

Clinical Outcomes of Omega-3 Fatty Acid Supplementation in Sepsis: A Review

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ABSTRACT

Introduction: Sepsis is a critical condition characterised by systemic inflammation and immune dysregulation, leading to significant morbidity and mortality worldwide. In 2017, sepsis was associated with approximately 48.9 million cases and 11 million deaths, accounting for nearly 20% of global fatalities. Effective therapeutic interventions are essential to mitigate its impact. Omega-3 Fatty Acids (FAs) are bioactive lipids known for their immunomodulatory and anti-inflammatory properties, which may influence clinical outcomes in sepsis.

Aim: This review aims to assess the impact of Omega-3 FAs supplementation on various clinical parameters in sepsis, including inflammation, haemodynamic, respiratory function, coagulation, and neurological status.

Materials and Methods: A narrative review was conducted using PubMed and Google Scholar. Relevant studies reporting the effects of Omega-3 FAs administration on clinical outcomes in sepsis were analysed, focusing on inflammatory markers, metabolic parameters, and patient recovery indicators.

Results: Studies indicate that Omega-3 FAs supplementation correlates with improved clinical outcomes in sepsis. Patients receiving Omega-3 FAs exhibited reduced inflammatory markers, including significantly lower C-reactive protein levels. Haemodynamic parameters showed antiarrhythmic effects and blood pressure reduction, while oxygenation indices and gas exchange parameters improved. Coagulation-related outcomes demonstrated reduced platelet aggregation, and metabolic parameters reflected positive modulation, including lower triglyceride levels and enhanced liver function. Neurological assessments indicated improved Glasgow Coma Scale scores, while renal function markers suggested a reduced risk of proteinuria. Several studies also reported a reduction in hospital stay length and mechanical ventilation duration.

Conclusion: The findings suggest that Omega-3 FA supplementation may provide beneficial effects in sepsis by modulating inflammation, coagulation, haemodynamic, and respiratory function, and neurological status. Further research is needed to develop standardised protocols for its clinical application.

Keywords: Critical care, Immune dysregulation, Inflammation

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