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Maternal Salivary Oxytocin Increased Rapidly in Response to Short Notes on Newborn Stimulus

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Introduction

A neuropeptide called oxytocin (OT) is involved in human reproduction and social behaviour. Researchers have recently become interested in non-invasive OT levels in saliva because they don't call for a specialised medical environment. We monitored variations in OT concentration in a woman's basal serum and saliva from pregnancy to one year after giving birth. We investigated the temporal variation in salivary OT levels in response to mother physiological and behavioural responses. The variation in saliva OT levels throughout pregnancy and nursing is closely similar to that of serum OT.

While there was no change in serum, salivary OT increased quickly following face-to-face contact with the baby (social interaction tests) and/or when the mother watched a video of her own baby (video testing). We conducted social interaction and video tests on a group of mothers to help explain these single-subject results (nine for social interaction and six for video testing). In both assays, the moms' OT levels increased, but not in their serum. Our results imply that salivary samples can represent both physical and emotional states, and that saliva samples can be used to track women's OT levels before and after giving birth.

Description

A neuropeptide called oxytocin (OT), which is found in a range of mammalian species, including humans, has been connected to social and reproductive behaviour. Both peripherally and centrally, OT, which is predominantly made in the hypothalamus, is crucial. OT has long been linked to breastfeeding in the periphery and uterine contractions [1-3]. It plays a crucial role in many social interactions and relationships as well as in controlling stress- and anxiety-related behaviours. Furthermore, elevated OT levels during the peripartum period in sheep and rats foster the mother-child relationship and control maternal behaviour including care, recognising the offspring, aggression, and lowered anxiety and fear reactions.

In rodents, rhesus macaques, and humans, it has been demonstrated that the quantity and quality of parenting behaviours connect with OT signalling pathways. In rhesus macaques and prairie voles, the OT signalling pathways of offspring are significantly influenced by their early life experiences. Disrupted mother care is thought to have a significant effect on the social behaviour of the young prairie voles. Humans also exhibit these OT roles in maternal behaviour and mother-child attachment. OT in maternal plasma and saliva [4] has been connected to mothers' postpartum social behaviour. The interaction with the parent triggers the release of OT in the infant, and higher affect synchrony was associated with a larger correlation between the parent's and infant's OT levels.

On the other hand, poor maternal behaviour quality is linked to genetic alterations in OT signaling-related genes. For instance, risk alleles of the OXTR and CD38 genes [5], which have been connected to social dysfunctions, were linked to less parental contact and less synchronised gaze between parents and infants. Animal studies have shown that children's OT systems are impacted by their parents' lack of emotional and physical contact with them. According to research, children who have experienced maltreatment or children raised by mothers who have mental illnesses like postpartum depression have dysregulated OT systems. According to the evidence, a child's lifelong effects from bad social relationships can include mental illness or social impairment. Thus, a deeper comprehension of the underlying physiology It is necessary to conduct expanded association studies of OT signalling and maternal behaviours and/or human bonding, as well as research of normal and dysfunctional mother-child interactions related to their OT systems.

Conclusion

In samples of plasma, serum, urine, and cerebrospinal fluid, human OT levels have been determined (CSF). Each collection technique has benefits and drawbacks. Although CSF reflects central OT levels, it requires a lumbar puncture, which is extremely invasive and is only done by medical professionals. Similar to CSF collection, urine collection is less intrusive and does not require the use of professionals, although the temporal resolution is poor. Contrarily, CSF collection is less intrusive and has a significantly lower temporal resolution than blood collection, which also needs the help of a medical practitioner. Therefore, the most often utilised technique for determining OT levels has been serum or plasma collection, particularly in investigations of pregnant women.

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