

Leptin and adiponectin variations in rat's milk and plasma throughout the lactation period

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Background and objectives:

Breast milk provides to the newborn a large range of biofactors that promotes the immune system development. Among them, there are metabolic hormones such as leptin and adiponectin, also named adipokines. Although their composition has been widely established in human breast milk, studies in rat milk are practically non-existent. The aim of this study was to establish milk leptin and adiponectin concentrations throughout the lactation in rat dams and to assess their relationship with their corresponding plasma levels.

Methodology:

For this purpose, milk and blood samples were collected on days 3, 7, 10, 14, 17, 21 of lactation from rat dams. Leptin and adiponectin concentrations were determined in milk whey and plasma samples by ELISA.

Results and conclusions:

Regarding milk samples, the leptin concentration was 1000-2000 times lower than adiponectin levels. During the lactation period, leptin concentration rose in the first week and its levels kept stable until the end of the study. No significant changes in milk adiponectin levels were found throughout this period. However, a progressive decrease in the content of both adipokines in plasma samples was observed. There was a positive correlation between milk adiponectin and its plasma levels, which was not found for leptin contents.

This study shed light to the knowledge of the leptin and adiponectin concentrations in rat milk during lactation, and their relationship with plasma levels. It could be useful for understanding their biological effects in the dam and the offspring during the lactation period.

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