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O-044. - ALTERED CLOCK GENE EXPRESSION IN OBESE VISCERAL ADIPOSE TISSUE IS ASSOCIATED WITH METABOLIC SYNDROME

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Resumen

Introduction: Adipose tissue is one of the principal players in the etiology of the cardiometabolic diseases associated with central obesity. Previous reports have suggested that visceral adipose tissue (VAT) from obese subjects presents an intrinsic clock. However, no study has been done to compare the expression of clock genes in visceral adipose tissue from lean and obese subjects and its clinical implications.

Objectives: We studied in lean and morbidly obese women the endogenous 24h expression of clock genes in isolated adipocytes, their expression in VAT and stromal cells and its association with metabolic syndrome (MS) components.

Material and methods: Human VAT was obtained from lean (BMI 21-25 kg/m^2; n = 21) and morbidly obese women (BMI > 40 kg/m^2; n = 28). The 24h pattern of clock genes was analyzed every 6 hours using RT-PCR. Correlation with the clinical data was studied by Spearman analysis.

Results: Among the clock genes studied there was an upregulation of *Cry2* and *Rev-erb alpha* in VAT, adipocytes and stromal cells from obese women. The 24h pattern of clock genes showed that obesity alters the expression of *Clock, Bmal1, Per1, Cry2* and *Rev-erb alpha* in adipocytes. A positive correlation was observed for *Rev-erb alpha* gene expression with BMI (r = 0.552; p = 0.008) and waist circumference (r = 0.526; p = 0.012). Expression of *Ror alpha* was correlated with HDL levels (r = 0.450; p = 0.047) and *Clock* with LDL (r = 0.422; p = 0.04). Obese subjects with MS exhibited positive correlation in the *Per2* gene with LDL cholesterol, whereas *Rev-erb alpha* was correlated with waist circumference (r = 0.50; p = 0.049).

Conclusions: Our data demonstrated for the first time that morbid obesity alters the circadian expression of clock genes in VAT and identified *Rev-erb alpha* as an important gene associated with MS.