

## Relationship of post-revival fiery reaction with good neurologic results in grown-ups with in-emergency clinic heart failure

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### Background

Early prediction of mortality in adults after in-hospital cardiac arrest (IHCA) remains vital to optimizing treatment strategies. Inflammatory cytokines specific to early prognostication in this population have not been well studied. We evaluated whether novel inflammatory cytokines obtained from adults with IHCA helped predict favorable neurologic outcome.

### Methods

The study population included adults with IHCA who underwent ACLS-guided resuscitation between March 2014 and May 2019 at an academic tertiary medical center. Peripheral blood samples were obtained within 6, 24, 48, 72, and 96 h of IHCA and analysis of 15 cytokines were performed. The primary outcome of interest was presence of favorable neurologic outcome at hospital discharge, defined as a Glasgow Outcome Score of 4 or 5.

### Results

Of the 105 adults with IHCA studied, 27 (25.7%) were noted to have survival with a favorable neurologic outcome while 78 (74.3%) did not. Patients who survived with favorable neurologic outcome were more often men (88.9% vs 61.5%,  $p=0.008$ ) and had higher rates of ventricular tachyarrhythmias as their initial rhythm (34.6% vs 11.7%,  $p=0.018$ ). Levels of interleukin (IL)-6, IL-8, IL-10, and Tumor Necrosis Factor (TNF)-R1 within 6 or 24 h were significantly lower in patients with favorable neurologic outcome compared with those who had unfavorable neurologic outcome. In multivariable analysis, IL-10 levels within 6 h was the only independent predictor of favorable neurologic outcomes [odds ratio (OR) 0.895, 95% confidence interval 0.805–0.996,  $p=0.041$ ].

### Conclusion

In this contemporary observational study of adults with IHCA receiving ACLS-guided resuscitative and post-resuscitative care, inflammatory cytokines specific to early prognostication in adults with IHCA exist. Further larger scale studies examining the association of these inflammatory cytokines with prognosis are warranted.