depressed patients, we assume that it is not the presence of a depression which explains anhedonia in schizophrenia.

In order to establish that schizophrenia and depression do act on their own and distinctly on anhedonia, we established a crossed factorial plan (2 × 2) including 40 non depressed (MADRS < 15) schizophrenic patients (according to DSMIII R), 11 depressed schizophrenic patients (MADRS ≥ 15), 28 depressed non schizophrenic patients (according to DSMIII R) and 72 non depressed non schizophrenic patients as control. The analysis of this scheme makes it obvious that schizophrenia has its own effect ($p < 0.001$) which is distinct from the own effect of depression ($p < 0.001$) on the physical anhedonia evaluated by Chapman's scale. On the social anhedonia, only depression has its own effect ($p < 0.02$).

So, when a schizophrenic patient is also depressed, his physical anhedonia can be partly explained by the schizophrenia disease (14%) and by its depression (13%). Both effects being strictly additive, there is no interaction between them. The major part of the anhedonia, that is the remaining 73% is not explained either by the existence of the schizophrenia or by the existence of a depression.

Depression explains 14% of social anhedonia, the remaining being not explained by the contemplated factors but social factors as suggested by previous studies.

We conclude then, that anhedonia, specially physical anhedonia, could be an intrinsic factor.

A NEW APPROACH TO THE PROBLEM OF SCHIZOPHRENIA DIAGNOSTICS

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The analyses of non-verbal forms of behaviour (mimics, gesture, pose) and non-verbal projective psychodiagnostic techniques are used as supplementary in multifactorial diagnostics of endogenic processes in adolescents. The techniques might be used in early diagnostics of schizophrenia, aggravating in puberty period, and also in cases of adolescents with behaviour disturbances, mood instability, and without clinically evident symptoms, speech disorder, delusions and catatonic manifestations.

Objective: Preliminary analyses of efficiency of use of psychodiagnostic techniques based on non-verbal forms of behaviour for early differentiated schizophrenia diagnostics in adolescents.

Investigation techniques: Analyses of non verbal forms of behaviour (fragments of videotaped conversation with a doctor), Szondi Test, 8-colour Lusher Test, clinics/catamnesis method, methods of mathematical statistics.

Results: 25 outpatients — practically healthy male teenagers (16–18 years old) and 20 inpatients with different forms of schizophrenia were examined. More than 30 non-verbal markers were revealed, such as squinting, wide-eyed staring, body swinging, hand tapping, reliably correlating with results of the psychological tests and with clinical symptoms.

Mathematical models of "diagnostic space" formed by clinical, psychological and behavioural indicators were obtained on the basis of multifactorial discriminant analyses, that permits to clearly estimate the situation of each patient under investigation.

Conclusion: Observation of non-verbal forms of behaviour combined with application of non-verbal psychological tests represent an efficient supplementary technique in multifactorial early diagnostics of schizophrenia in adolescents.

THE HYPOESTROGENISM HYPOTHESIS IN FEMALE SCHIZOPHRENIA: PRELIMINARY HORMONE SCREENING RESULTS

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There is some evidence for a protective effect of estrogen in female schizophrenia (cf. Häfner 1994, Seeman and Lang 1990) which are based on epidemiological as well as animal and clinical studies. An increased risk of onset or relapse of schizophrenia in periods of low estrogen blood levels in females, e.g. after childbirth, menopause or in the perimenstrual period could be demonstrated. While low levels of estrogen in female schizophrenic patients are assumed, epidemiologically and clinically relevant data on the hypothesis of hypoestrogenism are not available.

Therefore, a screening study was undertaken to investigate hospitalized female schizophrenics with regard to their sexual hormones before neuroleptic medication was administered. Furthermore, measurements were taken in the follicular, ovulatory and luteal phase of the first menstrual cycle during hospitalization (day 2–4, 10–12, and 20–22). Blood-levels of estrogen, testosterone, LH, FSH, prolactin, progesterone, DHEA-S and also TSH, T3, T4, cortisol, and GH were evaluated. At the same time, a menstrual and medical history was recorded and the psychopathology was measured by means of the Positive and Negative Syndrome Scale (PANSS).

