

Clinical and Immunological Characteristics in COVID-19 Convalescent Patients

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Abstract

Objective The immune responses of COVID-19 convalescent patients have not been well described. **Methods** Blood from thirty COVID-19 convalescent patients who were virus-free were collected. Their clinical laboratory findings and SARS-CoV-2-specific humoral and cellular immunity were detected. **Results** At 283 days after diagnosis of SARS-CoV-2 infection, the levels of clinical laboratory indicators and lymphocyte subtypes returned to normal levels. However, the ratio of memory/naive CD4+ T lymphocytes cells was greater in COVID-19 convalescent patients and severe COVID-19 convalescent patients, when compared with that in healthy blood donors ($P=0.0135$) and non-severe patients ($P=0.0431$), respectively. The levels of anti-SARS-CoV-2-IgM ($P=0.014$), S1-IgM ($P=0.0004$) and RBD-IgM ($P=0.0002$) in severe COVID-19 patients were all significantly greater than those in non-severe COVID-19 patients. When the serums of COVID-19 convalescent patients were diluted as 1:125, the predictive of serum neutralization capabilities were persistent in all patients. SARS-CoV-2-specific T cells were generated and maintained in majority of tested convalescent COVID-19 patients, regardless of the severity of disease in acute phase. **Conclusion** At 283 days after diagnosis of SARS-CoV-2 infection, specific cellular and humoral immunity against SARS-CoV-2 could be detectable. The severity of disease in acute phase cannot affect the strength of cellular and humoral immunity in convalescent phase.

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