

PATIENTS WITH ATOPY EXHIBIT ATTENUATED NEUROENDOCRINE RESPONSE DURING PSYCHOSOCIAL STRESS



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Introduction

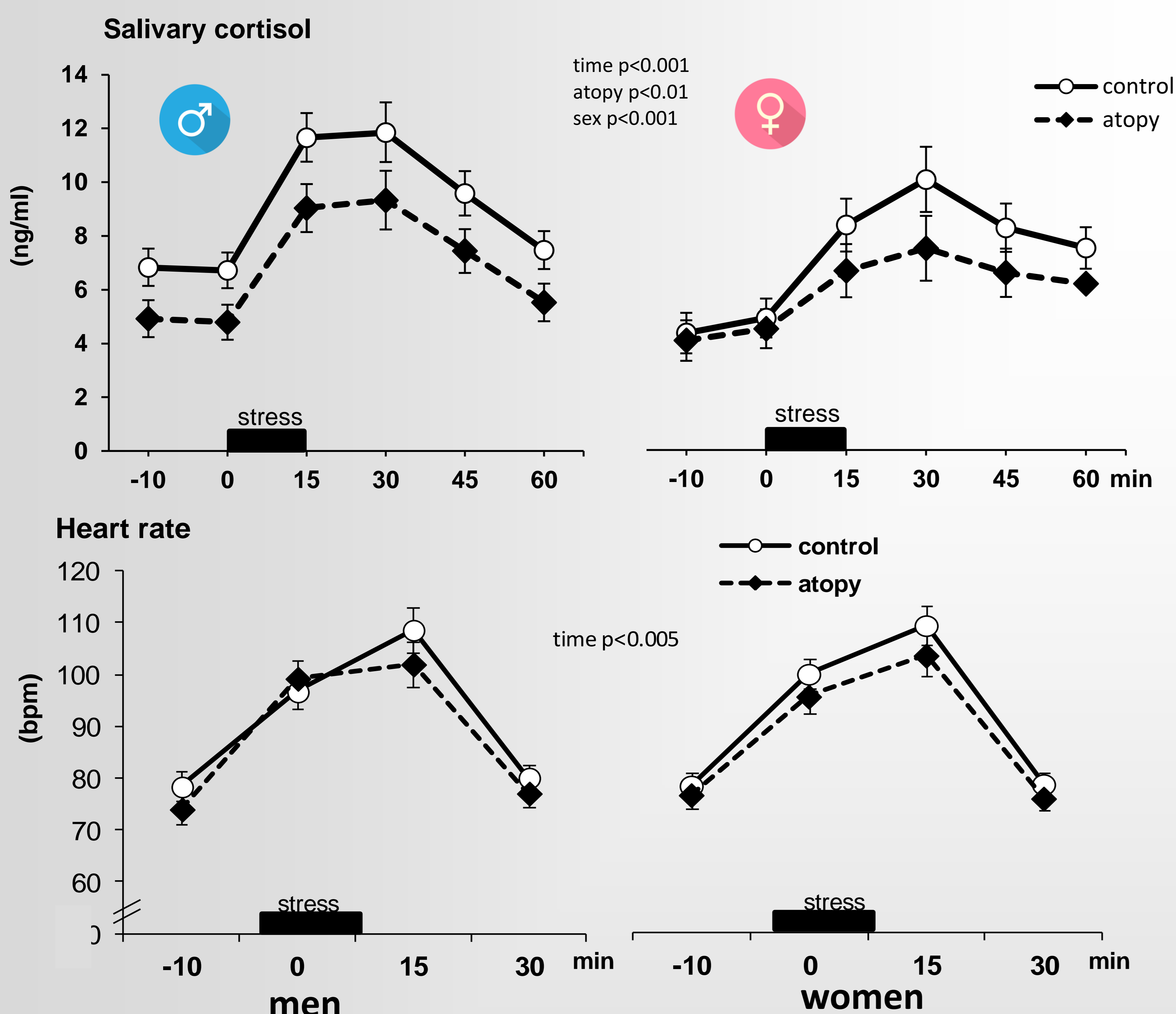
Chronic stress events may result in worsening the quality of life and consequent pathological states. Accordingly, psychosocial stress may represent a factor involved in both the onset of allergic disorders and the exacerbation of an existing allergic disease. In patients with atopy, a decreased responsiveness of the hypothalamic-pituitary-adrenocortical axis to stress stimuli was documented. Less consistent are the results on the autonomic nervous system. The present study has focused on parameters related to the sympathetic nervous system function, namely the salivary enzyme alpha-amylase and the stress hormone aldosterone.

