Abstract

Breast milk is a specific combination of nutrients and immunologic factors; however, milk components may be exposed to oxidation processes, which can in turn be counteracted by antioxidant molecules such as vitamins and antioxidant enzymes, amongst others. Both antioxidant defences and oxidative damage can be affected by age, number of pregnancies and other factors. Objectives To compare antioxidant defences and oxidative damage indicators in breast milk, according to age of women and number of pregnancies. Methods Activity of the main antioxidant enzymes, glutathione concentration, oxidative damage to lipids (thiobarbituric acid reactive substances, TBARS) and oxidative damage to proteins (protein carbonyls) was measured in breast milk using spectrophotometric techniques. Data were grouped according to number of pregnancies (1, 2 and 3 or more) and were related to the age of mothers. Results Significant differences among groups according to number of pregnancies were found in TBARS levels (p = 0.04) and GST activity (p < 0.01). Also linear correlations between age, lipid peroxidation and GST activity were found. Conclusion The age and number of pregnancies apparently increase lipid oxidation in milk due to increased metabolism and production of reactive oxygen species. However, TBARS levels remain relatively low probably because of the mother’s antioxidant defenses, particularly GST.

Keywords

Key Words, Breast milk, Age, Number of pregnancies, Oxidative stress, Antioxidant enzymes.