

The level of SCD1 in subcutaneous adipose tissue is associated with the presence of metabolic syndrome in morbidly obese patients

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Introduction

The stearoyl-CoA desaturase 1 (SCD1) is an enzyme involved in the metabolism of fatty acids, and seems to be involved in the regulation of atherosclerosis development.

Aims

In this study we want to check the expression of SCD1 in visceral and subcutaneous adipose tissue and its relationship with the metabolic syndrome.

Desing & Methods

We measured SCD1 mRNA and protein expression in visceral and subcutaneous adipose tissue from 25 morbidly obese patients. Patients were classified into two groups based on whether or not to have metabolic syndrome (according to the IDF 2005 criteria).

Results

SCD1 mRNA expression in subcutaneous adipose tissue is significantly lower in those subjects with metabolic syndrome ($p=0.036$) (Figure 1), while SCD1 protein is significantly higher ($p=0.005$) (Figure 2).

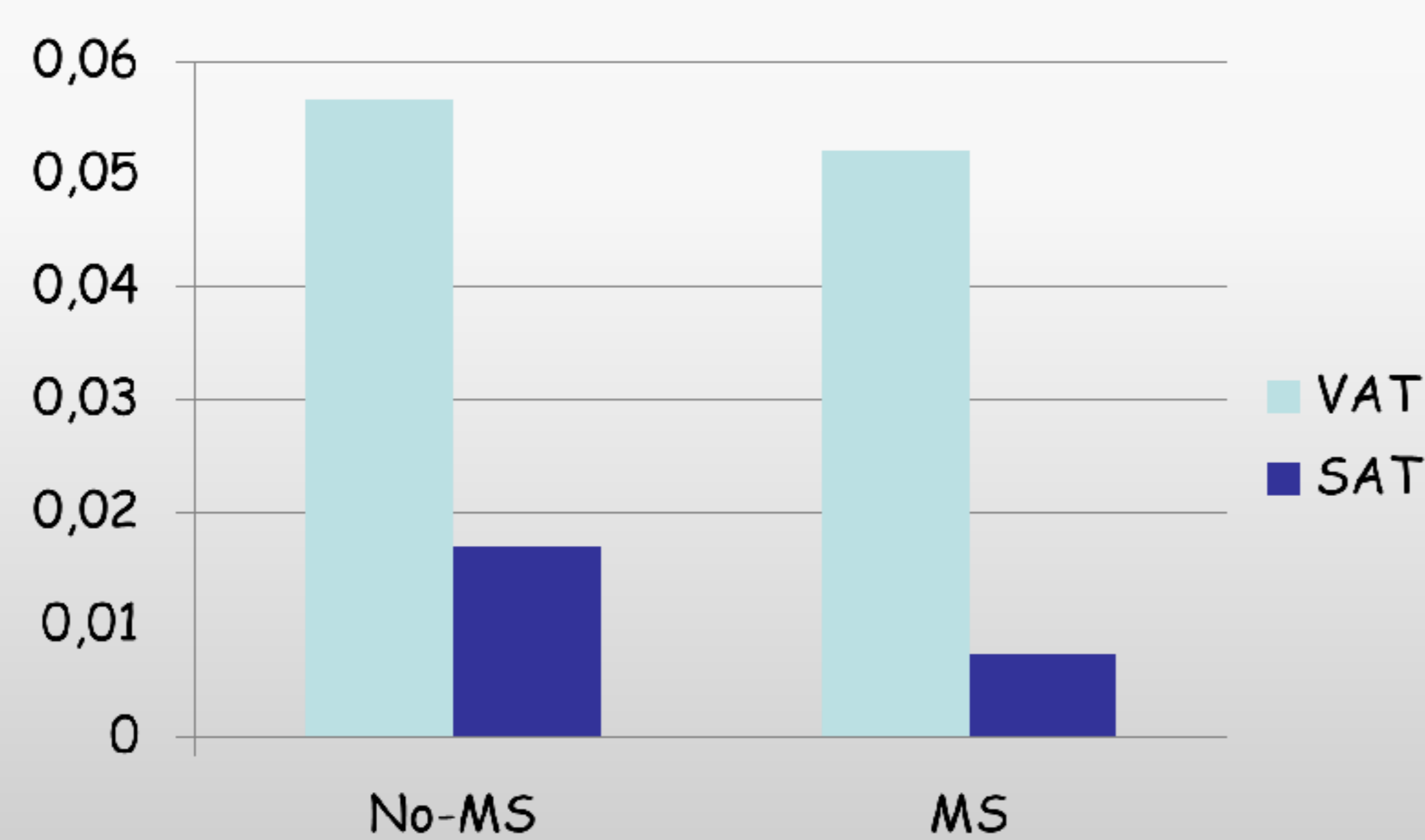


Figure 1. SCD1 mRNA expression in visceral (VAT) and subcutaneous adipose tissue (SAT) in morbidly obese subjects without (NO-MS) or with metabolic syndrome (MS).