Aim

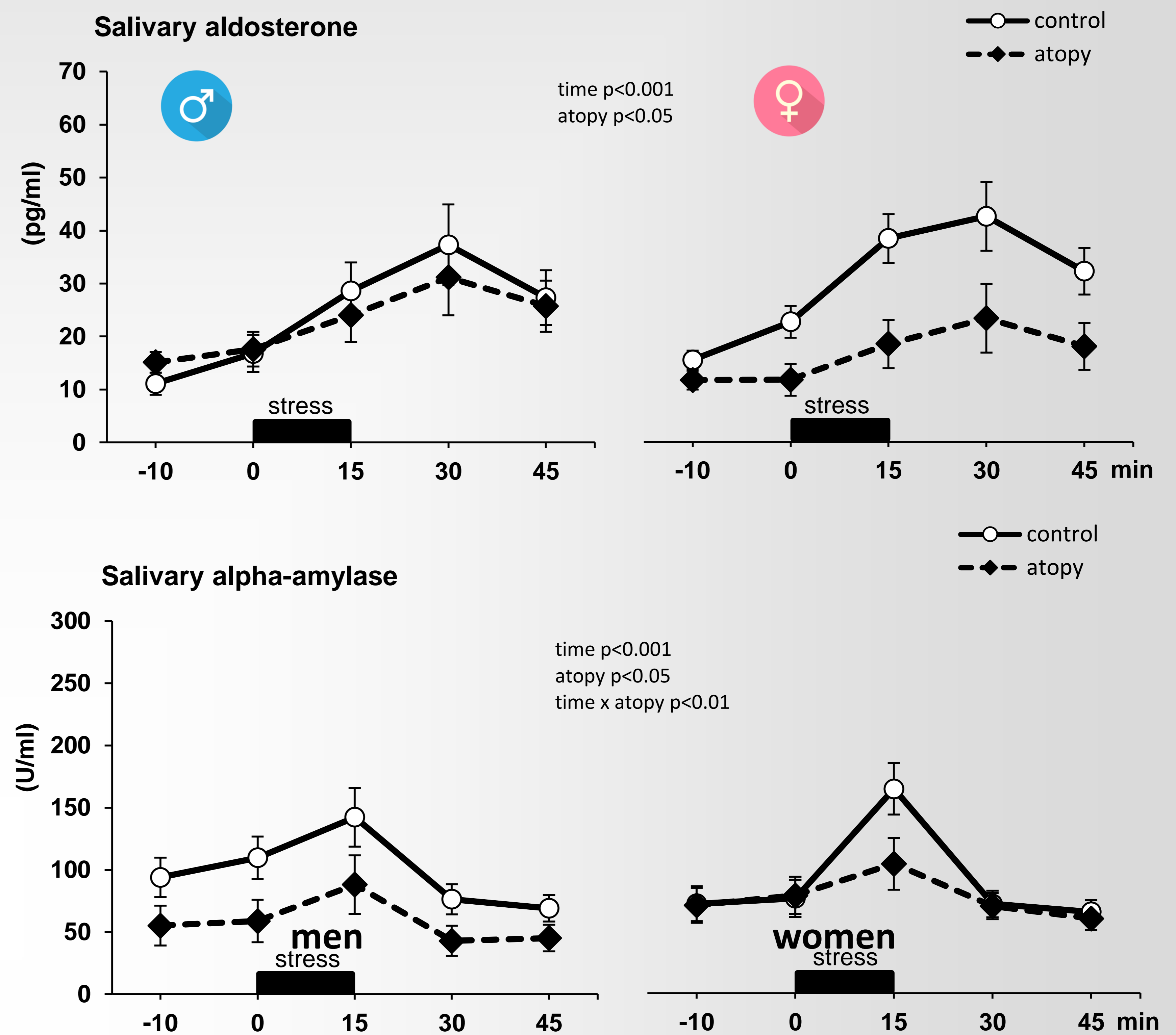
To test the hypothesis that the blunted cortisol response during psychosocial stress in atopic patients is associated with changes in salivary alpha-amylase and aldosterone using a psychosocial stress procedure based on public speech.

Results

Exposure to psychosocial stress resulted in significant increases in all parameters measured. During the stress procedure, patients with atopy exhibited lower concentrations of cortisol in saliva, but no differences in the heart rate.



The secretion of aldosterone and the activity of alpha-amylase during the psychosocial stress were substantially attenuated in patients with atopy compared to healthy controls, irrespective of sex.



Women but not men with atopy show significantly higher trait anxiety and higher preference for avoidance-oriented coping strategy compared to healthy ones.

| | men | | women | |
|--|-------------|--------------------------|-------------|--------------------------|
| | control | atopy | control | atopy |
| State anxiety before stress (STAI-S score) | 34.5 ± 1.16 | 36.5 ± 1.37 | 39.9 ± 1.71 | 37.9 ± 1.47 |
| Trait anxiety (STAI-T score) | 38.8 ± 2.02 | 38.8 ± 1.81 | 37.8 ± 1.31 | 44.5 ± 1.38 ^a |
| Avoidance-oriented strategy (CISS score) | 37.6 ± 1.36 | 39.2 ± 1.38 ^b | 35.6 ± 0.94 | 40.1 ± 1.68 ^b |

Methods

Subjects

- 53 atopic patients suffering from allergic rhinitis, allergic asthma or atopic dermatitis and 53 age-, sex- and BMI- matched healthy controls of both sexes

Model of psychosocial stress

- a modified version of a public speech task on an emotionally charged topic followed by mental arithmetic and general knowledge question tasks in front of an audience for duration of 15 min

Parameters measured

- concentrations of aldosterone, cortisol, and the activity of alpha-amylase in saliva
- heart rate, Trait and State anxiety by Spielberger State-Trait Anxiety Inventory

Statistics

- two-way ANOVA and repeated measures ANOVA for factor atopy, sex and time followed by Tukey post hoc test when appropriate

Conclusions

These findings provide evidence that besides blunted cortisol secretion during psychosocial stress, patients with atopy exhibit also insufficient release of aldosterone and alpha-amylase, thus suggesting decreased sympathetic activity.

Attenuated neuroendocrine activation in atopic patients may result in an inadequate regulatory signal for the immune target cells, which may increase the risk for aberrant immune functioning, especially under stressful conditions.