Prenatal Programming of Stress Sensitivity
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Background I: Prenatal exposure to maternal stress increases risk for
• stress-related diseases
• dysregulation of major stress response systems

➢ Maternal glucocorticoid(s) (GC) as potential mediators?

Background II: Women at risk of preterm delivery are routinely treated with synthetic GCs to accelerate fetal lung maturation

➢ Valid model to study long-term consequences of high stress hormone levels during pregnancy

Sample: 209 term-born children (6-11 years)
• PP/GC group: children of mothers with a pathological pregnancy treated with sGCs
• Controls: children of mothers without pregnancy complications/no hospital stay
• PP/nonGC group: children of mothers who had been hospitalized due to pregnancy complications, but had never received sGC therapy
**Study Aim I:** to evaluate long-term effects of antenatal sGC therapy on cortisol stress reactivity in childhood

- Method: Trier Social Stress Test

**Results I:** increased cortisol stress reactivity in children treated with antenatal sGCs compared to controls \((F_{(3.4,345.9)} = 5.8; P < 0.001)\)

**Study Aim II:** to longitudinally evaluate the stability of observed effect into adolescence

**Results II:** increased cortisol stress reactivity in participants exposed to antenatal sGCs compared to controls in both developmental stages \((F_{1,40} = 4.99; P < 0.05)\)

**Conclusion:** Antenatal sGCs yield long-term changes of major stress response systems that persist into adolescence

- Potential risk factor for stress-related disorders