

Symposium 01

Prenatal stress and offspring HPA reactivity and neurobehavioural findings: could 5HT-T status and maternal-infant interaction moderate offspring HPA-axis reactivity?

Chairs :

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Prenatal stress has an adverse effect on offspring neurodevelopment but little is known about mediating mechanisms. One possibility is that prenatal maternal anxiety and cortisol levels may program the fetal HPA-axis system but other moderating factors need to be considered eg. offspring serotonin transporter genotype & maternal caregiving style.

Maternal pregnancy anxiety (Glover, Grant, Van Den Bergh); salivary cortisol (Glover, Van Den Bergh, Grant) and fetal (Glover) cortisols were assayed; then infant cortisol stress reactivity (inoculation & still-face procedure) was assessed. Mother-infant interaction was videotaped (Grant, van Den Bergh) for analysis of maternal sensitivity and infant behavioural response (Grant). Glover also examined child cognitive outcomes. Chen examined serotonin transporter linked polymorphism status in offspring in relation to cortisol activity.

Correlation between maternal & amniotic fluid cortisol was much higher in anxious women & amniotic fluid cortisol was inversely associated with child cognitive score. A small but significant negative association between maternal cortisol awakening response and infant cortisol reactivity measure was reported. Infant stress reactivity was most notable in infants whose mothers were less sensitive in their care-giving style. Cortisol measures were elevated in girls carrying two copies of the short allele of the serotonin transporter gene.

The findings from the first 2 studies suggest that prenatal maternal anxiety and cortisol function impact on offspring cortisol stress reactivity and cognitive outcomes and that this may be mediated through the HPA-axis. Grant as well as Van Den Bergh go on to expand these findings with an exploration of the moderating effect of maternal sensitivity, while genetic moderating mechanisms are explored by Chen et al. A number of possible options for intervention are raised by these studies: from therapies to reduce maternal prenatal anxiety, to optimising maternal caregiving style, while using genotyping to target the more vulnerable mother-offspring dyads who might benefit most from these interventions.