

INTISARI

Latar belakang: Coronavirus *diseases* (COVID 19) menjadi pandemi global dengan angka kematian dan kesakitan yang tinggi. Vaksin SARS CoV-2 *inactivated* diharapkan dapat membentuk antibodi SARS CoV-2 seperti setelah infeksi COVID 19. Antibodi diharapkan akan melindungi dari infeksi ulang berikutnya. Evaluasi delta kadar antibodi S-RBD SARS CoV-2 di antara pascavaksinasi SARS CoV-2 *inactivated* dan pascainfeksi COVID 19 diharapkan dapat memberi gambaran mengenai respon imun yang muncul dari dua proses ini.

Tujuan: Penelitian ini bertujuan mengevaluasi perbandingan delta kadar antibodi S-RBD SARS CoV-2 bulan 1 dan 3 pada pascavaksinasi dibandingkan pasca infeksi COVID 19.

Metode: Desain penelitian ini kohort prospektif. Kriteria inklusi adalah subjek dengan usia ≥ 18 tahun, tidak memiliki gangguan sistem imunokompeten, tidak hamil. Kriteria eksklusi pada pascavaksinasi, tidak ada riwayat terinfeksi COVID 19 sebelumnya, sedangkan pada pascainfeksi, tidak ada riwayat vaksinasi SARS CoV-2 sebelum terinfeksi COVID 19. Kedua kelompok subjek akan diambil sampel darah pada 1 bulan dan 3 bulan setelah vaksinasi ke dua pada penerima vaksin dan setelah selesai terapi dan atau selesai isolasi mandiri pada pascainfeksi. Analisis univariat terkait demografik pasien, analisis bivariat diuji menggunakan *chi-square* dengan tingkat kemaknaan $p < 0,05$. Hasil delta kadar antibodi S-RBD SARS CoV-2 bulan ke 1 dan ke 3 di antara pascavaksinasi dan pascainfeksi dilakukan uji beda antara kedua kelompok. Data dianalisis dengan menggunakan *software* SPSS versi 25 .

Hasil: Subjek penelitian secara keseluruhan adalah 132 subjek yang terdiri dari 73 subjek pascavaksin dan 59 subjek pascainfeksi. Subjek pascavaksin didominasi penurunan kadar antibodi S-RBD SARS CoV-2 bulan 1 dan 3 dengan median penurunan kadar antibodi sebesar 16,34 U/mL (-203,87-18,51 U/mL). Subjek pascainfeksi didominasi peningkatan kadar antibodi dengan median kadar antibodi sebesar 41,8 U/mL (-429-6798 U/mL). Subjek pascavaksin memiliki kemungkinan lebih kecil mengalami peningkatan kadar antibodi dibandingkan subjek pascainfeksi dengan nilai *odds ratio* (OR) 0,12 (CI 95% 0,06-0,26).

Simpulan: Delta antibodi S-RBD SARS CoV-2 bulan 1 dan 3 antara pascavaksinasi dibanding pascainfeksi COVID 19 berbeda signifikan dengan nilai $p = 0,001$. Delta antibodi pascavaksin cenderung menurun, sedangkan pascainfeksi cenderung meningkat.

Kata kunci: COVID 19, pascavaksinasi SARS CoV-2 *inactivated*, pascainfeksi COVID 19, delta antibodi S-RBD SARS CoV-2

ABSTRACT

Background: Coronavirus disease (COVID-19) has become a global pandemic with high mortality and morbidity value. The inactivated SARS CoV-2 vaccine is expected to produce SARS CoV-2 antibodies look alike it happened on someone who has recovered from a COVID-19 infection. The antibodies are expected to protect against subsequent reinfection. The evaluation of the delta levels S-RBD SARS CoV-2 antibodies between inactivated SARS CoV-2 post-vaccination and post COVID-19 infection can provide an overview of the immune response that appears.

Purpose: To evaluate the delta comparison of the S-RBD SARS-CoV-2 antibody levels in the first months and third month, in post-vaccination compare to post-infection COVID-19 subject.

Methods: This is a prospective cohort study. Inclusion criteria were subjects ≥ 18 years old, don't have impaired immunocompetent systems and not pregnant. Exclusion criteria for post-vaccination subject, there is no history of previous infection with COVID-19, whereas for post-infection subject, there is no history of vaccination SARS-CoV-2 before being infected COVID-19. Both subject groups will taken of blood samples at 1 month and 3 months after the second vaccination for post-vaccination subject and after take a complete of therapy and/or a complete of independent isolation in post-infection subject. Univariate analysis used to analyzed subject demographics, bivariate analysis was tested using chi-square with a significance level of $p < 0.05$. Further analysis used to measured SARS CoV-2 S-RBD antibody levels compared the changes of 1st and 3rd months between post-vaccination and post-infection subject. The difference of delta antibody was carried out by different test between two groups. Data were analyzed using SPSS software version 25.

Result: The whole subjects were 132 subjects consisting of 73 post-vaccination subjects and 59 post-infection subjects. Post-vaccination subjects were dominated by a decrease in S-RBD SARS CoV-2 antibody levels in first month to third month with a median decrease in antibody levels of 16.34 U/mL (-203.87-18.51 U/mL). Post-infection subjects were dominated by increased antibody levels with a median antibody level of 41.8 U/mL (-429-6798 U/mL). Post-vaccine subjects were less likely to have elevated antibody levels than post-infected subjects with an odds ratio (OR) of 0.12 (95% CI 0.06-0.26).

Conclusion: The delta of S-RBD SARS CoV-2 antibody first month to third month between post-vaccination and post COVID 19 infection was significantly different with a $p=0.001$. Post-vaccination antibody delta tends to decrease, while post-infection tends to increase.

Keywords: COVID-19, pascavaccination inactivated SARS CoV-2, pascainfeksi COVID-19, Delta of SARS CoV-2 S-RBD antibody