



Hypoinflammatory Effect of Pomegranate Extract Treatment On Survival Rate, Bacterial Load and Organ Failure in Septicemic Rats

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Abstract:

Given the fact that optimal immune and inflammatory responses are needed to contain the infection, the aim of this study was to evaluate the effect of high dose pomegranate extract administration on oxidative and inflammatory responses after infection induction in septic rats. Sepsis was induced by Cecal Ligation and Perforation model (CLP). Adult male Wistar rats were divided into three groups of each, eight animals: Sham; CLP and POMx (which consumed POMx 250 mg of pomegranate fruit extract/kg/day) for four weeks prior to CLP Surgery. Results of the study showed that Peritoneal neutrophil myeloperoxidase activity was significantly lower in POMx compared with Sham and CLP groups ($p < 0.01$ and $p < 0.05$, respectively). Despite higher antioxidant enzymes levels in POMx group after sepsis induction, lower serum total antioxidant status (TAS) ($p < 0.01$ compared with both CLP and Sham groups) and higher liver thiobarbituric acid reactive species (TBARS) levels were obtained in this group ($p < 0.01$ and $p < 0.05$, compared with Sham and CLP groups, respectively). In Conclusion our study demonstrates that pomegranate extract could increase mortality rate via increasing peritoneal cavity bacterial load, in CLP sepsis model. POMx consumption prior to sepsis induction, suppressed the vital function of neutrophils in early hours of sepsis induction, thus resulted in higher oxidative stress observed in POMx group after CLP induction. The results may suggest that despite its anti-inflammatory action in chronic conditions, pomegranate may not work properly in rapid progressing conditions like sepsis.

Biography:

Shahryar Eghtesadi received Bachelor degree in Nutrition Science and Food Chemistry 1975, from Shahid Beheshti University of Medical Sciences, Tehran; MSPH degree in Nutrition, 1977, from Tehran University of Medical Sciences, Tehran and PhD from University of California at Davis (UCD), USA, in Nutrition (1985). He served as Visiting Scientist in USDA Human Nutrition Research Center on Aging (HNRCA), Boston,



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Webinar on Novel COVID-19, Public Health & Healthcare | 12th October, 2020 | Dubai, UAE

Citation: Shahryar Eghtesadi, Hypoinflammatory Effect of Pomegranate Extract Treatment On Survival Rate, Bacterial Load and Organ Failure in Septicemic Rats, Novel Covid-19, 2020, 12th October, Dubai, UAE