



Department of Psychiatry
Columbia University, College of P&S **NYS**
Psychiatric Institute

DIVISION OF BRAIN STIMULATION AND THERAPEUTIC MODULATION

JOURNAL CLUB

FRANCISCO PORTILLO, MD

VISITING FELLOW

DIVISION OF BRAIN STIMULATION AND THERAPEUTIC MODULATION, COLUMBIA UNIVERSITY

RESIDENT IN PSYCHIATRY

DEPARTMENT OF PSYCHIATRY, INSTITUT MUNICIPAL D'ASSISTENCIA SANITARIA (IMAS)
BARCELONA, SPAIN

will present the following paper

**Schlagenhauf F, Juckel G, Koslowski M, Kahnt T, Knutson B,
Dembler T, Kienast T, Gallinat J, Wrase J, Heinz A. Reward
system activation in schizophrenic patients switched from
typical neuroleptics to olanzapine. *Psychopharmacology (Berl)*.
2008 Mar;196(4):673-84. Epub 2007 Dec 21**

Wednesday March 18, 2009

1:00 PM to 2:00 PM

Location: New York State Psychiatric Institute, 1051 Riverside Drive, Room 5001

(Enter Kolb Annex, 40 Haven Ave., turn rt., walk through atrium and across bridge over Riverside Dr. to new NYSPI, take elevator to 5th Fl.)

(See over for brief speaker biography and J Club paper)

ABOUT FRANCISCO PORTILLO, MD

Dr. Francisco Portillo, a graduate of the University of Barcelona, is a Resident in the Department of Psychiatry, Institut Municipal d'Assistència Sanitària (IMAS), Barcelona, Spain. He is currently doing a 3-month rotation with the Division of Brain Stimulation and Therapeutic Modulation, Columbia University, working with Dr. Arielle Stanford. Dr. Portillo's research and clinical interests during this rotation concern use of TMS in schizophrenia. The below paper has relevance for a TMS study of volition.

PAPER FOR JOURNAL CLUB

Schlagenhauf F, Juckel G, Koslowski M, Kahnt T, Knutson B, Dembler T, Kienast T, Gallinat J, Wrase J, Heinz A. Reward system activation in schizophrenic patients switched from typical neuroleptics to olanzapine. *Psychopharmacology (Berl)*. 2008 Mar;196(4):673-84. Epub 2007 Dec 21

Department of Psychiatry and Psychotherapy, Charité University Medical Center, Campus Charité Mitte, Charitéplatz 1, 10117 Berlin, Germany.

RATIONALE: High blockade of dopamine D2 receptors in the ventral striatum including the nucleus accumbens may interfere with reward anticipation and cause secondary negative symptoms such as apathy or anhedonia. This may not be the case with newer neuroleptics such as olanzapine, which show less dopamine D2 receptor blockade and a faster off-rate from the receptor.

OBJECTIVES: We used functional magnetic resonance imaging to assess the blood oxygenation level dependent response in the ventral striatum of schizophrenics medicated with typical neuroleptics (T1) and after switching them to olanzapine (T2) and of healthy control subjects at corresponding time points during reward anticipation.

MATERIALS AND METHODS: Ten schizophrenics, while medicated with typical neuroleptics (T1) and after having been switched to olanzapine (T2), and ten matched healthy volunteers participated in a monetary incentive delay task, in which visual cues predicted that a rapid response to a subsequent target stimulus would either result in monetary gain or have no consequence.

RESULTS: During reward anticipation, healthy volunteers showed significantly higher ventral striatal activation compared to schizophrenic patients treated with typical neuroleptics but not olanzapine, which was reflected in a significant interaction between group and session. In patients treated with typical neuroleptics, but not with olanzapine, decreased left ventral striatal activation was correlated with negative symptoms.

CONCLUSIONS: Failure to activate the ventral striatum during reward anticipation was pharmacologically state-dependent and observed only in patients treated with typical neuroleptics but not with olanzapine, which may indicate that this drug did not induce secondary negative symptoms via interference with reward anticipation.