Genetic modelling of the relation between anxious depression and autonomic nervous system function

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Introduction

Depression is associated with a disturbed autonomic nervous system (ANS) function, e.g. a dysfunctional HPA axis, an overactive sympathetic nervous system, and decreased activity of vagal tone. However, research until now has been performed only in clinical samples. The present study will focus on anxious depression in a non-clinical healthy sample, in which measurements of ANS function take place during a normal working day of the participant.

Study objectives

- Selection of ANS measures that best discriminate subjects scoring high and low on depression through discriminant analysis
- Determining univariate genetic architecture of selected ANS measures
- Testing of genetic and/or environmental association between depression and ANS function

Participants

800 adult twins & singleton siblings from families were selected based on their factor score of several personality and depression questionnaires (STAI, ABV, YASR and BDI). When two siblings were extremely concordant or extremely discordant in their scores, all family members were invited into the study.

Measurements

- DNA collection (buccal swabs)
- 24-hour registration of heart rate, systolic and diastolic blood pressure, pre-ejection period, and respiratory sinus arrhythmia
- cortisol levels in saliva at 7 time points (day profile, awakening response)
- diary (a.o. activity, posture, stress levels, mood) and body movement (vertical acceleration)

Relevance

Understanding the relation between ANS function and depression will enable us to formulate a multivariate phenotype that quantifies biological susceptibility for clinical depression. Such an index can be used in the search for qtl's influencing depression.