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ABSTRACT

Background: *Hyperlipidemia can contribute to the development of ischemic heart disease, and Castelli's Risk Index 1 (CRI1) 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 CRI1) 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 CRI1 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 CRI1 ($p<0.05$). The interaction between the genotype of ABCA1 rs2066714 and both of cookie intervention is not statistically significant in CRI1 changes ($p>0.05$).* ***Conclusion:*** *IMO cookies lead to a decrease in Castelli's Risk Index 1 (CRI1) in subjects with hyperlipidemia. The consumption of IMO cookies in TG and GG genotypes of PRKAA2 rs1124900 can reduce CRI1 ischemic heart disease risk.*

Keywords: *Hyperlipidemia, isomaltooligosaccharide, PRKAA, ABCA1, CRI1*