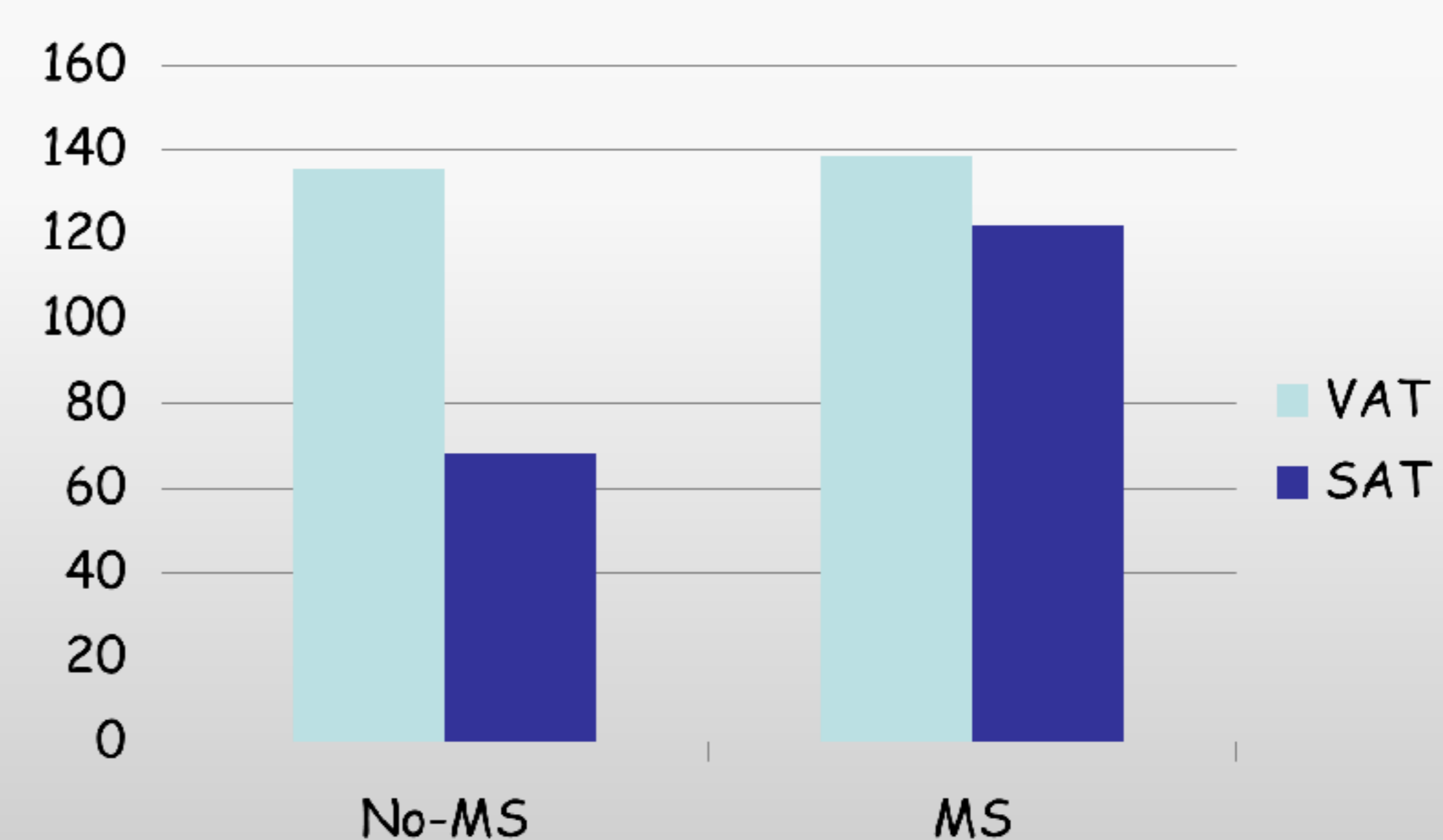


Figure 2. SCD1 protein expression in visceral (VAT) and subcutaneous adipose tissue (SAT) in morbidly obese subjects without (NO-MS) or with metabolic syndrome (MS).

