

Dopamine and Serotonin Receptor Imaging in Drug-Naïve Schizophrenic Patients Treated with a New Antipsychotic Drug

Satoshi Ota, Shigeru Yasuda, Akio Sakai,
Hidehiko Endo¹⁾, Hirotsugu Yukawa¹⁾, Kuniaki Ogasawara¹⁾, Akira Ogawa¹⁾

Department of Neuropsychiatry, Iwate Medical University
19-1 Uchimaru, Morioka 020-8505, Japan

¹⁾ Department of Neurosurgery, Iwate Medical University
19-1 Uchimaru, Morioka 020-8505, Japan

Abstract

Neurotransmitter receptors may be involved in a number of neuropsychiatric disease states. D2 dopamine receptor in the striatum and 5-HT₂ serotonin receptor in the frontal cortex were imaged in normal volunteers and drug-naïve schizophrenic patients by means of [¹¹C] NMSP. The drug-naïve schizophrenic patients showed no noticeable difference in D2 dopamine and 5-HT₂ serotonin receptors [¹¹C] NMSP binding compared to normal volunteers. It has been suggested that a combined blockade of 5-HT₂ serotonin and D2 dopamine receptors may be superior to D2 dopamine alone in the treatment of schizophrenia. Perospirone, which has a high affinity for 5-HT₂ serotonin and D2 dopamine receptors in vitro, is a new atypical antipsychotic recently introduced for the treatment of schizophrenia. [¹¹C] NMSP was used to determine D2 dopamine and 5-HT₂ serotonin receptors occupancy in two drug-naïve schizophrenic patients. D2 dopamine and 5-HT₂ serotonin receptors occupancy calculated in the perospirone treated patients was 10-40% and 20-40%.