

## Serum osteocalcin has inverse relation with pericardial adipose tissues

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**Background and Objective;** Osteocalcin is a protein which is secreted by osteoblasts and considered to play several metabolic roles as well as maintain bone health. In the case of obese subjects, many people have a lot of pericardial adipose tissues. Therefore, we have investigated the association between the serum osteocalcin and pericardial adipose tissues.

**Methods;** A total of 438 subjects (88 female, 350 male) data were analyzed cross-sectionally who had examined the coronary CT scan. First, to confirm the relationship between serum osteocalcin and various other metabolic factor, simple and partial correlation methods were used. Then after, we divided the serum osteocalcin into tertile and compared the pericardial adipose tissue before and after adjustments with age, sex, smoking, hypertension, and type 2 diabetes. Simple regression analysis and logistic regression analysis were done to confirm more detailed association.

**Results;** Mean age was 55.7 years old and serum osteocalcin and pericardial adipose tissues were 15.9ng/mL and 127.6cm<sup>3</sup>, respectively. Serum osteocalcin showed negative correlation with pericardial adipose tissues before ( $r=-0.158$ ,  $p=0.001$ ) and after adjustments ( $r=-0.106$ ,  $p=0.032$ ). After division of serum osteocalcin tertile, pericardial adipose tissue still showed significant difference ( $p<0.05$ ). The odds ratio of having the highest tertile of pericardial adipose tissues, the lowest tertile and second tertile of serum osteocalcin were 2.73 (95%CI; 1.43-5.21) and 2.99 (95%CI; 1.58-5.66) compared the highest tertile of serum osteocalcin after adjustments.

**Conclusions;** Serum osteocalcin showed negative correlation with pericardial adipose tissue and maintaining serum osteocalcin in normal concentration may be beneficial in proper amount of pericardial adipose tissues.

**Keywords;** osteocalcin, pericardial adipose tissue, osteoblast