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Meeting

Schizophrenia Symposium

The Biological Psychiatry Group organized a two-day symposium at the Annual Meeting of the Royal College of Psychiatrists on 6 and 7 July 1981. A selection of abstracts of papers follows.

Clinical and hormonal effects of apomorphine (APO) in acute and chronic schizophrenia. I. N. FERRIER, *Clinical Research Centre, Harrow, Middlesex*

Three groups were studied:—(1) 15 male long term inpatients with schizophrenia (Feighner criteria); (2) 15 men with acute psychotic illness of less than one month's duration (categorized as schizophrenic on the Present State Examination); and (3) 10 normal men aged matched with group (2). All patients were unmedicated with neuroleptics for at least 6 months.

Fasting venous samples were obtained at 15 minute intervals for 30 mins before and 60 mins after either APO (0.75 mg) or placebo administered subcutaneously in random order on two consecutive days. Semistructured interviews were videotaped prior to and 30 mins after both injections. The videotapes were rated blindly by two psychiatrists using the Krawiecka scale. Serum was assayed for growth hormone (GH) and prolactin (PRL).

There was a marked variation in clinical effects of APO (e.g. drowsiness, yawning, nausea) within rather than between groups. A reduction in anxiety in acute schizophrenics ($P < 0.05$), but no other differences, was seen after APO but not placebo. There was no difference in the size or timing (45 mins) of the maximal GH increment or PRL suppression between the groups. Responses were very variable and baseline and age effects important. There was no relationship between hormonal responses and clinical ratings or effects after APO. No specific therapeutic actions of APO and no evidence of change of pituitary dopamine receptor sensitivity in schizophrenia have been demonstrated.

Relation between clinical syndromes and electrodermal asymmetries. JOHN GRUZELIER, *Department of Psychiatry, Charing Cross Hospital Medical School*

Earlier studies of bilateral differences in electrodermal responses in schizophrenic patients showed a consistent asymmetry in the direction of larger right hand responses. Recent studies have shown asymmetries in both directions, but selection criteria have differed—patients were now required to satisfy CATEGO criteria for schizophrenia from the PSE. This is a hierarchical system giving weight to Schneiderian symptoms of first rank in preference to symptoms of mania or depression, despite the predominance of the latter in the clinical picture. We found by comparing patients with larger right hand responses ($N = 29$) with patients with larger left hand responses ($N = 19$) that the groups fell at opposite poles of a dimension relating to cognition, affect and behavioural arousal. Patients with larger right hand responses exhibited syndromes and ratings on the BPRS indicative of 'classical Bleulerian schizophrenia' whereas those with larger left hand responses manifested a florid picture suggestive of an 'acute functional psychosis' (cf. Kety, 1980). A model of lateralized dysfunction in psychosis is proposed whereby classical schizophrenia involves reduced left hemisphere frontal-limbic arousal, with an over-use of right hemisphere functions, whereas the acute functional psychosis involves heightened left-sided frontal-limbic activity and an over-use of left hemisphere processing.

Increased brain dopamine and dopamine receptors in schizophrenia. L. L. IVERSEN, A. V. P. MACKAY, M. ROSSOR and E. BIRD, *MRC Neurochemical Pharmacology Unit, Medical Research Council Centre Medical School, Hills Road, Cambridge*

In post-mortem samples of caudate nucleus and nucleus accumbens from 48 schizophrenic patients there were significant increases in both B_{max} and apparent K_D for ^{3}H-spiperone. The increase in apparent K_D probably reflected the presence of residual neuroleptic drugs, but changes in B_{max} for ^{3}H-spiperone reflected genuine changes in dopamine receptor numbers. The increases in receptors, however, were seen only in patients in whom neuroleptic medication had been maintained up until the time of

death, indicating that they might be entirely iatrogenic. Dopamine measurements for a larger series of schizophrenic and control cases (N >60) showed significantly increased concentrations in both nucleus accumbens and caudate nucleus. The changes in dopamine were not obviously related to neuroleptic medication, and unlike the receptor changes were most marked in younger patients.

Further studies on the outcome of schizophrenia. EVE C. JOHNSTONE, D. G. C. OWENS and T. J. CROW, *Division of Psychiatry, Clinical Research Centre, Watford Road, Harrow HA1 3UJ*

Abnormalities of mental state, cognitive and behavioural performance found in 510 schizophrenic inpatients related to duration of illness and not to past physical treatment. The investigations were repeated on (a) non-institutionalized schizophrenic patients; (b) institutionalized manic-depressive patients, both groups being matched with the index sample for age and duration of illness. The schizophrenic outpatients resembled the schizophrenic inpatients very closely in all respects except cognitive performance, and the manic-depressive inpatients resembled the schizophrenic inpatients only in terms of cognitive impairment. These results indicate that the abnormalities of patients with chronic schizophrenia are a feature of the disease process and not of institutionalization. CAT studies of the brains of age-matched samples of these patients showed that the ventricles of neurotic controls were smaller than those of institutionalized and non-institutionalized schizophrenics ($P < 0.01$) and institutionalized manic-depressives ($P < 0.05$).

