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Association Between Whole Grain and Refined Grain Intake and Coronary Artery Disease in Patients Undergoing Coronary Angiography in Yazd: Findings from A Cross-Sectional Study

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ABSTRACT

Introduction: Non-communicable diseases, particularly cardiovascular diseases (CVDs), significantly contribute to global mortality and negatively impact the quality of life of young people and adults. Unhealthy diets are one of the most important modifiable risk factors for CVDs. Grains like wheat and rice are dietary staples in Iran. While whole grains are beneficial and can play a key role in a healthy diet, research on their association with CVD compared to refined grains is limited. Therefore, in this study, we aimed to evaluate the association between whole and refined grain consumption and compare their roles in developing CVD, specifically coronary artery disease (CAD).

Methods and Materials: This cross-sectional study was conducted among 720 patients undergoing coronary angiography at Afshar Hospital, a referral hospital in Yazd, Iran. The convenience method was used for sampling. The coronary artery stenosis was assessed using Gensini (GS) and SYNTAX scores (SS). Dietary intake was assessed using a validated 178-item Food Frequency Questionnaire (FFQ). Corn on bread, wheat flour, corn, barley, and bulgur were classified as whole-grain sources. In contrast, various pieces of bread (Lavash, barbecue, Sangak, Taftoon, baguette, and toast), rice, spaghetti, biscuits, digestive biscuits, vermicelli, and Reshte were considered refined grain sources. Multi-variable adjusted logistic regression was used to obtain odds ratios for coronary artery stenosis severity across whole grain and refined grain tertiles. The analyses were first adjusted for age, energy, and sex in the first model and additionally for marriage, menopausal status, physical activity, economic status, job, educational level, smoking, drug addiction, Diabetes, and body mass index (BMI) in model 2. Subgroup analysis based on BMI was also performed. Statistical data analysis was performed using STATA software version 14.

Results: No significant association was found between whole grain intake and GS or SS in the crude and fully adjusted model. Additionally, there was no significant association between refined grain intake and GS or SS in the crude and fully adjusted models. After subgroup analyses based on BMI, these associations remained non-significant.

Conclusion and Discussion: The findings of this study show a nonsignificant association between whole grain or refined grain consumption and CAD. Further prospective studies are crucial to investigate this association in more detail.

Keywords: Cardiovascular diseases, Cross-sectional study, Coronary artery disease, Diet, Whole grains

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