Abstract

Introduction: Oxidative stress is a key factor in the development of the principal comorbidities of obesity. Methylene tetrahydrofolate reductase enzyme (MTHFR) participates in the metabolism of folate with the action of vitamins B6 and B12. The gene of MTHFR may present a single nucleotide polymorphism (SNP) at position 677 (C677T), which can promote homocysteinemia associated to the production of free radicals. Objective: To determine the frequency of SNP C677T of the MTHFR, evaluate the consumption of vitamins B6, B9 and B12 and determine the concentration of plasma lipid hydroperoxides (LOOH) in obese and normal weight groups. Methods: 128 Mexican mestizo according to their body mass index were classified as normal weight (Nw; n = 75) and obesity (ObI–III; n = 53). Identification of SNP C677T of MTHFR was performed by PCR-RFLP technic. The consumption of vitamins B6, B9 and B12 was assessed by a validate survey. LOOH was determined as an indicator of peripheral oxidative stress. Results: There was no statistical difference in the frequency of the C677T polymorphism between the TT homozygous genotype in Nw (0.19) and ObI–III (0.25). The frequency of T allele in Nw was 0.45 and 0.51 in ObI–III group. There were no statistical differences in the consumption of vitamins B6, B9 and B12 between Nw and ObI–III groups. The LOOH showed statistical difference (p < 0.05) between Nw and ObI–III group. Discussion: Oxidative stress is present in all grades of obesity although there were no differences in the vitamin consumption and the SNP C677T between Nw and ObI–III groups.

Keywords

Obesity, MTHFR-C677T polymorphism, Vitamins, Lipid hydroperoxide, Oxidative stress.