



P-181 - TYPE 2 DIABETES IS ASSOCIATED WITH A DIFFERENT PATTERN OF SERUM POLYAMINES: A CASE-CONTROL STUDY FROM THE PREDIMED-PLUS TRIAL

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Resumen

Objectives: Polyamines are naturally occurring cationic molecules present in all living cells. Dysregulation of circulating polyamines has been reported in several conditions, but little is known about the levels of serum polyamines in chronic metabolic disorders such as type 2 diabetes (T2D). Therefore, the aim of this study is to evaluate the polyamine-related metabolome in a cohort of metabolic syndrome individuals with and without T2D.

Material and methods: This was a nested case-control study within the PREDIMED-Plus trial that included 44 patients with T2D and 70 patients without T2D. We measured serum levels of arginine, ornithine, polyamines and acetyl polyamines with an ultra-high performance liquid chromatography tandem mass spectrometry (UPLC-MS/MS) platform.

Results: Our results showed that putrescine, directly generated from ornithine by the catalytic action of the biosynthetic enzyme ornithine decarboxylase, was significantly elevated in patients with T2D compared to those without T2D, and that their serum levels significantly correlated with the levels of HbA1c. Correlation analysis revealed a significantly positive association between fasting insulin levels and HOMA-IR with spermine. Multiple logistic regression analysis (adjusted for age, gender and body weight index) revealed that serum putrescine and spermine levels were associated with a higher risk of presenting T2D.

Conclusions: Our study suggests that polyamine metabolism is dysregulated in T2D, and that the serum levels of putrescine and spermine are associated with glycaemic control and circulating insulin levels, respectively.