increase in the mean Mg concentration and with clinical improvement in 75% of the cases.

Conclusion: Mg may be involved in the pathophysiology of schizophrenia. Longitudinal studies are warranted to clarify whether determination of serum Mg concentrations might be useful in monitoring treatment effects.

SCHIZOTYPY AND LEADERSHIP: AN ATTEMPT TO DEFINE A CONTRASTING MODEL FOR SCHIZOPHRENIA

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Manfred Bleuler had suggested that nearly all schizophrenic (Szic) mechanisms can be found in normal people, and the development of the fundamental nature of schizophrenia (Sz) is being conceived as a quantitative variation from an arbitrary normal mean. While the well known theories on Sz are based on models that simulate its psychopathology, I happened to sense a vivid contrast between the cognitive style of a typical ectomorphic, male szic evolving from a schizoid personality with only minimal positive symptoms, and that of a highly dominant, charismatic and persuasive leader (Alias A.G., Lancet II: 1248–9, 1972; Biol Psychiat 9:61–72, 1974). There is broad consensus that slow information processing is a fundamental defect in Sz. In contrast, numerous studies have correlated leadership with the speed of information processing. Further, subnormal motor co-ordination with neurological soft signs are often present in regressed szics, as well as in many latent szics. A relationship between cerebellar and basal ganglia functions and cognitive processes, and a role of neocerebellum in rapidly shifting attention, which appears to be defective even in latent szics, have been demonstrated. The cognitive styles, including a proficiency to quickly shift attention, of John F. Kennedy, Napoleon, and Julius Ceasar are used as examples of contrasting models, so are those of Bob Hope, as is Mustapha Kemal, for his superior motor co-ordination.

THE PSYCHOPATHOLOGY OF MADNESS: AN ANALYSIS OF THE RELATIONS BETWEEN PSYCHOTIC SYMPTOMS

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Although syndromes and subtypes have been identified in schizophrenia individual patients can have symptoms typical of different subtypes. Syndromes are not mutually exclusive. The purpose of this study was to test a hypothesis explaining why symptoms tend to associate or dissociate. In contrast to large scale statistical analyses it was based on detailed psychopathological analysis of patients' descriptions of their experiences. The case notes of 48 patients were examined. Psychotic (mainly first rank) symptoms were identified using SCAN definitions and assigned a code letter. Twenty-seven cases with a full data set were included in the numerical analysis. This showed that whilst almost any symptom could occur with any other they tended to segregate into two groups. These were similar to Liddle's disintegrative and integrative reality distortion syndromes. Symptoms within any one group tended to associate with each other and not with symptoms in the other group. The main hypothesis was that traditional symptoms are descriptions of sensations. The type of description the patient makes is shaped by her basic attitudes. Thought insertion, auditory hallucinations and passivity phenomena were found to be descriptions of a basic experience called the GHE-complex mediated by the JK-attitude. The sensation is a subjective change in the perception of one's thinking. The attitude relates either to the sense of personal agency or to the recognition of ambiguity.

VERBALIZED VERSUS SILENT WORD PRODUCTION: ACTIVATION STUDY WITH $H_2{}^{15}O$

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The verbal fluency (VF), a neuropsychological task impaired in patients with schizophrenia, has been used previously to investigate the brain regions involved in covert word generation. In its original form, the VF task requires the subject's to retrieve, and verbalize categories of words. In order to investigate the regions involved in the control of word verbalization, we studied the cerebral regions engaged in verbalized, silent VF, and in a free word association task, allowing more spontaneous changes in the course of word associations. Moreover, the relationship between individual verbal performances and the brain areas challenged were studied.

Subjects And Methods: 14 male control subjects, right-handed, aged 18 to 34 were studied. Anatomical data were acquired by MRI. Normalised regional Cerebral Blood Flow (NrCBF) was measured using a positron tomograph with the $H_2{}^{15}O$ method, in 2 runs of 3 conditions: rest, verbal fluency, free word production. In addition, 8 of the subjects were studied during silent VF. The words verbalized during images acquisition were tape-recorded, duration and inter-word pauses times were quantified with a computer. Anatomical cerebral regions were drawn according to gyri limits, and copied to registrated PET images. NrCBF values were analyzed with MANOVA and post-hoc t-tests. Relationships between the audio data and NrCBF were examined with Pearson's correlation statistic.

Results: During verbalized VF vs rest, NrCBF significant increases appeared in Broca's area, left superior and middle frontal gyri, supplementary motor areas bilaterally, inferior left precentral and postcentral gyri, both putamen and cerebellum. During silent VF vs rest, the preceding regions were activated exept Brodmann's areas 8, left putamen, and cerebellum. In the silent VF vs verbalized VF comparison, NrCBF increased in right supplementary motor, left inferior precentral gyrus, left Brodmann's area 46, and left temporal pole. During free word production vs verbalized VF, NrCBF increased in the left anterior frontal gyrus, left Brodmann's area 6, right supplementary motor area, and left temporal pole.

The duration of the words verbalized during VF correlated with the magnitude of the NrCBF increases in left Brodmann's area 6, and left inferior precentral region.

Conclusion: A network of regions, mainly in the left frontal lobe, was involved in both verbalized and silent VF. The changes in NrCBF accross conditions suggests that: 1/ Control of verbalization engages the area 8, left putamen and cerebellum; 2/ The duration of verbalization correlates with Brodmann's area 6 and the left inferior precentral gyrus. Strikingly, the left inferior precentral gyrus and the right SMA appeared even more engaged in the silent representation of words than in execution of verbalization; 3/ Word retrieval during verbalized and silent VF engages particularly Broca's area and left Brodmann's area 46.

IS ANHEDONIA AN INTRINSIC FACTOR?

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In a previous work in schizophrenic patients, we showed that high anhedonia scores (that is inhability to experience pleasure) were not correlated with depression and negative symptoms.

For this reason, although anhedonia can be found in non schizophrenic

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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