Can the speech of manic and schizophrenic patients be distinguished? TIL WYKES, *MRC Social Psychiatry Unit, Institute of Psychiatry, London*

It is a clinical impression that the disordered speech found in mania and schizophrenia is very similar, but that the speech of manic patients is easier to understand. What is the validity of this? Transcripts of the disordered speech of eight schizophrenics and four manics were analysed, using a linguistic cohesion analysis which measures the number of structural links that tie the text together. The speech of manic subjects was shown to contain more of these links, a difference suitable perhaps for inclusion in a diagnostic instrument, such as the PSE. Psychiatrists were able to utilize such links in making a diagnosis of mania or schizophrenia on the speech transcripts, and found the linguistic guide most useful in the most difficult cases. (See *Brain and Language*, 1981 (in press) and *Psychological Medicine*, 1981 (in press)).

Dopamine D2 receptor increases in schizophrenic brains: effect of neuroleptics and relationship to symptomatology. F. OWEN, A. J. CROSS, T. J. CROW, M. POULTER and J. L. WADDINGTON, *Division of Psychiatry, Clinical Research Centre, Northwick Park Hospital, Watford Road, Harrow HA1 3UJ*

We have previously reported marked increases in dopamine D2 receptors in schizophrenic brains (Owen *et al*, 1978; *Lancet*, *ii*, 223). This increase may be specific to D2 receptors since ^{3}H-ADTN binding to the D3 receptor and the D1 component of ^{3}H-flupenthixol binding were no different in schizophrenic brains compared with controls. In addition the binding of ligands to several other neurotransmitter receptors was similar in controls and schizophrenics (Owen *et al*, 1981; *Acta Psychiatrica Scandinavica*, Suppl, **291**, 20). In a recent study of brains from patients dying with Huntington's Chorea, some of whom had received neuroleptics prior to death and others who had not, there was no significant increase in ^{3}H-spiperone binding to D2 receptors in the neuroleptic treated group. In a larger series of brains of controls ($N = 40$) and schizophrenics ($N = 50$) we have confirmed our initial finding of a large increase in D2 receptors in schizophrenic brains. The psychiatric features of 14 schizophrenics, in the larger series, had been assessed in life, and positive but not negative symptoms were significantly correlated ($r = 0.698$, $P < .01$) with the number of D2 receptors.

Is there a neurochemical basis for the type II syndrome in schizophrenia? T. J. CROW, C. BLOXHAM, A. J. CROSS, I. N. FERRIER, EVE C. JOHNSTONE, F. OWEN and D. G. C. OWENS, *Division of Psychiatry, Clinical Research Centre, Northwick Park Hospital, Watford Road, Harrow HA1 3UJ*

On the basis of previous pharmacological, psychological and radiological studies it has been suggested that positive (the type I syndrome) and negative (the type II syndrome) symptoms of schizophrenia reflect different underlying pathological process (see *British Medical Journal*, 1980, **280**, 66). Whereas the type I syndrome may be related to a disturbance of dopaminergic transmission, the type II syndrome may be more closely related to structural changes in the brain. In an attempt to determine whether the latter syndrome is also associated with a specific neurohumoural disturbance we examined the brains of a series of 26 patients with schizophrenia who had been rated in life for the presence or absence of negative symptoms. By comparison with controls the activities of the enzymes mono-amine oxidase, dopamine β-hydroxylase and choline acetyltransferase were unchanged in either group. Numbers of dopamine

receptors were significantly increased in both groups of patients but were unrelated to the presence of negative symptoms, and were also unrelated to the presence or absence of movement disorder. Thus there was no evidence for a specific neurochemical disturbance associated with the type II syndrome and in particular this type of 'schizophrenic dementia' does not resemble Alzheimer's disease.

Serum levels of depot neuroleptics and tardive dyskinesia. D. ECCLESTON, A. F. FAIRBAIRN, F. J. ROWELL and A. J. ROBINSON, *University Department of Psychiatry, Royal Victoria Infirmary, Newcastle Upon Tyne*

Reports have associated chronic schizophrenia with both cognitive and CAT scan change suggestive of an organic dementia. These changes appear to be worse in tardive dyskinesia (TD) and one hypothesis would be that neuroleptic drugs cause both. This investigation sought to determine whether the concentration of drug was high in relation to dosage in the TD group. The concentration of flupenthixol was determined by radioimmunoassay in 12 schizophrenic patients with TD and 17 without at five days following depot injection.

A highly significant correlation between dose (mg/week) and serum concentration for controls was found ($r = 0.88$, $P < 0.001$). There was no significant difference between the serum concentration of neuroleptic in the two groups, nor was there any difference in the correlations between dose and serum concentration. This work indicates that the development of tardive dyskinesia and dementia is not related to the finding of disproportionately high plasma concentrations of neuroleptic in TD.

The processing of facial information in schizophrenia. J. A. WEINMAN and S. FERDOWSKI, *Unit of Psychology, Guy's Hospital Medical School, London*

A series of studies concerned with understanding the way schizophrenics perceive, interpret and store facial information showed schizophrenics were significantly worse at detecting transient changes in facial expression, but, unlike the controls, had no difficulty in detecting identity changes. It was inferred that they possessed facial information in a more analytic 'feature by feature' fashion, contrasting with the usual automatic and holistic processing of faces. This perceptual difference was also reflected in memory, since a superior recall of features was found in schizophrenics. However two additional studies showed that schizophrenics can appropriately adapt their strategies for processing and storing faces.

Very marked differences were found between schizophrenics and controls in describing faces. The schizophrenics' descriptions contained far more inferences about the personal qualities of the individuals depicted in the test stimuli, which provides evidence of the 'multiple meanings' that are derived from stimuli that are as evocative as faces.