The Effect of Pomegranate Extract on Inflammatory Biomarkers and Nutrition of Hemodialysis Patients

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OBJECTIVES

Inflammation is an inevitable part in pathophysiology of complications of end-stge renal disease (ESRD). Among all inflammatory cytokines, interleukin-6 (IL-6) and C-reactive protein (CRP) are well known for their best clinical correlation. The aim of this study was to see whether pomegranate juice would significantly reduce levels of inflammatory markers and/or improve malnutrition.

METHODS

The study took place in two university-based hemodialysis centers. All eligible ESRD patients aging over 18 years receiving hemodialysis thrice weekly for at least three consecutive months were asked to take part in the study. 79 eligible patients signed the informed consent and 51 participants completed the trial to the end. The study was double-blinded and placebo controlled. The participants were randomly allocated to two groups.They received either 2g of pomegranate extract or placebo one hour before the start of their dialysis session (three times a week) for 8 weeks. Before and after the completion of the intervention, interleukin-6, leptin and CRP were checked in blood samples of the participants. Nutritional status was evaluated by Malnutrition Inflammation Score (MIS). The statistical analysis was performed using SPSS software (version 23). A *p* value of less than 0.05 was considered significant.

RESULTS

Decreases in interleukin-6 (39.31 in pomegranate extract group versus 15.66 in placebo group) and MIS (0.72 in pomegranate extract group versus 0.53 in placebo group) were statistically significant (*p* value=0.035 and 0.016, respectively). Differences between other pre- and post- data were not statisticlly significant. These included differences in leptin, highly sensitive CRP, lipid profile, PTH, hemoglobin and total weekly Erythropoietin analogue need, calcium and phosphorus as well as weight and BMI.

CONCLUSIONS

Short-term use of pomegranate extract would effectively decrease interleukin-6 and Malnutrition Inflammation Score (MIS). Changes in hsCRP and leptin were not statistically significant in our study.

REFERENCES

1) Shema-Didi L, Sela S, Ore L, et al. One year of pomegranate juice intake decreases oxidative stress, inflammation, and incidence of infections in hemodialysis patients: a randomized placebo-controlled trial. Free Radic Biol Med. 2012 Jul 15;53(2):297-304.
2) Shema-Didi L, Kristal B, Sela S, et al. Does Pomegranate intake attenuate cardiovascular risk factors in hemodialysis patients? Nutr J. 2014 Mar 4;13:18.
3) Shema-Didi L, Kristal B, Ore L, et al. Pomegranate juice intake attenuates the increase in oxidative stress induced by intravenous iron during hemodialysis. Nutr Res. 2013 Jun;33(6):442-6.
4) Rivara MB, Mehrotra R, Linke L, et al. A pilot randomized crossover trial assessing the safety and short-term effects of pomegranate supplementation in hemodialysis patients. J Ren Nutr. 2015 Jan;25(1):40-9.
5) Wu PT, Fitschen PJ, Kistler BM, et al. Effects of Pomegranate Extract Supplementation on Cardiovascular Risk Factors and Physical Function in Hemodialysis Patients. J Med Food. 2015 Sep;18(9):941-9.
6) Kara E, Sahutoglu T, Ahbap E, et al. The predictive value of malnutrition - inflammation score on 1-year mortality in Turkish maintenance hemodialysis patients. Clin Nephrol. 2016 Aug;86(2):94-9.
7) Lopes MB, Silva LF, Lopes GB, et al. Additional Contribution of the Malnutrition-Inflammation Score to Predict Mortality and Patient-Reported Outcomes as Compared With Its Components in a Cohort of African Descent Hemodialysis Patients. J Ren Nutr. 2016 Oct 19. pii: S1051-2276(16)30087-5.
8) Sohrabi Z, Eftekhari MH, Eskandari MH, et al. Malnutrition-inflammation score and quality of life in hemodialysis patients: is there any correlation? Nephrourol Mon. 2015 May 23;7(3):e27445.
9) den Hoedt CH, Bots ML, Grooteman MP, et al. Clinical predictors of decline in nutritional parameters over time in ESRD. Clin J Am Soc Nephrol. 2014 Feb;9(2):318-25.
10) Snaedal S, Qureshi AR, Lund SH, et al. Dialysis modality and nutritional status are associated with variability of inflammatory markers. Nephrol Dial Transplant. 2016 Aug;31(8):1320-7.

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