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Histone hypoacetylation and increased histone deacetylases in peripheral blood mononuclear cells from patients with Graves' disease

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Abstract:

The objective of this study was to investigate histone modification patterns in peripheral blood mononuclear cells (PBMCs) of patients with Graves' disease (GD). Thirty GD patients and 20 healthy controls were enrolled in this study. Global histone H3/H4 acetylation levels of PBMCs in all subjects were detected by enzyme-linked immunosorbent assay. mRNA levels of histone-related chromatin modifier genes were measured by real-time quantitative reverse transcription-polymerase chain reaction. Global histone H4 acetylation level in PBMCs of GD patients was significantly decreased compared with controls ($p=0.005$). The mRNA expression of histone deacetylases HDAC1 and HDAC2 were significantly increased in PBMCs of GD patients compared with controls ($p=0.004$ and 0.018; respectively). No significant difference was observed either in SIRT1 or in HATs mRNA including p300, CREBBP between GD patients and controls ($p>0.05$). Our findings firstly suggested that histone acetylation modifications are aberrant in PBMCs of GD patients, possibly due to the