The subjects who meet the HDL or glucose criteria are those with lower SCD1 mRNA expression (Figure 4) and higher SCD1 protein levels (Figures 3 and 5) in subcutaneous adipose tissue. In visceral adipose tissue, no association was found between SCD1 mRNA or protein levels and metabolic syndrome.

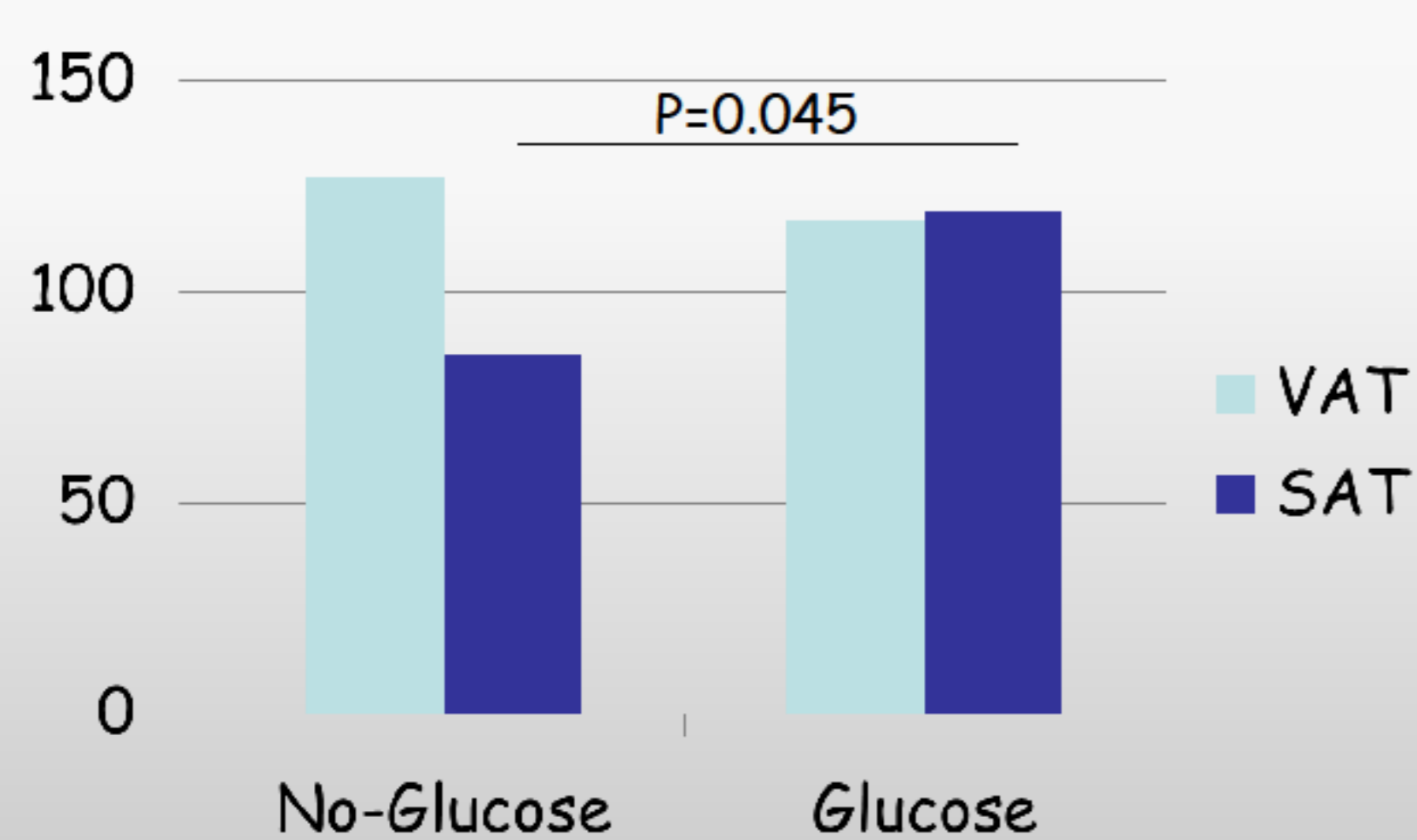


Figure 3. SCD1 protein expression in visceral (VAT) and subcutaneous adipose tissue (SAT) in morbidly obese subjects who meet the glucose criteria (Glucose) or not (No-Glucose).

