

## F222. CONCRETE THINKING PATTERN IN DAILY DECISION-MAKING PROCESS OF PATIENTS WITH SCHIZOPHRENIA: THROUGH EYE-TRACKING

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**Background:** Concrete thinking is one of the common clinical features of patients with schizophrenia, especially chronic and symptomatically severe patients. Until now, neuropsychological tests or proverb tests have been used to measure the difficulty of abstract thinking in patients with schizophrenia, but these methods have been difficult to know how concrete thinking patterns affect daily living of schizophrenia patients. In this study, we constructed a task that supposes the purchase of clothes in order to realize a situation close to the decision making of everyday life and tried to visualize the thinking process through eye-tracking method.

**Methods:** Each twenty of healthy controls and schizophrenia patients performed the task of purchasing clothes. In serial, subjects are asked whether the clothes are fancy, suitable for themselves, affordable and whether they would buy the clothes. The eye gaze information was obtained by using the eye tracking system of the SensoMotoric Instrument, and the fixation time in the face and the clothes areas was measured. The changes of the fixation time ratio of the face to the clothes between the matching and the purchasing decision blocks for each group were compared using repeated-measure ANOVA and the change of the ratio in patients with schizophrenia was analyzed with the PANSS concrete thinking score using generalized estimating equations. To investigate the relationship between the fixation time ratio and the answer of the purchasing block, two-way ANOVA with post hoc independent T-test was used.

**Results:** There was a significant interaction effect between the groups on the change of the fixation time ratio ( $p < 0.001$ ). In the patient group, the fixation time ratio decreased (matching:  $0.474 \pm 0.044$ , purchasing:  $0.206 \pm 0.069$ ) while the fixation time ratio increased in the control group (preference:  $0.233 \pm 0.041$ , purchase decision:  $0.463 \pm 0.064$ ). To investigate whether the change of the fixation time ratio is affected by the degree of concrete thinking, the odds ratio of the concrete thinking score to the fixation time ratio was calculated as  $0.825$  (95% CI;  $0.684-0.992$ ). The higher the concrete thinking score, the greater the decrease in the fixation time ratio was. Comparing the relationship between the answers in the purchasing block and the fixation time ratio, the interaction of fixation time ratios for each group was significant ( $p = 0.031$ ). In the post-hoc independent t-test, the fixation time ratio was significantly different for the control group ( $p < 0.001$ );  $0.167 \pm 0.124$  with purchase and  $0.566 \pm 0.073$  without the purchase. For the patient group, there was no significant difference in the fixation time ratios by the answer.

**Discussion:** The patients with schizophrenia relatively concentrated more on the face in the matching block, where the question included both "you" referring to the self and the clothes. In the purchasing block, where question did not contain "you", they focused less on the face. The concrete thinking scores had a significant influence on the change of the fixation time ratio in the patients with schizophrenia, confirming the possibility that the concrete thinking contributed to the difference of gaze information patterns between the two groups. In the final purchasing block, the differences in fixation time ratios by the answer were observed only in the control group. If the price is higher than expected in the previous block, it is estimated that the negative emotion is triggered and schizophrenia patients could easily depend on concrete thinking rather than consolidating the information from the previous blocks and making a re-judgment. It is necessary for the further study to devise a task which can measure emotional reaction and also closely related with the decision of everyday life.

## F223. COMPARATIVE STUDY OF HEART RATE VARIABILITY AND EMOTIONAL RESPONSE TO POSITIVE AND NEGATIVE AUDIOVISUAL STIMULATION IN PATIENTS WITH CHRONIC SCHIZOPHRENIA AND HEALTHY CONTROL

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**Background:** This study was to investigate the Heart Rate Variability (HRV) and emotional response to positive and negative audiovisual stimulation in patients with chronic schizophrenia and healthy control group

**Methods:** Among 253 chronic schizophrenic patients admitted in 00 Hospital in 00 city by psychiatrist, 104 patients were informed about this research and consented. Those who met this study criteria were randomly selected. 35 healthy control consisted of peoples that did not have past and present history of mental and physical illness. Positive and negative affect and HRV were compared between chronic schizophrenia and healthy control groups, and positive and negative affect and HRV to positive and negative audiovisual stimulation were measured according to planned research process. Positive and negative audiovisual stimulation was defined by an art therapy professional and a psychiatrist as 10 positive and negative pictures. 3 positive and negative musics were shown to two groups for 4 minutes simultaneously. Positive and negative audiovisual stimulation were shown to two groups during 1-week intermission. HRV was measured with Upulse H3, an equipment for autonomic nervous system test made by Laxtha company and also analyzed by frequency domain analysis. Emotional Empathy Scale (EES) and Positive Affect and Negative Affect Schedule (PANAS) of two groups were measured at baseline and after positive and negative audiovisual stimulation. Global Assessment of Functioning Scale (GAF) and Positive and Negative Syndrome Scale (PANSS) of chronic schizophrenia group were measured by a psychiatrist.

**Results:** 1) Positive affect of patients group were significantly lower than control group, negative affect of patients group were significantly higher than control group. Low Frequency (LF), High Frequency (HF), and Total Power (TP) of HRV in patients group were significantly lowered than control group at baseline.

2) 7 subscales of emotional empathy scale were lowered in patients group compared to control group.

3) Positive affect of patients group was significantly less increased compared to the control group after positive audiovisual stimulation, negative affect of patients group was significantly less decreased to the control group after positive audiovisual stimulation.

4) Positive affect of patients group was increased after negative audiovisual stimulation, but positive affect of control group was significantly decreased compared to the patients group after negative audiovisual stimulation. There was no significant difference in negative affect between two groups after audiovisual stimulation.

5) LF of patients group was significantly higher than control group after positive audiovisual stimulation, HF and TP of patients group were significantly lowered than control group after positive audiovisual stimulation.

6) LF of patients group was significantly higher than control group after negative audiovisual stimulation, HF and PT of patients were significantly lowered than control group after negative audiovisual stimulation.

**Discussion:** Patients with schizophrenia showed lower positive affect, higher negative affect, and lowered HRV parameters compared to the control group. They also showed lower empathy ability and inappropriate and non-contextual response. Schizophrenic patients represented hypersensitive sympathetic