Results showed no significant main effect of drug condition on empathic responses. However, a significant interaction effect between drug condition and primary psychopathy was found for personal distress and a marginally significant interaction effect was found for empathic concern. Simple effects analyses showed significant negative correlations between primary psychopathy and personal distress as well as empathic concern in the placebo group, but not in the vasopressin group. In addition, among participants with higher levels of primary psychopathy (i.e., +1 SD above the mean) vasopressin increased personal distress and empathic concern compared to placebo.

Results suggest that vasopressin increases emotional arousal and empathic responding in individuals with higher levels of primary psychopathy. This calls for further research on the biological substrates of empathy with focus on vasopressin.

**PT711**

**Molecular analysis of neural action mediated by the antipsychotic agent olanzapine in high glucose exposure**

Kaoru Ikubo1, Kyosuke Yamanishi1, 2, Sachi Kuwahara-Otani1, Seishi Maeda2, Wen Li2, Yoko Watanabe1, Momoiko Yoshida1, Tetsu Hayakawa1, Haruki Okamura1, Hiromichi Yamanishi2 and Hitiso Matsunaga1

1Department of Neuropsychiatry, 2Department of Anatomy and Cell Biology, Laboratory of Tumor Immunology and Cell Therapy, and 1Hirakata General Hospital for Developmental Disorders, 2-1-1 Tsudahigashi, Hirakata, Osaka 573-0122, Japan

**Abstract**

**Objectives:** Antipsychotic agent, olanzapine was used widely in the treatments for schizophrenia, bipolar disorder, and so on. It was found that neurons, especially its mitochondria exposed to olanzapine were damaged by oxidative stress resulting in induced autophagy, a controlled cellular self-digestion process in human SH-SY5Y neuronal cell line.

Olanzapine was prohibited to patients with diabetes. However, the molecular mechanisms of how olanzapine effects on neurons in high glucose situations remain unknown. The aim of this study is to verify the molecular influence of olanzapine on neurons in high glucose circumstances.

**Methods:** Human SH-SY5Y neuronal cell line was used in this study, and was grown in the same manner as previously described (Ljubica Vucicevic, et al. Autophagy. 2014). Cells were rested for 24 hours in normal (5 µM) and high glucose (50 µM) medium, and then treated in the same medium with olanzapine (100 µM) for another 24 hours. We performed a comparative analysis of the gene expression profiles using microarrays. We subsequently categorized genes using a web-based bioinformatics analysis tools: network explorer of Ingenuity Pathway Analysis. We then confirmed significant group-differences in mRNA and protein expression levels using qRT-PCR and western blotting.

**Results:** According to the microarray analysis, several genes which were expressed differentially were picked up focusing on molecules related to cell death and cell protection such as autophagy. Significant differences of these genes were shown by qRT-PCR and western blotting.

**Conclusions:** These findings supported that olanzapine might mediate the cellular damage and autophagy protects neurons from mitochondrial death by molecular mechanism. Further examination focusing on neural vitality and other function is warranted.

**PT712**

**Functional expression of choline transporter like protein 1 (CTL1) and CTL2 in human brain microvascular endothelial cells**

Beniko Iwao1, Naomi Hara1, Masato Inazu1, Takeshi Inoue1, Yuiko Kawai1, Hiroshi Nishihara1, Tsuyoshi Yamanaka2, Miki Yara2

1Tokyo Medical University, Japan, 2Hokkaido University, Japan

**Abstract**

**Objective:** The brain is protected from the rest of body by the blood-brain barrier (BBB) including microvascular endothelial cells. The BBB at the level of the microvessel endothelium is the major site of the selective permeability. The central nervous system requires choline to synthesize the neurotransmitter acetylcholine and the membrane phospholipids phosphatidylcholine and sphingomyelin. Therefore, the transport of choline from the blood to the brain through the BBB is a physiologically important process. In this study, we examined the functional characterization of choline transporter from the choline transporter in human brain microvascular endothelial cells (hBMECs).

**Methods:** We examined the [3H]choline uptake into hBMECs. The expression of mRNA and protein of choline transporters was investigated by real-time PCR and Western blotting. The immunohistochemical and immunocytochemical detection was performed to determine the localization of choline transporter in human brain cortex and hBMECs, respectively.

**Result:** hBMECs was a saturable process that was mediated by a Na+-independent, membrane potential and pH-dependent transport system. Choline uptake was inhibited by various organic cations also interacted with the choline transport system. The cells have two different [3H]choline transport systems. Choline transporter-like protein 1 (CTL1) and CTL2 mRNA were expressed in hBMECs. CTL1 and CTL2 proteins were localized to microvascular endothelial cells in human brain cortical sections. Both CTL1 and CTL2 proteins were expressed on the plasma membrane. CTL2 proteins are mainly expressed in mitochondria.