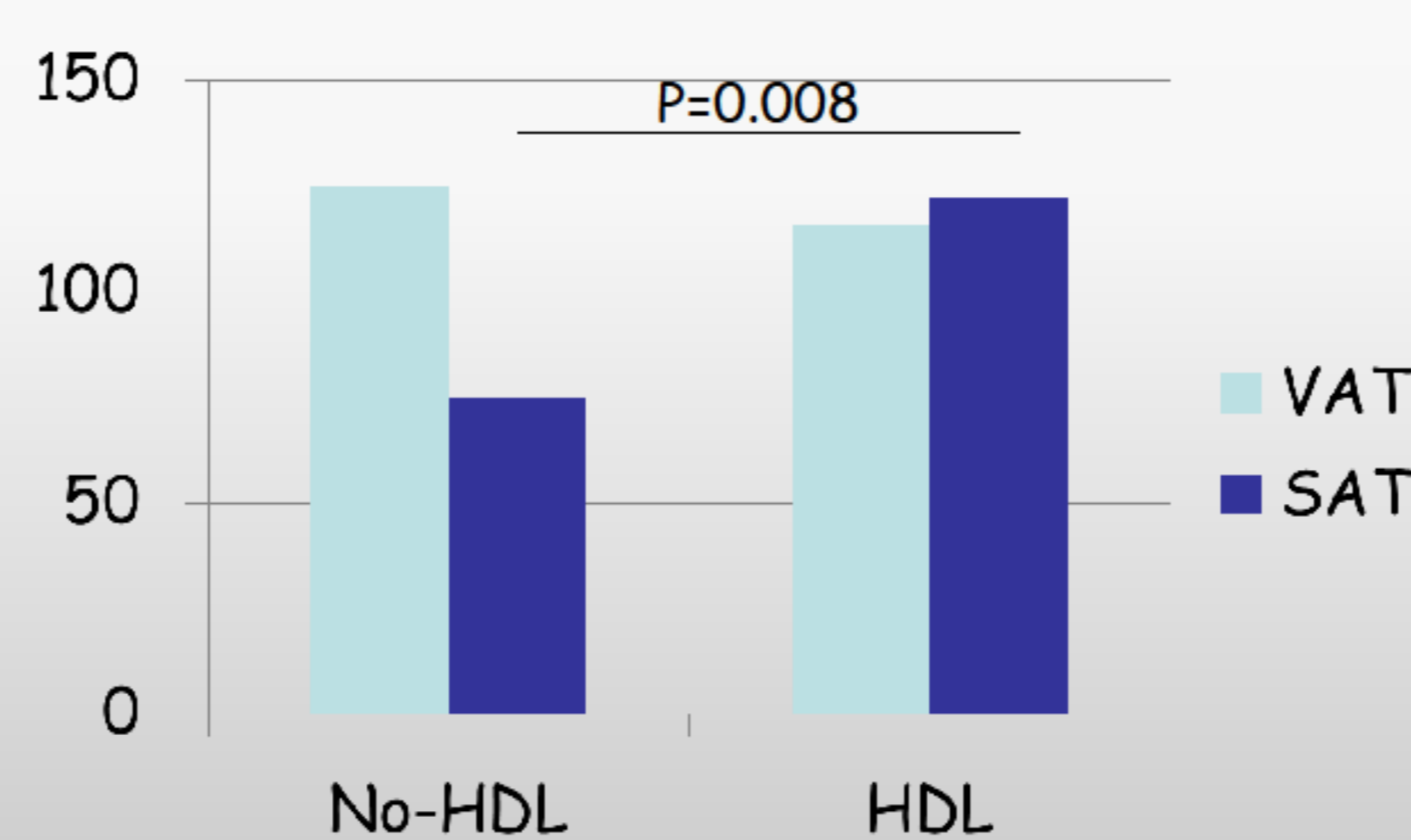


Figure 5. SCD1 protein expression in visceral (VAT) and subcutaneous adipose tissue (SAT) in morbidly obese subjects who meet the HDL criteria (HDL) or not (No-HDL).

