

Chronic Stress and Insomnia: Exploring the Transition from Acute to Chronic Insomnia.

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Introduction: To date, research has focused primarily on the hypersecretion of cortisol as the neurobiologic substrate for chronic insomnia. No study, however, has used a neuroendocrine marker to evaluate the chronic effects of stress among patients with insomnia, and more specifically, whether a neurobiologic marker of chronic stress can predict the transition from acute to chronic insomnia.

Method: The study included data from 30 adults (67% female) recruited from a longitudinal study on the natural history of insomnia. This sub-sample participated in two lab-based studies that took place approximately 3-months apart. Subjects were chosen to participate in the lab study based on their clinical status at Time 1 (Good Sleep or Acute Insomnia) and were classified based on status at Time 2 (Good Sleep, Recovered or Chronic Insomnia). Hair samples were collected and assayed for cortisol at Time 2. Hair cortisol is a newer method for assessing circulating cortisol exposure over longer time intervals. In the present study, 3cm of hair distal from the scalp was used to assess chronic stress during the past 3 months (1 cm per month). To evaluate whether there were any group differences in hair cortisol over time, a 2 x 3 (group x time) repeated-measures ANOVA was used.

Results: No significant group differences were observed at any time point (1-3 months post-initial-visit). While the overall group effect ($p = 0.39$) and the group-by-time interaction ($p = 0.15$) were not significant, descriptive analyses suggest that acute insomnia subjects (both recovered and chronic) had at least 49% greater circulating cortisol across the 3 months relative to good sleepers (overall 3-month-cortisol-by-group in pg/mg: GS, 41.6; AI-REC, 66.2; CI, 62.2).

Conclusions: The group effects in the present analyses were not significant likely owing to the small sample. This said, the present proposal uses a novel method for evaluating the effects of stress over longer periods of time (weeks to months). Analyses of hair cortisol may be a useful tool for assessing the aggregate effects of chronic stress in future sleep research.

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