

### Presentation 1: A Neurobiological Approach to Lactation

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A large number of studies suggest a close relationship between olfactory and affective information processing. Olfactory bulbectomized rats are used for establishing a model for depression and exploring dysfunctions in many physiological systems. Some depressed mothers may experience problems in breastfeeding, such as insufficient amount of milk production and discontinuation. Despite available studies dealing with relationship between depression and breast-feeding difficulties, the effect of depression on lactation through alterations in mammary gland structure is largely unknown. In this study, olfactory bulbectomized rats were used to determine whether depression affects mammary gland tissue. Experimental groups consisted of 3 parent stocks, each containing 5 male and 10 female adult rats. Prior to breeding period (10 week), females in each group were designed as 1) control, 2) sham-operated, and 3) bilaterally bulbectomized. After breeding period, males were removed from cages. Animals were monitored during pregnancy. Each female rat was then housed in individual cages with own offsprings after parturition and monitored for 4 weeks of lactation. At the end of the experiment, dams were decapitated for brain and mammary gland examinations. The number of parturition was 8, 6, and 5 and mean of litter was  $6\pm 2$ ,  $5\pm 2$ , and  $4\pm 2$  in control, sham, and bulbectomized groups, respectively. The frequency of bulbectomized rats exhibiting aggressive and non-nursing behaviors was greater than the other groups, with as higher litter mortality rate. Moreover, body weight and breast mass decreased in bulbectomized rats as compared to rats in other groups. Neurodegeneration in hippocampus, habenula, basal ganglia, salivatory nuclei, and autonomous ganglia of glands were present in bulbectomized rats. Decreased number and size in tubuloalveolar compartments scattered obliterated lactiferous ducts were detected in mammary glands of bulbectomized rats. Data suggest that olfactory bulbectomy adversely affect reproductive and lactational status, perhaps through dysfunction of stimulus system among olfaction-brain-endocrine-secretion-limbic and reproductive organ feedback loops. In patients with depression, impaired signaling between brain and mammary gland may lead to alteration of mammary gland structure and consequently lower lactation performance.

### Presentation 2: The Effects of the Delivery on Lactogenic Hormones

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**Aims:** We aimed to investigate the effects of birth and type of anesthesia over PRL, oxitodin, insulin, hydrocortisone levels as breastfeeding begins after caesarean section (general and regional) and vaginal delivery (epidural and spontaneous).

**Methods:** 320 cases were caesarean sectioned (170 had regional anesthesia and 150 had general anesthesia) and 280 cases were vaginally delivered (94 had epidural analgesia). Prolactin, oxitodin, insulin, hydrocortisone levels were measured during postpartum 6–12 h, 7th day and first month.

**Results:** Caesarean section is associated with lower postpartum PRL levels compared with vaginal delivery. Hydrocortisone and insulin levels were not significantly different.

**Conclusion:** Lactogenesis generally occurs between 2 and 4 days postpartum and may be delayed until 7 to 10 postpartum days in some women. Delayed secretory activation was observed in women who had cesarean births compared to those who delivered vaginally. Caesarean section is a risk factor for successful lactation performance.

### Presentation 3: The Relationship Between Mammary Gland Permeability and Factors Related to Mothers and Their Babies

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**Aims:** In this study, the relationship between mammary gland permeability and the factors related to mothers and their babies were aimed to be investigated.

**Method:** The case group consisted of 150 consecutive healthy babies at postpartum 8–15 days. Edinburgh Postnatal Depression Scale, State and Trait Anxiety Inventory and Relationship Scale Questionnaire were applied to the mothers. Milk samples from all mothers were collected. Weights of babies at first month were recorded.

**Results:** In babies with higher Na concentrations and Na/K ratio in their mothers' milk, were found to gain less weight at the end of first month and also they were the first babies of the families included in the study. Mothers with higher concentrations of Na in their milk thought they were not appropriate to have a child, had poorer relationships with their own mothers, stated that they had no close friendships and had a past history of mental disorders at significance limits. The EPDS and STAI-I scores of mothers with elevated milk Na concentrations found to be higher.

**Conclusion:** Regarding this study's results, the risk factors causing an increase in the permeability of the mammary glands were determined as thoughts of not being suitable for motherhood, symptoms of postpartum depression and high levels of anxiety for the mothers.

### Emotional Distress and Depression in the Perinatal Period- Development and Implementation of Early Intervention Programs for Mothers and Fathers in Norway

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