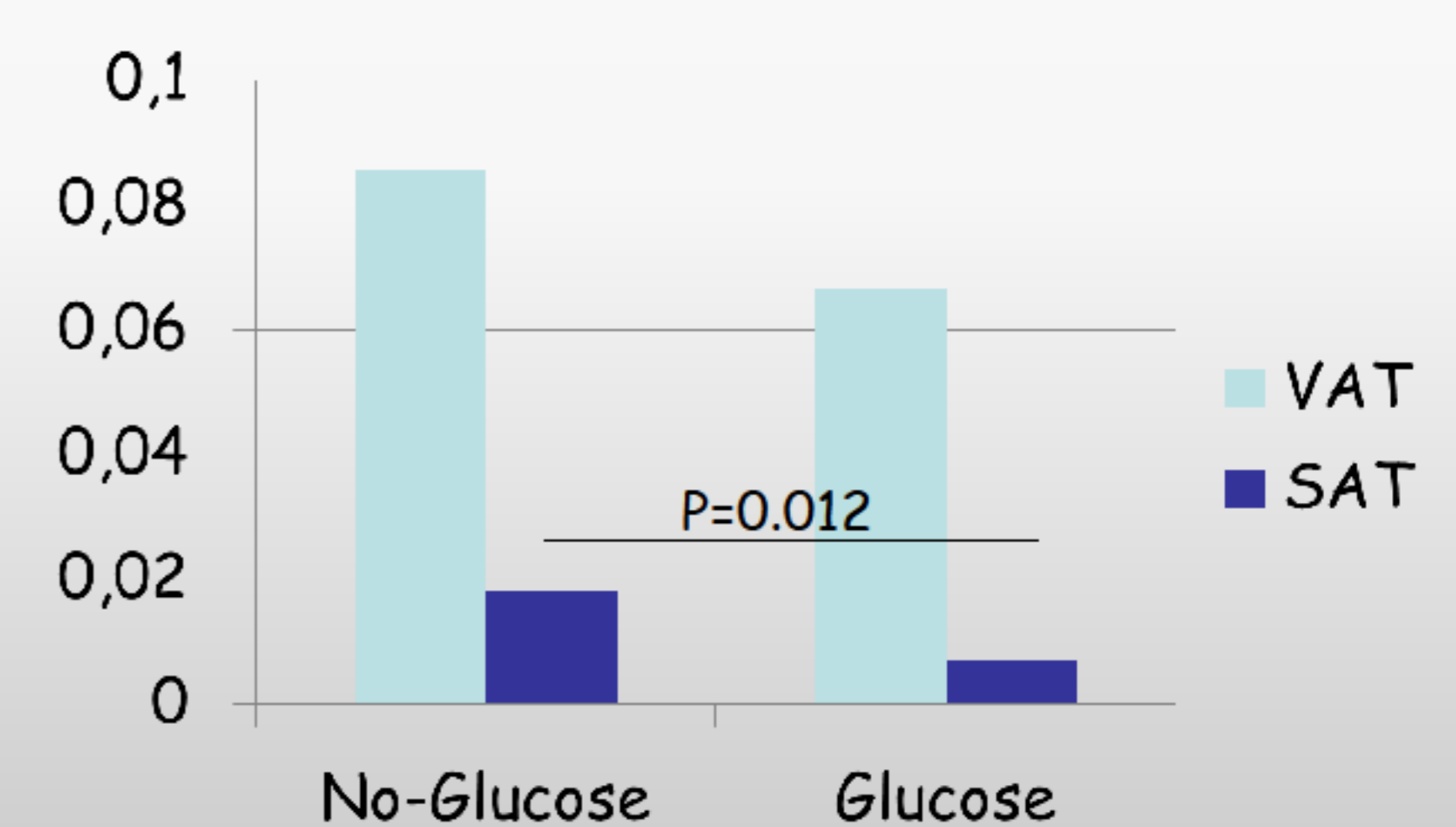


Figure 4. SCD1 mRNA expression in visceral (VAT) and subcutaneous adipose tissue (SAT) in morbidly obese subjects who meet the glucose criteria (Glucose) or not (No-Glucose).

Conclusions

The presence of metabolic syndrome in morbidly obese patients seems to be associated with SCD1 levels in subcutaneous adipose tissue.

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