Preliminary results of 93 female patients (age 17–65) provide evidence for the hypothesis of hypoestrogenism. Two thirds of all patients with regular menstruation (n = 58) were hospitalized during the perimenstrual period. Less than 10% of the subgroup with regular menstruation reached top estradiol blood levels during the examination period ≥ 100 pg/ml. About 75% of the patients met a tight definition of hypoestrogenism; with simultaneously low progesterone levels in the luteal phase, a malfunction of the follicle as well as anovulatory cycles were assumed. Details of the results as well as clinical and theoretical implications are discussed and steps of further research are outlined.

MAGNETIC RESONANCE IMAGING (MRI) AND ELECTROENCEPHALOGRAPHY (EEG) IN SCHIZOPHRENICS AND EPILEPTICS WITH SCHIZOPHRENIA: PRELIMINARY DESCRIPTIVE STUDY IN PATIENTS WITH AUDITORY HALLUCINATIONS

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The relationship between epilepsy and psychosis has been of interest for over 150 years. Several studies with MRI were used for evaluating schizophrenic patients and they showed different brain alterations. In contrast, studies of MRI in epileptic patients with schizophrenia were extremely scanty. In the last years, brain imaging techniques are available to supplement EEG technique. Aim of this study was to evaluate the brain morphology and functioning with MRI and EEG in two different groups of patients: schizophrenics with auditory hallucinations and epileptics with schizophrenia and auditory hallucinations, to verify the hypothesis of a possible pathogenetic continuum.

We studied a small but accurately selected sample of 8 male epileptic patients with schizophrenia (age = 19–46, mean = 32.8, SD = 9.74; paranoid schizophrenia N = 4, undifferentiated schizophrenia N = 3, catatonic schizophrenia N = 1) compared with 8 male schizophrenic patients (age = 18–47, mean = 33.5, SD = 9.9; paranoid schizophrenia N = 3, disorganized schizophrenia N = 3, catatonic schizophrenia N

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= 1, undifferentiated schizophrenia N = 1). All subjects underwent at MRI and EEG examination and diagnosis was according to DSM III-R criteria. As inclusion criterion we used the presence of auditory hallucinations measured with our scale for hallucination's evaluation. The psychopathological status was assessed by SAPS, SANS, PANSS. MRI scans were performed using a 1.5 Tesla Magnetom-Siemens, IR, SE, T1, T2, DP; the regions examined were corpus callosum, temporal lobes, planum temporale, cerebellum, amygdala, hippocampus and ventricles, using axial, coronal and sagittal sections. EEGs were taken out on a 18-channel recordings with a computerized system.

The results showed the presence of more important morphological alterations in epileptic patients with schizophrenia, as compared with non epileptic schizophrenics. These alterations consist of ventricular enlargement, mainly in right hemisphere, and thickening of right insular and parietal cortex. Only in two schizophrenic patients there are alterations characterized by left hippocampal atrophy and corpus callosum atrophy. As expected, EEG showed more prominent modifications in epileptic too, compared with non epileptic schizophrenics.

Although definite conclusions cannot be drawn due to restrictal sample, it is nonetheless possible to hypothesize that hallucinatory symptomathology of the two groups is supported by a different degree of severity of morphological and neurophysiological substrates.

SUBJECTIVE RESPONSE TO ANTIPSYCHOTICS IN SCHIZOPHRENIC OUTPATIENTS: PRELIMINARY RESULTS USING A FRENCH VERSION OF THE DRUG ATTITUDE INVENTORY (DAI)

