

## INTISARI

**Latar belakang:** Pandemi COVID-19 meningkatkan angka morbiditas dan mortalitas sehingga identifikasi faktor risiko penting untuk mencegah keparahan. Protein *Spike-Receptor Binding Domain* (S-RBD) merupakan kunci masuknya virus ke dalam sel. Antibodi spesifik SARS-CoV-2, khususnya yang mencegah interaksi *spike* RBD dengan reseptor ACE2 pada inang dapat memberikan kekebalan protektif, dan mempengaruhi hasil klinis pasien COVID-19. Pasien yang sakit parah mengembangkan respon antibodi spesifik SARS-CoV-2 yang lebih tinggi dibandingkan pasien rawat jalan dan individu tanpa gejala. Sampai saat ini, belum ada penelitian yang menyelidiki kadar antibodi S-RBD berdasarkan derajat keparahan pada penyintas COVID-19, terutama di RSUP Dr. Sardjito.

**Tujuan:** Tujuan penelitian ini adalah untuk mengetahui perbedaan kadar antibodi S-RBD berdasarkan derajat keparahan pada penyintas COVID-19.

**Metode:** Desain penelitian ini *cross sectional* dengan kriteria inklusi penyintas COVID-19, usia  $\geq 18$  tahun, tidak divaksinasi, setuju terlibat dalam penelitian serta bersedia datang ke Instalasi Laboratorium Terpadu RSUP Dr. Sardjito untuk dilakukan pengambilan sampel darah vena serta pemeriksaan antibodi S-RBD. Kriteria eksklusi: data rekam medik dan elektronik tidak lengkap, sampel lisis, subjek mengundurkan diri, hamil. Perbandingan parameter penelitian dianalisis menggunakan *One Way Anova* atau *Kruskal Wallis*. Analisis data menggunakan *IBM SPSS Statistic 25* dengan nilai  $p < 0,05$  dianggap bermakna secara statistik

**Hasil :** Subjek penelitian secara keseluruhan adalah 48 subjek yang memenuhi kriteria inklusi dan eksklusi. Rerata usia subjek penelitian adalah  $45,10 \pm 14,03$  dengan didominasi oleh laki-laki dibandingkan perempuan (52,1% vs 47,9%). Subjek penelitian sebagian besar obesitas dengan IMT  $\geq 25$  (45,8%) dan didominasi penyintas dengan komorbid hipertensi (27,1%). Kadar antibodi S-RBD signifikan lebih tinggi pada derajat berat dibandingkan derajat sedang maupun ringan. Kadar antibodi S-RBD signifikan lebih tinggi pada penyintas dengan komorbid dibandingkan penyintas tanpa komorbid serta lebih tinggi pada penyintas dengan hipertensi dibandingkan tanpa hipertensi.

**Simpulan :** Penelitian ini membuktikan bahwa kadar antibodi S-RBD penyintas COVID-19 signifikan lebih tinggi pada derajat berat dibandingkan derajat sedang maupun ringan.

**Kata kunci :** COVID-19, penyintas COVID-19, antibodi S-RBD COVID-19

## ABSTRACT

**Background:** The COVID-19 pandemic is increasing morbidity and mortality rates, so identifying risk factors is important to prevent severity. The Spike-Receptor Binding Domain (S-RBD) protein is key to virus entry into cells. SARS-CoV-2 specific antibodies, particularly those that prevent the interaction of the spike RBD with the ACE2 receptor in the host can provide protective immunity, and influence the clinical outcome of COVID-19 patients. Severely ill patients develop a higher SARS-CoV-2 specific antibody response than outpatients and asymptomatic individuals. To date, there have been no studies investigating S-RBD antibody levels based on severity in COVID-19 survivors, especially at Dr Sardjito Hospital.

**Objective:** The purpose of this study was to determine differences in S-RBD antibody levels based on the degree of severity in COVID-19 survivors.

**Methods:** The design of this study was cross sectional with the inclusion criteria of COVID-19 survivors, age  $\geq 18$  years, not vaccinated, agreeing to be involved in the study and willing to come to the Integrated Laboratory Installation of Dr Sardjito Hospital for venous blood sampling and S-RBD antibody testing. Exclusion criteria: incomplete medical and electronic record data, sample lysis, subject resignation, pregnancy. Comparison of study parameters was analysed using One Way Anova or Kruskal Wallis. Data analysis using IBM SPSS Statistic 25 with a p value of  $<0.05$  was considered statistically significant.

**Results:** The overall study subjects were 48 subjects who met the inclusion and exclusion criteria. The mean age of the study subjects was  $45.10 \pm 14.03$  with dominated by men compared to women (52.1% vs 47.9%). The study subjects were mostly obese with BMI  $\geq 25$  (45.8%) and dominated by survivors with comorbid hypertension (27.1%). S-RBD antibody levels were significantly higher in severe than in moderate and mild degrees. S-RBD antibody levels were significantly higher in survivors with comorbidities than survivors without comorbidities and higher in survivors with hypertension than without hypertension.

**Conclusion:** This study proves that the S-RBD antibody levels of COVID-19 survivors are significantly higher in severe degrees than in moderate or mild degrees.

**Keywords:** COVID-19, COVID-19 survivors, COVID-19 S-RBD antibodies