

《招待講演》

## Imaging Dopamine in Amphetamine-Induced Psychosis

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PET and SPECT neuroreceptor imaging techniques might be applied to measure acute fluctuations in dopamine (DA) synaptic concentration in the living human brain. This new application of neuroreceptor imaging provides a dynamic measurement of neurotransmission. This presentation will review recent evidence from brain imaging studies supporting the hypothesis that schizophrenia is associated with disruption of DA function. First, we will review studies that documented that amphetamine-induced dopamine release is elevated in patients with schizophrenia during first episode of illness and subsequent episodes of illness exacerbation. This abnormal response is associated with severity of positive symptoms. Second, we will present results from a new study that revealed that baseline occupancy of D2 receptors by dopamine is altered in schizophrenia, and that this alteration of synaptic dopamine levels is predictive of good clinical response to antipsychotic drugs. Next, we will present studies supporting that this dysregulation of striatal dopamine transmission might be secondary to a deficit in cortical regulation of subcortical dopamine mediated by NMDA transmission. Finally, we will present new data on the potential of state-of-the-art PET imaging to measure dopaminergic transmission in the mesolimbic dopaminergic system (i.e. ventral striatum), a new development that will contribute to our understanding of dopaminergic abnormalities in schizophrenia and of the mechanism of action of antipsychotic drugs.