

O-34 - PHOSPHORYLATION OF LEUKOCYTE GLUCOCORTICOID RECEPTOR AS A MEASURE OF STRESS VULNERABILITY IN HEALTHY WOMEN AND MEN

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Introduction: The core mechanism of maladaptive stress response includes aberrant phosphorylation of the glucocorticoid receptor (GR) at serine 221 (pGR211) or GR serine 226 (pGR226), which enhance or attenuate GR transcriptional activity, respectively. In the current study we tested a hypothesis that alterations in the nuclear levels and/or ratios of GR, pGR211 and pGR226 in peripheral blood mononuclear cells (PBMC) may reflect individual level of distress and/or psychological vulnerability.

Methods: In 36 healthy adults we evaluated the relation of total PMBC nuclear level of GR (tGR), pGR221, pGR226 and activated JNK1 (pJNK1) and its relation to environmental stress exposure, self reported distress (Depression Anxiety Stress Scale) and personality traits (Eysenck Personality Questionnaire). Molecular and psychometric data were cross-correlated by SPSS MannWhitney statistics.

Results: In women, self reported distress (DASS score) correlated more with neuroticism, while in men it correlated with environmental stressor. Also, in women, PBMC nuclear tGR level correlated with pGR211, while in men it correlated with pGR226. Cross-analysis of psychometric and molecular data indicated that in women both neuroticism and self reported distress correlated positively with nuclear pGR226, while in men the only correlation was between environmental stressor and pJNK1.

Conclusion: This findings provide preliminary support that the nuclear level of pGR226 and pGR211/pGR226 ratio in PBMC may serve as a measure of affective vulnerability in healthy women, while nuclear level of pJNK1 may reflect environmentally imposed distress in healthy men. The relevance of these molecular parameters as biomarkers requires broader verification in healthy and in clinical settings.