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Association between baseline thyroid stimulating hormone and changes in fasting free fatty acid and muscle mass in euthyroid men

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Background and Aim: The purpose of this study is to determine retrospectively whether baseline thyroid stimulating hormone (TSH) levels relate with changes in free fatty acid (FFA) and obesity-related parameters in euthyroid adults.

Methods: A total of 92 subjects first visited the Pusan National University Hospital health promotion center for health checkup between January 2004 and December 2008. They revisited and median follow-up duration was 6.6 years. The subjects were divided into two groups by TSH level: <1.75 $\mu\text{IU/mL}$ (low-normal, LN group), ≥ 1.75 $\mu\text{IU/mL}$ (high-normal, HN group). We analyzed the association between baseline TSH and changes in FFA and obesity-related parameters.

Results: In men, changes in body mass index (BMI), body fat percent, and muscle mass were not significantly different during the follow-up period between two groups. LogFFA change in LN group (0.20 ± 0.25) was higher than those in HN group (0.06 ± 0.16 , $p=0.039$). Using univariate linear regression analysis, baseline TSH and muscle mass was statistically correlated ($p=0.016$), and baseline TSH and logFFA change was statistically associated ($p=0.041$). In women, changes in BMI, body fat percentage, muscle mass, and log FFA were not significantly different between two groups.

Conclusions: Baseline TSH relates with changes in FFA and muscle mass during median 6.6 years in euthyroid men.