

Mirage of Waning Immunity against SARS CoV-2

Kapil Goyal*, Parakriti Gupta, Poonam Chauhan, Sangeetha K, Komal Chikkara, Mini P Singh

Department of Virology, Postgraduate Institute of Medical Education and Research, Chandigarh, India

ABSTRACT

A deadly pneumonia outbreak of unknown etiology emerged in Wuhan, China in December, 2019, which soon gripped whole of the world and was subsequently declared as 'first ever pandemic caused by any coronavirus till date' by World Health Organization. The agent responsible for this apocalypse was identified as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the infection was officially named as coronavirus disease (COVID-19).

Keywords: SARS CoV-2; IgG; Hope-Simpson's

DESCRIPTION

Since then, scientists have been scrupulously trying to decipher the immunological basis of COVID-19 to have a better insight for timely diagnosis and management. Role of IgG is being increasingly underscored in diagnosis as well as a marker of immunity against the infection and many serological tests have also been developed to detect the same. Recent studies have shown varied kinetics of IgG among critically ill and mildly ill patients. It has been noted that IgG against spike protein is more protective than IgG against N protein and severely-ill patients had more amount of IgG against N protein than S protein and was vice-versa in mildly affected patients, underlining the fact that mere presence of IgG isn't protective for one and all [1-6]. Others have shown that IgG antibody response was statistically significant between severe and mild cases only after day 15 of onset and severely ill patients had a more vigorous antibody response. Moreover, few studies have shown that asymptomatic individuals infected with SARS CoV-2 mount a weak immune response and those IgG antibodies tend to persist for a shorter duration as compared to symptomatic patients. An important issue of 'shield immunity' and 'immunity passport' in the light of decreasing antibody titres in convalescent phase is also being reported pertaining to the infection. However, it is too early to predict that decrease in IgG neutralizing antibodies against SARS CoV-2 may pose an additional risk of reinfection. The pandemic is just few months old and natural kinetics of antibody titres is difficult to be predicted for longer duration. Since majority of COVID 19 cases are asymptomatic (45%), it is possible that once there is florid community transmission, frequent exposures might trigger the production of antibodies from memory cells, thereby, augmenting the protective immune response [7-10]. The Hope-Simpson's progressive immunity hypothesis in case of Herpes Zoster may hold true for SARS CoV-2 infection as well.

As per Hope-Simpson's hypothesis, cell-mediated immunity against Herpes Zoster increases after each episode of exposure to varicella zoster virus. Analogously, repeated exposures of SARS CoV-2 in community may act as a booster dose among convalescent individuals also, in order to mount a strong immune response and to provide long term immunity, even if the IgG antibody titre is decreasing. As the total numbers of cases are still on a rise in many nations, it is too early to conclude pertaining short term immunity due to natural infection. If natural infection is generating short-term immunity, thereby vaccine candidates in the pipeline might also face similar challenges and fate, in terms of need for frequent vaccination via booster doses [11-13].

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CONFLICT OF INTEREST

None

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Correspondence to: Kapil Goyal, Department of Virology, Postgraduate Institute of Medical Education and Research, Chandigarh, India, E-mail: kapilgoyalpgi@gmail.com

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