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PHENYLALANINE KINETICS IN SCHIZOPHRENIA PATIENTS DETECTED BY ^{13}C-PHENYLALANINE BREATH TEST.

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Introduction: Altered levels of phenylalanine and its metabolites in blood and cerebrospinal fluid have previously been reported in schizophrenia. This study attempted to examine whether phenylalanine kinetics is altered in schizophrenia using the ^{13}C-phenylalanine breath test (^{13}C-PBT).

Methods: Subjects were 20 patients with schizophrenia and the same number of controls. ^{13}C-phenylalanine was administered and then $^{13}CO_2$ concentration in breath was monitored for 120 minutes. The $\Delta\ ^{13}CO_2$ at each collecting time, the maximal $\Delta\ ^{13}CO_2$ (C_{max}), the time to reach C_{max} (T_{max}), the area under the curve of time course of $\Delta^{13}CO_2$ (AUC), the cumulative recovery rate (CRR) at each collecting time of the ^{13}C-PBT were calculated for each subject.

Results: Body weight (BW) and diagnostic status were significant predictors for C_{max}. BW, age and diagnostic status were significant predictors for AUC and CRR at 120 minutes ($CRR_{0\text{-}120}$). A repeated measures ANCOVA controlling for age and BW revealed a different pattern of change in CRR over time between the patients and controls and that $\Delta^{13}CO_2$ in schizophrenia were lower than that in healthy control at all sampling point during 120 min, with an overall significant differences between healthy control and schizophrenia. The ANCOVA controlling for age and BW, showed that C_{max}, AUC and $CRR_{0\text{-}120}$ were significantly lower in schizophrenics than in controls.

Conclusions: Our data indicate the different change of $\Delta^{13}CO_2$ and CRR over time and the decreased C_{max}, AUC and $CRR_{0\text{-}120}$ of ^{13}C-PBT in schizophrenia patients compared to healthy controls, suggesting the altered phenylalanine kinetics in schizophrenia.

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