**Conclusion:** We conclude that choline is mainly transported via intermediate choline transport system, CTL1 and CTL2 in hBMECs. These transporters are responsible for the uptake of extracellular choline and organic cations. CTL2 participate in choline transport mainly in mitochondria. Choline oxidation occurs in the mitochondria. The function of CTL2 may be associated with the control of choline oxidation.

**PT713**

**Oedipus Complex with Brain Injury**

Chia-Lun Tsai

Department of Psychiatry, Hualien Tzu Chi Hospital, Taiwan

**Please address correspondence to:** Chia-Lun Tsai, M.D.

Department of Psychiatry, Hualien Tzu-Chi Hospital, 707, Sec. 3, Zongyang Rd, Hualien 970, Taiwan

Tel: 886-3-8561825

E-mail: earthinsea@gmail.com

**Abstract**

**Objectives:** Oedipus complex explains the emotions and ideas that concentrates upon a child’s desire to have sexual relations with the parent of the opposite sex. Oedipus complex keeps in the unconscious via dynamic repression, and is usually revealed through psychoanalysis. I report a case who develops Oedipus complex after a severe traumatic brain injury.
Case: A 36-year-old man experienced a severe traumatic brain injury, resulting in diffuse SAH, right frontal SDH and left occipital EDH, as well as hydrocephalus. He was totally cared by his mother in the following months. After an event of V-P shunt obstruction, he changed his usual personality and seduced his mother by kissing on his mother's lips, giving huge hug, and licking his mother’s ear…etc, which he has never done these before. He was then admitted to our neuropsychiatric facility. After admission, no seductive behaviors to other patient or medical stuff, but only to his mother. The results of psychologic testing revealed intact intelligence but with impaired impulsivity and psychomotor vigilance. Behavior modifications were advised both to the patient and his mother for these inappropriate behaviors. The patient showed anger at first but his behaviors were modified gradually.

**Brain Imaging:**

**Discussion:** Tracing back his developing story, his father did not play his own role during the patient’s growth, and the patient linked closely to his mother emotionally. It may be the psychogenic cause accompanied with organic cause (traumatic brain injury) that the patient did seductive behaviors when the brain inhibitory area was less well-functioned. Our case highlights that both psychoanalysis and severe traumatic brain injury can reveal Oedipus complex. Otherwise, behavior modifications both to the patient and his mother showed efficacy in managing such condition.

**Keywords:** Oedipus Complex, traumatic brain injury

**PT714**

A case of anti-N-methyl-D-aspartate receptor encephalitis with prominent psychiatric symptoms and a prior history of a brief psychotic episode

JaiSung Noh, Gyuha Kang, Taehoon Kwon, Jeewon Lee, Hyun Woong Roh

Ajou Univ. School of Medicine, Republic of Korea

**Abstract**

**Introduction:** Here we report a case of an 18-year-old Korean female patient with anti-N-methyl-D-aspartate receptor (NMDAR) encephalitis who developed prominent psychiatric symptoms early in the course of the disease.

**Case:** The patient was initially admitted to the department of gynecology at Ajou University Hospital for elective ovarian cystectomy. She had a 6.7cm sized mass which most likely seemed like an ovarian teratoma. However she had to be transferred to the psychiatric ward the next day, since she presented symptoms of sleep disturbance, irritable and labile mood, talkativeness, and hyperactivity which had started the day before the admission. With her prior history of a brief psychotic episode several years ago, she was treated with lithium and risperdone, under the impression of a relapsed psychiatric disease. After few days, she developed neurological symptoms such as amnesia and confusion. Neurological examination, brain MRI, and spinal tap were done, but all test results were nonspecific. Still, under the impression of anti-NMDAR encephalitis, emergent ovarian cystectomy and immunotherapy with intravenous immunoglobulin (IVIG) were done to minimize the risk of neuropsychiatric sequelae. Then her CSF anti-NMDA receptor antibody assay exhibited positive result, diagnosing her with anti-NMDAR encephalitis on her 10th day of admission. She gradually recovered her alert mentality after five times of Rituximab therapy and was discharged from the hospital.

**Discussion:** Patients with anti-NMDAR encephalitis may be misdiagnosed as having a primary psychiatric disease, delaying proper diagnosis and treatment, which can result in increased risk of neuropsychiatric sequelae. This case emphasizes the need for increased awareness and diagnostic suspicion for anti-NMDAR encephalitis when approaching patients with neuropsychiatric symptoms with ovarian neoplasm, even if they have prior history and typical clinical presentation of a psychiatric disease.

**PT715**

The regulation of male pup-toward behavior by sexual hormones

Kazuki Ito, Taiju Amano, Kumi Kuroda, Masabumi Minami, Sakaya Shindo, Chihiro Yoshihara



