

# Estrogen as a safe therapeutic adjunct in reducing the inflammatory storm in Trauma hemorrhagic shock patients

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## Abstract

Trauma is a major cause of morbidity and mortality throughout the world. Alarming the mortality rate, owing to multiple causes with or without sepsis, is now reported to cross the value of 50%. The preliminary study was conducted in humans to investigate the 1) safety of estrogen therapy following trauma hemorrhage 2) Does estrogen reduced the inflammatory storms caused due to trauma 3) Does estrogen affects the survival of THS patients and prevent the advancement of sepsis-associated problems. 40, THS patients and 20 healthy controls were recruited. THS patients were divided into experimental groups and placebo controls based on the estrogen administration in the ED. Serum level of cytokines and immune cells were measured at different time points on days 0, 3, 7, and 14 in both groups of THS patients. Patients receiving intravenous estrogen beside standard of care as per ATLS guidelines did not develop any major or minor adverse events and showed favorable clinical outcomes during their course of stay in the ED and ICU. The levels of T regulatory cells, monocytes, and systemic cytokines were significantly reduced in THS patients who received estrogen. Again, THS patients who received estrogen recovered early, do not have side effects and showed a balanced inflammatory response. In conclusion, this preliminary study showed that intravenous estrogen therapy is safe and overcame the problem of inflammatory insults caused due to trauma hemorrhagic shock. It may protect from sepsis-associated complications among THS patients.

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