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Excretion of Follicle-Stimulating Hormone in Urine of Mental Patients in and Past Menopause.*

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In a previous communication[1] the daily urinary excretion of gonadal stimulating substances was investigated over prolonged periods of time in a group of 15 mental patients and 5 non-psychiatric subjects. Female patients, in the involutional period, were found to excrete large amounts of follicle-stimulating hormone (F.S.H.). However the high level of excretion was not maintained continuously and on some days no hormone appeared to be excreted.

In the present study† the excretion of F.S.H. was investigated in a group of 94 psychotic women in and past the menopause (age 43-108 years). There were 13 patients diagnosed as manic-depressive psychoses, 8 as involutional melancholia, 17 as psychoses with cerebral arteriosclerosis, 39 as paranoid dementia praecox and 17 patients in other diagnostic categories. Three or 4 non-consecutive 24-hour specimens of urine were collected from each patient. Creatinine determinations were carried out on the individual specimens to ascertain the completeness of the collections.

A hormone concentrate was prepared from each 24-hour specimen of urine by essentially the same method used in our previous study.[1] This concentrate was injected twice daily for 3 days into an immature female rat (21-22 days old) from our stock colony. On the fifth day the ovaries were removed, weighed and examined. The ovaries obtained from at least one of the test periods from each patient were sectioned. The patency of the vagina and the uterine reaction were noted.

F.S.H. produces an increase in the weight of the ovaries, which increase apparently depends upon the amount of hormone injected. Therefore, the amount of hormone present in a 24-hour specimen

* Presented at the 91st Annual Meeting of the American Psychiatric Association, Washington, D. C., May, 1935. Aided in part by a grant from the Thomas W. Salmon Memorial Fund.

1 Harris, M. M., Brand, E., and Hinsie, L. E., *Am. J. Psychiatry*, in press.

† We are indebted to Doctors Merriman and Stein of the Manhattan State Hospital and Doctors Blaisdell, Chandler, Munn and Klein of the Rockland State Hospital for making patients available to us for this study.

of urine was approximated by means of the ovarian weight of the experimental animal. The normal weight of a pair of ovaries from our 24- to 25-day-old rats is 12 to 16 mg.

The findings, thus far, of this study, which is still in progress, suggest the following:

(1) Patients with manic depressive psychosis and involutional melancholia appear to excrete larger amounts of F.S.H. than those suffering from paranoid dementia praecox and psychoses with cerebral arteriosclerosis. The F.S.H. excreted over 24 hours by the patients in the first 2 groups produced rat ovaries weighing on the average 120 mg., while the hormone excreted by the other groups gave ovaries averaging 80 mg. The first 2 groups also seemed to show somewhat less variability in their daily hormone excretion.

(2) There appeared to be a diminished excretion of F.S.H. in the paranoid dementia praecox and cerebro-arteriosclerotic patients who were beyond the age of 60 years. It is interesting to note, however, that a colored patient with senile psychosis and of the verified age of 108 years excreted daily relatively large and constant amounts of F.S.H., the rat ovaries weighing on the average 120 mg. (Case No. 6).

(3) The largest excretion of F.S.H. per 24 hours (303 mg. ovaries) occurred in a patient (No. 5), age 58 years, with hypertension and psychosis with cerebral arteriosclerosis.

(4) Contrary to certain reports in the literature, hypertension was not necessarily associated with a high level of hormone excretion. In fact, some patients with low blood pressure excreted more hormone than some of the cases in the hypertensive group.

(5) A poor state of nutrition, which seldom occurred in our patients, did not necessarily result in a low F.S.H. excretion. However, 3 dysplastic and markedly obese patients were observed to excrete a very small amount of hormone.