioritized, whereas after COVID-19 third dose will enhance humoral antibody response to protect against COVID-19 breakthrough infections.

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