

THE ESTIMATION OF VITAMIN C CONTENT OF THE URINE OF FIFTY PATIENTS SUFFERING FROM PSYCHOSES.

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THE estimation of vitamin C in the urine has recently been undertaken on a fairly large scale on patients suffering from physical disturbances. Harris (1) and his co-workers investigated 74 hospital patients at Cambridge, and found that 62 (84%) excreted less than the minimum standard, or 13 mgrm. per day. Excluding 19 on special diets, 43 excreted less than 13 mgrm. per day, and the average excretion of 55 was 10 mgrm. per day.

Abbasy, Gray Hill and Harris (2) found that in 107 cases of active rheumatism the excretion was only 9 mgrm. per day, and this low excretion persisted in 86 convalescent cases. Twenty-two cases of active surgical tuberculosis showed low rates of excretion, but in those with quiescent tuberculosis the excretion was normal.

In this country very few investigations have been carried out on patients suffering from mental disorders, but a certain amount of research has been done in other countries. Bersot (3) found that the excretion of vitamin C was retarded in schizophrenia, arteriosclerosis and myxœdema, while it was found to be normal in paranoid patients and idiots. Heinrich (4) found there was no change in vitamin C content in the central nervous system of patients suffering from organic diseases of the nervous system.

Fifty patients, whose diagnoses are given below, were investigated after they had been in hospital for some weeks, by which time the regular hospital diet would exclude any errors which might be caused by underfeeding before admission to hospital.

Twenty-two were suffering from schizophrenia, 13 from depression, 7 from epilepsy, 3 from involuntal depression, 3 from Korsakov's disease and 2 from cerebral arteriosclerosis. Of these patients, 6 were also suffering from physical disturbances, viz., 4 from tuberculosis, 1 from secondary anæmia and 1 from syphilitic aortitis.

The Tillmann method of estimation was used, and in order to prevent oxidation, the examination was carried out, in most cases, within a few minutes of voiding the urine. Where examination was not possible at once,

the specimens were "capped" and placed in a dark cupboard. Titrations were made on single specimens of urine, as owing to incontinence of urine in many cases 24-hour specimens could not be obtained. Where 24-hour specimens were obtainable, little difference, if any, in the results was noted between them and the examination of single specimens. The results, however, are based on a 24-hour output of 1000 c.c. urine.

Two specimens were obtained, the first being discarded and the second used for the examination, the specimen of urine examined being usually obtained at 9 a.m. This was done to prevent uneven concentration in the overnight specimen.

The average daily output of the 50 patients was on the low side, being approximately 9.16 mgrm. of ascorbic acid in 24 hours, while the average excretion of 10 members of the staff who were on comparable diets was 14.6 mgrm., the highest value being 24 mgrm. and the lowest 9.2 mgrm.

Of the individual mental disorders, excluding those with physical disturbances, the average was as follows :

	Maximum (mgrm.).	Minimum (mgrm.).	Average (mgrm.).
Schizophrenia	12.2	6.1	8.2
Depression	11.0	6.0	8.4
Epilepsy	12.0	5.3	7.7
Involitional depression	11.6	7.1	9.4
Cerebral arteriosclerosis	9.0	6.0	7.5
Korsakov's disease	18.5	7.4	12.9

All these patients were on similar diets, so that the varied results could not be ascribed to this factor ; but as Schultzer (5) found in rheumatic cases that there appeared to be a greatly increased metabolic use and need for vitamin C, and a correspondingly lowered degree of saturation in the body tissues, the variations may be due to similar causes in these forms of psychosis.

Several of the patients were given firstly an orange, after which the ascorbic acid content of the urine was estimated, and secondly six redoxon tablets (equalling 300 mgrm. ascorbic acid), after which estimations were again carried out.

After the orange only a slight increase of ascorbic acid was found in the urine, whereas after the redoxon tablets there was an average increase of 13 mgrm., which rapidly fell to the patient's normal level while on ordinary diet.

Eight patients had complete blood-counts done, and were then given 4 redoxon tablets (equalling 200 mgrm. ascorbic acid) for 6 days, after which the blood-counts were repeated. One patient only showed a rise in the red cell-count, from 4,860,000 to 5,210,000, while the others showed no change.

From these results no definite conclusions can be reached, but many of

these patients' weights were on the low side, and whether there is any relation between body-weight and the excretion of vitamin C is a matter for further investigation. It is hoped to publish more detailed results on a larger number of patients at a later date.

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