Investigating the effect of sumac fruit on liver function tests, fasting blood sugar and common complications of dialysis in hemodialysis patients

Abstract

Introduction: Sumac fruit acts as an antioxidant due to the presence of phenolic compounds. The present study aims to investigate the effect of sumac fruit on liver function tests, fasting blood sugar, and the common complications of hemodialysis in patients undergoing hemodialysis.

Materials and methods: The present triple-blind randomized clinical trial was conducted on 120 patients undergoing hemodialysis with consecutive sampling divided into three groups (sumac 2 g, sumac 3 g, placebo) by stratified block randomization. Participants were asked to dissolve the package contents in a glass of cooled boiled water and drink them once daily after lunch for 3 months. The liver function tests, fasting blood sugar, and the common complications of hemodialysis were measured and evaluated at weeks 0, 6, and 12. One-way analysis of variance, repeated measures, chi-square, Friedman, and Kruskal-Wallis tests was used in data analysis.

Results: Mean Alkaline Phosphatase level was significantly reduced over time ($P<0.001$). Moreover, pruritis ($P=0.004$) and bloating ($P=0.006$) were significantly reduced after receiving sumac compared with before the intervention. However, no significant differences were observed regarding nausea ($P=0.346$) and constipation ($P=0.104$). Moreover, the mean level of fasting blood glucose ($P=0.397$), aspartate aminotransferase (AST) ($P=0.970$), alanine aminotransferase (ALT) ($P=0.553$), direct bilirubin ($P=0.430$), and total bilirubin ($P=0.901$) were slightly reduced in the groups receiving sumac 2g, sumac 3 g, and placebo, though no significant differences were observed.

Conclusion: The present study showed that sumac fruit effectively reduces Alkaline Phosphatase, pruritis, and constipation, while it does not significantly affect fasting blood sugar, other liver enzymes, nausea, and constipation. Hence, sumac fruit may be recommended as a complementary treatment to reduce hemodialysis complications.

Keywords: Sumac, Liver enzymes, FBS, bloating, constipation, pruritis, nausea, hemodialysis.