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MELATONIN/CORTISOL RATIO IN PSYCHIATRIC ILLNESS

SIR,—Hypersecretion of cortisol has been reported in a significant proportion of depressed patients[1,2] and is held to be a specific and sensitive marker of that illness.[1,2] Reduced nocturnal secretion of the pineal methoxyindole melatonin has also been found in depressed patients[3–5] and is held by some workers to be a marker of depressive illness.[4,5] Wetterberg et al.[6,7] have suggested that the ratio of melatonin secretion to cortisol secretion (M/C ratio) in samples taken at midnight relates closely to clinical state and is a more sensitive index of depressive illness than either of the above indices separately. We have investigated the secretion of these hormones in schizophrenic patients to assess these claims of diagnostic specificity.

Venepuncture was performed at midnight under the illumination of a dim night light in fifteen male chronic schizophrenics (who conformed to criteria of Feighner et al.[8] for the diagnosis of schizophrenia) and nine age and sex matched controls (two normal volunteers and seven patients in an orthopaedic ward awaiting minor elective surgery). No subject was taking psychotropic drugs at the time of study (the schizophrenics had had neuroleptic medication discontinued 1–12 years previously). All subjects had been in bed for 1–2 h before blood sampling and the same proportion of each group was awakened from sleep. Cortisol and melatonin were assayed blind from coded serum samples by radioimmunoassay[9,10] and results are shown in the table. Log transformed data were analysed by Student's t-test. Five chronic schizophrenics (33%) had undetectable midnight melatonin levels, which were considered for these calculations to be at the detection limit (7 pg/ml).

The schizophrenics had higher midnight cortisol values than did the controls (though only one schizophrenic patient was outside the normal range [>400 nmol/l]), lower midnight melatonin levels, and a highly significant reduction in the M/C ratio.

Thus a low M/C ratio has been demonstrated not only in depression[6,7] but also in chronic schizophrenia.

A reduced M/C ratio therefore has no diagnostic selectivity and may represent a non-specific sequela of psychiatric illness. For example a reduced M/C ratio may be related to phenomena associated with psychiatric illness such as low body weight (which is associated with low melatonin secretion[11,12]), weight loss (which has been implicated in the hypersecretion of cortisol in other psychiatric conditions[13]), "stress", or a history of previous psychoactive drug administration. Alternatively, changes in either melatonin or cortisol secretion may be more directly related to the disease process in schizophrenia or depression but even if this is the case the M/C ratio cannot be used to discriminate these psychiatric illnesses.

CORTISOL AND MELATONIN LEVELS AND M/C RATIOS IN MIDNIGHT BLOOD SAMPLES IN SCHIZOPHRENICS AND CONTROLS· MEAN±SEM

	Chronic schizophrenics (n=15)	Controls (n=9)	p
Age	59±5·1	52±3·0	
Cortisol (nmol/l)	185±32	72±17	<0·01
Melatonin (pg/ml)	17±3	29±5	<0·05
M/C ratio (ng/nmol)	0·15±0·04	0·69±0·23	<0·005

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NEONATAL ROTAVIRUS INFECTION

SIR,—Rotavirus is the most common cause of diarrhoea in children beyond the neonatal period in many parts of the world.[1] However, rotavirus infection in the newborn is frequently symptomless. There has been increasing interest in the epidemiology of neonatal rotavirus infections because of possible roles of such infections in the transmission of disease to susceptible household contacts and in the acquisition of immunity to the disease during infancy (in infants colonised in the neonatal period). The frequency of neonatal rotavirus infection varies from zero to 52%, and there are wide geographical and seasonal variations in incidence.[2,7] We report here on experience at a neonatal nursery in Baltimore.

Patients admitted to the full-term or preterm nursery at the Baltimore City Hospitals from Aug. 1, 1980, to July 31, 1981, were enrolled in the study, and these included inborn and transferred infants. Stool specimens were obtained on term infants on the first day of life and, when possible, a second sample was obtained before discharge (at age 2–5 days). In the preterm infants, stool specimens were obtained on the day of admission (day 1 or 2 of age) and then weekly until discharge. Stools were tested for rotavirus antigen by enzyme linked immunosorbent assay.[8]

1025 (87%) of the 1175 infants (902 term and 273 preterm) admitted to the nursery during the study period were studied. 200 (83%) of the preterm infants had two or more stool samples tested and 405 (52%) of the term infants had more than one stool sample tested. Rotavirus antigen was detected in 13 infants (1·3%). The incidence of rotavirus colonisation was 1·7% in preterm and 1·3% in term infants, but this difference was not significant. All infants colonised with rotavirus were symptomless.

Of 9 term infants colonised with rotavirus follow-up stool samples were available in 7. In 5 the stool sample at age 1 day was positive but stools were negative on the second day; in 1 stools were positive on the first day and on discharge at age 4 days; and in 1 the stool

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