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ABSTRACT

Background: Hyperlipidemia can contribute to the development of ischemic heart disease, and Castelli's Risk Index 1 (CRII) can help predict the risk. Genetic variations, such as PRKAA2 rs1124900 and ABCA1 rs2066714, can influence lipid levels in the blood. Moreover, the consumption of isomaltooligosaccharide (IMO) can have a beneficial effect on lowering lipid levels. **Objectives:** aims to analyze the changes in CRII) in subjects with genetic variations who consume isomaltooligosaccharide (IMO) cookies. **Method:** In this study, 30 DNA isolates were collected from subjects with hyperlipidemia who were given a treatment of isomaltooligosaccharide (IMO) cookies for 4 weeks. Using PCR-RFLP and restriction enzyme digestion. **Result:** consumption of IMO cookies resulted in a significant decrease in CRII in subjects with hyperlipidemia (8.06%) ($p < 0.05$). Significant interaction between the PRKAA2 rs1124900 genotype and the consumption of IMO cookies concerning the reduction in CRII ($p < 0.05$). The interaction between the genotype of ABCA1 rs2066714 and both of cookie intervention is not statistically significant in CRII changes ($p > 0.05$). **Conclusion:** IMO cookies lead to a decrease in Castelli's Risk Index 1 (CRII) in subjects with hyperlipidemia. The consumption of IMO cookies in TG and GG genotypes of PRKAA2 rs1124900 can reduce CRII ischemic heart disease risk.

Keywords: Hyperlipidemia, isomaltooligosaccharide, PRKAA, ABCA1, CRII