

# Horse hyperimmune serum for the treatment of COVID 19

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## Immune Globulin

Commercially available immune globulin (IGIV, IVIG,  $\gamma$ globulin) is derived from pooled plasma and contains many antibodies normally present in adult human blood; used for replacement therapy in patients with primary humoral immunodeficiency who are unable to produce sufficient IgG antibodies and also used to provide passive immunity to certain viral infections in other individuals. (1) Investigational SARS-CoV-2 immune globulin is a concentrated immune globulin preparation containing specific antibody derived from the plasma of individuals who have recovered from COVID-19.(16) Immune globulin preparations containing antibodies specific to SARS-CoV-2 may theoretically help suppress the virus and modulate the immune response to COVID-19 infection. (2, 16) Commercially available preparations of immune globulin (IGIV, IVIG,  $\gamma$ globulin) may contain antibodies against some previously circulating coronaviruses; (2) however, depending on time of donor plasma collection, such preparations may not contain antibodies against SARS-CoV-2. (3)

**Trials** SARS Experience: IGIV has been used in the treatment of SARS. (4-7, 15) Benefits were unclear because of patient comorbidities, differences in stage of illness, and effect of other treatments; (5) IGIV may have contributed to hypercoagulable state and thrombotic complications in some patients. (6, 7) COVID-19 case reports in China (Cao et al): Treatment with IGIV at the early stage of clinical deterioration was reported to provide some clinical benefit in 3 adults with severe COVID-19; 2 patients also received antivirals and 1 patient also received short-term steroid treatment. Patients were afebrile within 1-2 days and breathing difficulties gradually improved within 3-5 days

of IGIV administration. (8) COVID-19 clinical experience in China: IGIV has been used as an adjunct in the treatment of COVID-19 and has been mentioned in Chinese guidelines as a possible treatment option for severe and critically ill children with COVID-19. (9-11, 14) Efficacy data not available from controlled clinical studies to date. Several clinical studies have been initiated to evaluate efficacy and safety of IGIV or SARS-CoV-2 immune globulin in patients with COVID-19, including the following trials: (12) NCT04264858 NCT04350580 NCT04381858 NCT04261426

**Dosage:**

IGIV dosage of 0.3-0.5 g/kg daily for 5 days has been used in some patients with COVID-19 (8, 12)

**Comments;**

Role of commercially available immune globulin (IGIV, IVIG,  $\gamma$ -globulin) and investigational SARS-CoV-2 immune globulin in the treatment of COVID-19 unclear. (16) The Surviving Sepsis Campaign COVID19 subcommittee suggests that IGIV not be used routinely in critically ill adults with COVID-19 because efficacy data not available, currently available IGIV preparations may not contain antibodies against SARS-CoV-2, and IGIV can be associated with increased risk of severe adverse effects (e.g., anaphylaxis, aseptic meningitis, renal failure, thromboembolism, hemolytic reactions, transfusion-related lung injury). (13) The NIH COVID-19 Treatment Guideline Panel recommends against the use of commercially available IGIV (i.e., non-SARS-CoV-2-specific IGIV) for the treatment of COVID-19 except in the context of a clinical trial and states that current IGIV preparations are not likely to contain SARS-CoV-2 antibodies. (16) This does not preclude the use of IGIV when it is otherwise indicated for the treatment of complications arising during the course of COVID-19 disease. (16) The NIH Treatment Panel states that there are insufficient data to recommend for or against the use of investigational SARS-CoV-2 immune globulin for the treatment of COVID-19.

## References

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