“Psychological and biological correlates of stress in ultra-high risk and first episode psychosis patients”
PEOPLE INVOLVED IN THE PROJECT

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STRESS, HPA AXIS AND PSYCHOSIS

Risk factors

Chronic STRESS

Protective factors

Psychosis
1) What are the differences between individuals at ultra-high risk for psychosis and first episode psychosis in stress and cortisol levels?

2) Are abnormal stress and cortisol levels related to symptoms and hippocampal volume in these patients?

3) What are potential risk and protective factors, and what role do they play in the relationship of stress, cortisol on outcome?

4) Are there gender differences in stress, cortisol levels and protective factors?

5) Can our findings guide the development of interventions at the high risk stage?
METHODS:

• Participants

  – 119 FEP patients (82 men, 37 women; age 22.69 ± 3.93)
  – 45 individuals at UHR (26 men, 19 women; age 19.35 ± 3.68)
  – 50 healthy controls (25 men, 25 women; age 22.47 ± 3.86)
PSYCHOLOGICAL AND SYMPTOM MEASURES:

- **Stress**
  - Chronic stress in the past month *(TICS; Schulz & Schlotz, 1999)*

- **Protective factors**
  - Self-esteem *(SERS; Nugent & Thomas, 1993)*
  - Coping style *(Brief COPE; Carver, 1997)*
  - Social support *(MSPSS; Zimet et al., 1988)*

- **Symptom assessment**
  - BPRS *(Ventura et al., 1993; Kopelowicz, 2008)*
  - Global Assessment of Functioning *(GAF; Luborsky, 1962)*
  - Depression *(HDI)*

- **Early life adversity**
  - The Parental Bonding Instrument *(PBI; Parker et al., 1979)*
BIOLOGICAL MEASURES:

- The Cortisol Response to Awakening (CAR)
- The Trier Social Stress Test (TSST)
- Hippocampal volume
STRESS AND PROTECTIVE FACTORS:

Pruessner et al. (2011) Schizophr Res 129(1), 29-35
### STRESS AND SYMPTOMS

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Pruessner et al. (2011) Schizophr Res 129(1), 29-35
THE TSST IN UHR

Pruessner et al. (2013) Schizophr Res 146(1-3), 79-86
THE CORTISOL AWAKENING RESPONSE IN FEP

Pruessner et al. (2013) Psychoneuroendocrinology 38(2), 229-240
PARENTAL STYLE IN FEP

* Chi² = 8.01; p < .046
** Chi² = 11.5; p < .01

Pruessner et al. (2013) Psychoneuroendocrinology 38(2), 229-240
HIPPOCAMPAL VOLUME AND CORTISOL

- **LHC**: $F = -2.31; p = 0.03$
- **RHC**: $F = -2.24; p = 0.03$

**Women (N=19)**

**Men (N=39)**
HIPPOCAMPAL VOLUME AND CORTISOL
CONCLUSIONS

• In both UHR and FEP patients, we found evidence for attenuated cortisol levels

• Such attenuated cortisol responses ...
  – are in contrast to the common notion of hypercortisolism in these conditions
  – could indicate a desensitization of the HPA axis following chronic stress
  – are likely inadequate to allow metabolic and psychological adjustment to the demands of the situation
  – might contribute to the development of psychotic symptoms
CONCLUSIONS

• Our findings in FEP suggest a greater vulnerability to stress in male compared to female patients

• The observed sex differences might be related to the less favorable outcome in male patients in many domains

• Future studies should …
  – consider the patients’ sex
  – investigate HPA activity at different levels

• Both patients groups might benefit from interventions focusing on balancing HPA activity, stress reduction and strengthening of protective factors
Thank you!

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