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THE EFFECT OF POMEGRANATE EXTRACT ON SURVIVAL AND PERITONEAL BACTERIAL LOAD IN CECAL LIGATION AND PERFORATION MODEL OF SEPSIS RAT

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Sepsis is one of the major causes of death in intensive care units. Oxidative stress and hyper-inflammation has been shown to be major cause of mortality and morbidity in septic cases. Pomegranate is a fruit which is considered for its antioxidant and anti-inflammatory properties. The aim of this study was to evaluate the effect of POMx, a standard pomegranate extract, on mortality and peritoneal bacterial load in cecal ligation and perforation (CLP) model of sepsis in rats. Male Wistar rats were divided into four groups: sham; CLP; prevention [consumed POMx (250 mg of polyphenols/kg/day) for four weeks and subjected to CLP]; treatment [subjected to CLP and then received a single drink of POMx (250 mg of polyphenols/kg)]. Sepsis was induced by CLP surgery. 10 days survival rate of all groups (subdivided into with and without antibiotics subgroups) were recorded. Peritoneal bacterial load of animal was also assessed. Data were analysed using log-rank and Kruskal-Wallis tests. There were no significant differences in survival rates of CLP, prevention and treatment groups, in subgroups without antibiotics. However, in subgroups with antibiotics, the prevention group had significantly lower survival rate than sham group ($p<0.05$). Conversely, the bacterial load of prevention and treatment group were significantly higher than sham group ($p<0.01$). In conclusion, our study demonstrated that pomegranate extract could increase mortality rate via increasing peritoneal cavity bacterial load, in CLP model of sepsis. More studies to assess mechanisms of this effect are warranted.

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