

CHRONOBIOLOGICAL THYROID AXIS ACTIVITY AND SUICIDAL BEHAVIOR IN DEPRESSED PATIENTS

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Objectives: The aim of this study was to investigate the relationship between suicidal behavior and chronobiological thyroid axis activity in depressed patients.

Methods: The serum levels of TSH, were evaluated before and after 8 AM and 11 PM TRH challenges, on the same day, in 230 medication-free DSM-IV euthyroid major depressed inpatients and 50 healthy hospitalized controls.

Results: Compared to controls: 1) patients with a recent suicide attempt (n=71) showed lower TSH response to TRH (Δ TSH) at 11 PM, lower $\Delta\Delta$ TSH values (differences between 11PM- Δ TSH and 8AM- Δ TSH) ($p < 0.03$ and $p < 0.00001$, respectively), and lower free thyroxine (FT4) levels ($p < 0.00001$); 2) patients with a past suicide attempt (n=52) showed no major alteration of the HPT axis activity; 3) patients without a suicide attempt history (n=107) showed both lower 8 AM- Δ TSH and 11-PM Δ TSH ($p < 0.04$ and $p < 0.000001$), and lower $\Delta\Delta$ TSH values ($p < 0.000001$), but no alteration of circulating thyroid hormone levels.

Conclusions: Our results suggest that in patients without a suicide attempt history increased hypothalamic TRH stimulation (as evidenced by reduced TSH responses to TRH) might be a compensatory mechanism. In patients with a suicide history this compensatory mechanism is not effective. In patients with a recent suicide attempt the evening TSH blunting, associated with reduced FT4 levels, might be indicative of a decreased central TRH activity leading to a reduction in the TSH resynthesis in the thyrotrophs during the day after the morning challenge.