



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

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Abstract:

Statement of the Problem: 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. Methodology & Theoretical Orientation: 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: The results of 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). Conclusion & Significance: 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 (HNRC), Boston, USA (1994-1995); Full professor of Tabriz, Iran and Tehran Universities of Medical Sciences and currently serves as Professor of Azad University, Science & Research Branch. He was the chairs of Departments of Nutrition and Biochemistry, Biochemistry & Clinical Nutrition, Public Health Nutrition and Nutrition in aforementioned Universities respectively. Also



Served as Associate Dean and Dean of School of Public Health & Nutrition and School of Public Health of Tabriz and Iran Universities of Medical Sciences respectively. He was selected as distinguished professor and Scientist. For long and extended period of time, experienced teaching various courses in nutrition in undergraduate, graduate and postgraduate and international Bureau programs and directed many projects and dissertation of MS and PhD programs and Published numerous peer reviewed articles in journals and also edited several books and finally served as Principal Investigator of World Bank Project for Capacity Building in Nutrition in Iran. Email:

Recent Publications:

1. Tavakoli A, Abollahzad-Zadeh H, Nachvak SM, Pasdar Y, Eghtesadi S, Izadi A, Aghdashi MA, Mohammad-Hosseini-Azar MR, Moradi S, Mehaki B, Moradi S. Effects of Chromium Picolinate Supplementation on Cardiometabolic Biomarkers in Patients with Type 2 Diabetes Mellitus: a Randomized Clinical Trial. *Clin Nutr Res*. 2020 Apr;9(2): 97-106.
2. Adab Z, Eghtesadi S, Vafa MR, Heydari I, Shojaii A, Haqqani H, Arablou T, Eghtesadi M. Effect of turmeric on glycemic status, lipid profile, hs-CRP and total antioxidant capacity in hyperlipidemic type 2 diabetes mellitus patients. *Phytotherapy Research* 2019; Apr 12; 33(4): 1173-1181.
3. Tavasoli S, Eghtesadi S, Vafa M, Moradi-Lakeh M, Sadehipour A, Zarnani AM. High Dose Pomegranate Extract Suppresses Neutrophil Myeloperoxidase and Induces Oxidative Stress in Rat Model of Sepsis. *International Journal for Vitamin and Nutrition Research*, April, 2019 April, 89(5-6): 1-14.

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