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Subjective response to neuroleptics (SR) is a critical issue in the collaboration of schizophrenic outpatients. For these patients, non-compliance rates are known to be as high as 50%. The way they feel on medication can affect durably their compliance to treatment. Hogan and Awad [1,2] reported on the development and validation of the Drug Attitude Inventory (DAI), a self rating scale to assess SR. DAI was shown to (1) allow prediction of compliance, (2) have a high rate of concordance with Neuroleptic Dysphoria Scale [3] and (3) have internal consistency, which makes it a valid and useful tool to assess SR. *Objectives:* (1) To validate the french version of DAI, (2) To explore in a naturalistic setting the factors affecting SR. *Subjects and methods:* Transversal and naturalistic study of a population of schizophrenic (ICD-10 F20.XX) outpatients treated in our clinic. Self-evaluation by the patient and evaluation by the clinician of: (1) Subjective response to neuroleptics (DAI-30), (2) Symptoms (SCL-90, BPRS), (3) Therapeutic alliance (HAq-P/HAq-T), (4) Compliance, (5) Clinical Global Impressions (CGI), (6) Global Functioning Assessment (GAF), (7) Epidemiological data. *Preliminary results:* 29 patients completed the self assessment part. 21 are perfectly compliant (compliant group), and 8 are relatively non-compliant (non-compliant group). Scores of DAI-10 (short version of DAI) are higher in the compliant group (mean diff. = 14.26, DF = 27, t = 3.35, p = 0.002). Degree of compliance is linearly correlated to DAI score ($r = 0.57$, $r^2 = 0.33$, $p = 0.0009$). Surprisingly, patients receiving clozapine (9) and other neuroleptics (20) show no difference in SR. Factor analysis yielded 3 clinically relevant factors quite similar to the original (English) scale: (I) Subjective positive and prevention, (II) Subjective negative and egosyntonic symptoms [4], (III) Health-sickness and autonomy. *Conclusion:* French version of DAI-30 seems to have a similar structure as original version. It shows concordance with the degree of compliance. Psychopharmacological factors are not the only factors implicated in SR, and are still to be identified. Limitations of our study are (1) nonhomogenous indication for treatment (patients received clozapine on second intention), (2) small rate and degree of non compliance in our sample.

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HEMISPHERIC ACTIVATION IN SCHIZOPHRENIA AND DEPRESSION MEASURED BY CONJUGATE LATERAL EYE MOVEMENT

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The lateralization of cerebral dysfunction in schizophrenia has mostly been attributed to the left hemisphere and in major depression — to the right hemisphere. In this study, we present the results of conjugate lateral eye movement (CLEM) test as a method of measuring hemispheric activation, in 33 patients with exacerbation of schizophrenia (11 male, 22 female, aged 18–48 years), in 38 patients with the acute episode of major depression (7 male, 31 female, aged 20–60 years), and in 30 control subjects (16 male, 14 female, aged 18–60 years). CLEM recordings in response to twelve verbal question of cognitive (6), emotional (4) and spatial (2) content were performed with electronystagmograph. The mean numbers of CLEM to the right (R) and to the left (L) in response to cognitive, emotional and spatial questions were as follows:

Group	Cognitive		Emotional		Spatial	
	L	R	L	R	L	R
Schizophrenia	1.4*	3.3*	0.9*#	2.5*#	0.8	0.9#
Depression	2.8#	1.7#	1.9#	1.4#	1.0	0.7
Controls	1.3	3.0	2.9	0.8	1.2	0.3

*difference between schizophrenia and depression significant, $p < 0.05$
#difference vs control subjects significant, $p < 0.05$ (Mann-Whitney test)

Our results corroborate previous reports on greater right CLEM in schizophrenia and greater left CLEM in depression, in response to both cognitive and emotional stimuli. This may imply that in schizophrenic patients, otherwise than in remaining groups, the emotional stimuli are not properly handled by the right hemisphere but are mostly processed by the left one, what may contribute to impaired emotional functioning in these patients. Similarly in depressed patients, cognitive stimuli are processed by the right hemisphere what may lower the efficiency of cognitive functions in this illness.

THE PRECLINICAL PROFILE OF THE NEW ANTIPSYCHOTIC, ZIPRASIDONE

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Ziprasidone (CP-88, 059) is a combined serotonin and dopamine receptor antagonist which exhibits potent effects in preclinical assays predictive of antipsychotic activity. While the compound is a