Background and Aim: It has been reported that leptin receptors have been also shown in mammary epithelial cells, and it has been suggested that leptin is involved in the control of the proliferation of both normal and malignant breast cells. The aim of this study was to measure the leptin levels in girls with early breast development and to determine if leptin levels were associated with the clinic, anthropometric characteristics and other sex steroids in girls with premature thelarche (PT).

Methods: In this cross-sectional study; we examined 26 girls (mean age, 7.1 ± 0.8 years; and mean body mass index standard deviation score [BMI-SDS], 0.45 ± 0.9) referred for evaluation because of the appearance of breast buds before the age of 8 years and judged clinically to have PT, as well as 21 healthy age-matched prepubertal girls who served as controls. Breasts and pubic hair development were assessed by visual inspection and palpation using the rating scales of Tanner.

Results: There were significant differences between the PT and control groups regarding leptin (2.7 ± 2.4 vs 1.1 ± 1.1 ng/mL; P: 0.007) and androstenedione (0.44 ± 0.2 vs 0.29 ± 1.1 ng/mL; P = 0.019) levels despite their similar age and BMI-SDS. Leptin measurements were positively correlated with BMI-SDS (r = 0.378; P = 0.03) and androstenedione (r = 0.438; P = 0.025) levels.

Conclusions: Our study demonstrated that serum leptin levels were consistently higher in children with PT than in healthy children. Our findings also support an association between increased leptin levels in PT and adrenal androgens such as androstenedione. We suggest that the increased adrenal androstenedione, observed in our patients, may serve as a precursor for the peripheral conversion to estrogens by the stimulating effect of leptin on aromatase enzyme activity in breast tissues.