The clinical efficacy of biological immunomodulators in SARS-CoV-2- associated multisystem inflammatory syndrome in children: A systematic review

Jong Gyun Ahn[1], Ji Young Lee[1], Jimin Kim[2], Soo-Han Choi[3], Dong Hyun Kim[4], Ki Wook Yun[1], Yae Jean Kim[5], and Miyoung Choi[2]

[1]Seoul National University College of Medicine Department of Pediatrics
[2]National Evidence-Based Healthcare Collaborating Agency
[3]Pusan National University School of Medicine
[4]Inha University School of Medicine
[5]Sungkyunkwan University

May 8, 2023

Abstract

The clinical efficacy of biological immunomodulators in patients refractory to standard therapy of intravenous immunoglobulin (IVIg) and glucocorticoids remains unclear. This review aimed to outline real-world data on the clinical outcomes of biological immunomodulators using Ovid-Medline, EMBASE, Cochrane CDSR, and the Korean database, KMBASE from September 2021 to August 2022. Among 251 studies , 10 were selected, of which two were observational studies with control groups receiving a standard therapy of IVIg and/or glucocorticoids. In total, 145 patients were treated with biological agents. In the first study with a control group, anakinra-treated group exhibited a lower left ventricular ejection fraction at baseline (54% vs. 60%, $P = 0.08$). Patients in the infliximab group of second study showed lesser additional treatment requirements (31% vs. 65%, $P = 0.01$), and lower rate of newly developed left ventricular dysfunction (4% vs. 20%, $P = 0.05$). The remaining eight single-arm studies did not report the clinical outcomes of each type of biological immunomodulator individually, limiting further interpretation. The findings of this review imply the potential of biological immunomodulators as a feasible therapeutic option for refractory MIS-C.

Hosted file

`Manuscript.docx` available at https://authorea.com/users/615820/articles/642061-the-clinical-efficacy-of-biological-immunomodulators-in-sars-cov-2-associated-multisystem-inflammatory-syndrome-in-children-a-systematic-review