*Malaysian Journal of Pharmaceutical Sciences*
*Vol. 22, No. 1, 105–137 (2024)*

# USE OF INFLIXIMAB IN THE TREATMENT OF IMMUNE CHECKPOINT INHIBITORS-RELATED MYOCARDITIS: A SYSTEMATIC REVIEW OF CASE REPORTS

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**Published online:** 27 May 2024
**To cite this article:** PHING, K. C., GNANASAN, S. & TANGIISURAN, B. (2024) Use of infliximab in the treatment of immune checkpoint inhibitors-related myocarditis: A systematic review of case reports, *Malaysian Journal of Pharmaceutical Sciences*, 22(1): 105–137, https://doi.org/10.21315/mjps2024.22.1.7
**To link to this article:** https://doi.org/10.21315/ mjps2024.22.1.7

## ABSTRACT

*Immune-mediated myocarditis is uncommon, progresses rapidly and has high mortality rate. Infliximab has been used in practice, particularly in steroid refractory cases, but evidence supporting the use is still lacking. This review aims to provide an overview of infliximab use in managing immune-related myocarditis. A systematic search was conducted using the PubMed and Cochrane Library databases as well as manual searching of bibliographies, from inception to 1 October 2021. Eligible studies were selected by the inclusion criteria. All the included studies were assessed for methodological quality using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Case Reports. There were 13 articles with total 14 reported cases of immune-related myocarditis treated with infliximab. Most patients developed myocarditis with high severity grade, concurrent immune-related adverse events (irAEs), particularly neuromuscular irAEs and multiple potentially fatal complications. Most patients received single dose of infliximab, whereas few received multiple doses. Four patients improved clinically or biochemically, but 10 patients did not improve or deteriorated clinically with the addition of infliximab. Half of the reported cases did not survive due to myocarditis and its complications. Conflicting results were observed when infliximab was used in patients with heart failure and higher dose did not appear to be beneficial in these patients. Concomitant irAEs, high severity grade and occurrence of potentially fatal complications indicate the need to escalate the treatment by using additional immunosuppressive agents such as infliximab. However, there is no standardisation on the infliximab treatment regimen, outcomes have been inconsistent and safety data is limited.*

***Keywords:*** Infliximab, Cardiotoxicity, Myocarditis, Immune checkpoint inhibitors, Immunotherapy

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