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Commentry Article

# Commentary on "Parasympathetic Nervous Activity is Associated with Oxytocin in Multiparous but not Primiparous Women during the Perinatal Period"

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## DESCRIPTION

Oxytocin (OXT), which is well-known to induce labor/delivery and milk ejection during lactation, may play a key role in maternal behaviors including maternal care/neglect, anxiety-related behaviors, depression, responses to stress, sexual behaviors, and social behaviors [1-3]. In postpartum women, breast-feeding, which induces the OXT release, attenuated the incidence of postpartum anxiety (PPA) [4] and postpartum depression (PPD) symptoms [5]. In addition, higher peripheral OXT levels were associated with lower PPD symptoms [3] and plasma OXT levels were correlated negatively with PPA/PPD symptoms in postpartum women [6,7]. Therefore, OXT is thought to have antidepressant/anxiolytic effects in postpartum women.

In the above-mentioned studies on the relationship between OXT or breast-feeding and PPA/PPD, self-reported scales were used to assess the levels of PPA/PPD symptoms. However, so far, little is known about the relationship between OXT and physiological parameters like autonomic nervous activity (ANA) in postpartum women, though intracerebral OXT injection induced the decrease in blood pressure [8] and heart rate [9,10] in rats. Therefore, we took a great interest in OXT-ANA relationship in perinatal women. On the other hand, compared with multiparous women, primiparous women often experienced the delayed lactogenesis, lower frequency of breast-feeding and lower milk volume [11]. Such attenuated lactation performance was associated with PPA/PPD [12,13]. Therefore, another our interest was to compare primiparous and multiparous women as to ANA and OXT levels.

In our study, ANA measurement by heart rate variability (HRV) and saliva OXT measurement by a highly sensitive ELISA were performed in 18 primiparous and 18 multiparous perinatal women [14]. The HRV was measured with a Pulse Analyzer Plus TAS9 device (YKC Co. Ltd., Tokyo, Japan), which is a portable device for evaluating ANA using acceleration pulse waves obtained from the fingertip.

Our main findings are as follows: (a) multiparous postpartal women with relatively high OXT levels have higher parasympathetic nervous activity (PNA) compared with primiparous postpartal women. (b) In multiparous perinatal women, OXT correlated positively with PNA, but negatively with physical stress index. These results suggest that after parturition, multiparous mothers may switch over to the "feed and breed" system more quickly due to increased OXT compared with primiparous mothers.

Because of modest sample sizes in this study, generalizing our data may be limited, and studies with larger sample sizes are required to further confirm our findings. Moreover, studies, which examine whether OXT is associated with other physiological parameters besides ANA, e.g., electroencephalogram, salivary amylase, perspiration rate, etc., in postpartum women, are needed to confirm the preventive effects of OXT on PPA/PPD disorders.

However, the effects of exogenous OXT on postpartum psychiatric disorders still remain controversial. Women with peripartum exposure to synthetic OXT were more likely to experience depressive or anxiety symptoms during the postpartum period [15]. To the contrary, a prospective observational study showed that intrapartum exposure to synthetic OXT decreases the risk of developing PPD symptoms [16]. The ANA measurement may provide a clue to clarify the effects of exogenous OXT on postpartum psychiatric disorders.

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