Prognostic Value of Neutrophil-to-Lymphocyte Ratio in Patients with Acute Decompensated Heart Failure: A Meta-analysis

Is high NLR associated with Increased Mortality in Patients with ADHF?

HIGHLIGHTS

- Higher NLR is associated with increased short and long-term mortality in patients with ADHF
- Strength: Large sample size, Robust analysis
- Limitation: Confounding bias could not be entirely ruled out

BACKGROUND

- Inflammation plays a pivotal role in the pathogenesis in both acute and chronic heart failure.
- Recent studies showed that neutrophil-to-lymphocyte ratio (NLR) could be related to adverse outcomes in patients with cardiovascular diseases.
- To evaluate whether NLR is associated with increased mortality in patients with acute heart failure

METHODS

- Literature search in PubMed, Embase and Cochrane
- Studies comparing the outcomes between high and low NLR in ADHF patients
- In-hospital mortality, long-term all-cause mortality
- Random-effects model
- Hazard ratio/Odds ratio (HR/OR) with 95% confidence intervals (CI).

RESULTS

- 9 studies with 10,154 patients with acute heart failure
- Follow-up period of 2.14 years
- Elevated NLR \( \rightarrow \) significantly higher in-hospital mortality (HR/OR 1.77, 95% CI 1.36-2.30, \( p < 0.001 \)).
- Elevated NLR \( \rightarrow \) significantly higher long-term all-cause mortality (HR/OR 1.66, 95% CI 1.46-1.90, \( p < 0.001 \)).
- Remained significant after sensitivity analysis via leave-one-out method
- No difference between tertile-based and cut-off based studies in subgroup analysis

CONCLUSION

- Elevated NLR is associated with increased short and long-term mortality in patients with ADHF.
- Results are hypothesis generating and warrant confirmation
- Further studies should explore the risk factors of mortality and evaluate whether thyroid replacement therapy could yield benefit in this group of patients.

DISCLOSURE INFORMATION

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