some skin-sensitizing activity is present in the 7S region also.

β_2A-globulin, indicated by the lower bar-graphs, is present in all fractions which contain skin-sensitizing antibody. However, in all 4 sera β_2A-globulin extends into the lighter 7S region as well.

Discussion. These data indicate that SSA in the serum of patients allergic to ragweed has sedimentation properties intermediate between 7S and 19S globulins. Rockey and Kunkel have reported similar results in a rather unusual case of sensitivity to glucagon, presumably induced by glucagon-contaminated insulin injections in their patient (5). It is possible therefore that the intermediate molecular size may be a property associated with the ability of such antibodies to sensitize human skin, and perhaps other tissues as well.

Furthermore, the skin-sensitizing activity and β_2A-globulin in these sera show similar sedimentation characteristics, which is in accord with the present concept that human SSA may be a β_2A-globulin(6,7). The recent finding by Leddy *et al*(9) that *in vitro* treatment of allergic serum with sulfhydryl reducing agents destroys skin-sensitizing activity is in accord with this concept, since such treatment is known to dissociate 10S β_2A-globulin molecules into 7S sub-units(10).

Summary. The molecular size of the skin-sensitizing antibody in the serum of 4 ragweed-sensitive patients was studied, using the method of sucrose density-gradient sedimentation. The skin-sensitizing activity was present in a protein fraction of serum which sedimented somewhat faster than the 7S globulins but definitely slower than the 19S globulins. The skin-sensitizing antibody was associated with β_2A-globulin, although the latter extended into the lighter 7S region.

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Received November 22, 1963. P.S.E.B.M., 1964, v115.

Urinary Steroids in Neurotic- and Manic-Depression.* (29019)

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Significant elevations in urinary 17-ketogenic steroids (17-KGS) with relatively low levels of urinary 17-hydroxycorticosteroids (17-OHCS) have been reported in adrenogenital syndrome(1), Cushing's syndrome(2), and recently in patients with adrenocortical hyperplasia, carcinoma, and "idiopathic" hirsuitism(3). In this paper similar findings for groups of neurotic- and manic-depressive patients are presented, and a significant correlation between the severity of depressive symptomatology in those patients and their excretion of 17-KGS is reported.

Materials and methods. Numerous 24-hour

* This work was supported in part by contract between Office of Naval Research, Dept. of Navy, Washington, D. C., and Dept. of Medicine, Univ. of Calif. Med. Center, San Francisco. Opinions or assertions contained herein are private ones of author and not to be construed as official or necessarily as reflecting views of Medical Dept. of Navy or Naval Service at large.

urine specimens were obtained from 5 neurotic- and 5 manic-depressive patients during their psychiatric hospitalizations at U. S. Naval Hospital, Oakland, Calif. At times of admission and discharge, the patients were evaluated diagnostically, using criteria similar to those established by the American Psychiatric Assn.(4). All were males in the 30- to 47-year-old range, were in good somatic health, adequately nourished and hydrated, and were not receiving tranquilizers. The severity of the clinical symptoms was quantified by daily ratings with the Cutler-Kurland depressive rating scale(5). Determinations of 17-OHCS were obtained with the modified method of Silber and Porter(6); the 17-ketosteroids (17-KS) were determined by the method of Norymberski, Stubbs and West(7) and the 17-KGS were assayed with the Gibson and Norymberski(8) modification of the Norymberski *et al*(7) procedure. Experimental steroid recoveries were in the range of 90 to 110%. All specimens were run in 2 sets of duplicates and were accepted only if results differed by less than 15%. The Spearman rank correlation coefficient(9) was used to compare changes in steroid excretion with those in depressive symptomatology; p values less than 0.01 were considered significant.

Results. Analyses of the 24-hour excretion of urinary steroids in neurotic- and manic-depressive male patients during differing clinical states are presented in Table I. Analysis of the correlation between the changes in clinical states (measured numerically on the Cutler-Kurland depressive rating scale(5)) and the changes in urinary 17-KGS yields a Spearman rank correlation coefficient of 0.79, which is statistically significant. The absolute amount of 17-KGS excreted by these patients during periods of increased depressive symptoms is significantly greater than the mean of control subjects in this laboratory and in other laboratories using similar technics(3,7,10). The quantities of 17-OHCS excreted by the depressed patients, with the exception of 1 specimen, were not elevated in comparison with controls in this or other laboratories(6,11).

TABLE I. Daily Excretion of Urinary Steroids in 5 Neurotic- and 5 Manic-Depressive Patients.

Steroids	Excretion (mg/24 hr) Periods of intensified depression	Periods of decreased depression
17-KGS		
Mean & S.D.	39.1 ± 17.2	23.6 ± 8.4
Range	12.7-71.7	7.4-30.4
17-OHCS		
Mean & S.D.	8.5 ± 6.0	5.8 ± 2.8
Range	2.6-21.1	1.9-9.9
17-KS		
Mean & S.D.	12.1 ± 5.4	8.2 ± 2.4
Range	3.6-20.6	3.4-10.2

Discussion. Anxiety-provoking real-life and experimental situations can produce increased plasma and urinary levels of 17-OHCS(11-16). Persky(17) showed that rates of production and removal of plasma 17-OHCS were almost twice as great for anxious patients as for normal individuals. Since the metabolism of 17-OHCS in depressed patients is apparently augmented by the stress of severe anxieties, it is possible that their endogenous cortisone and cortisol are catabolized to the greatest extent. If this is true, it might decrease the relative amounts of urinary tetrahydrocortisol and tetrahydrocortisone and increase the amounts of cortol and cortolone excreted. The former 2 steroids are recovered from the urine as 17-OHCS, but the latter 2 are assayed at 17-KGS. This would clarify the disproportionate elevation of the 17-KGS, but is not the only possible explanation. Unusual steroids might have been elaborated by the patients' adrenal cortices; or a metabolic block may have changed the types of steroids excreted. Greatly increased excretion of urinary pregnanetriols have been demonstrated in cases of adrenogenital syndrome(1) with a block in 21-hydroxylation. Pregnanetriol is assayed as a 17-KGS, not as a 17-OHCS.

Summary. Analyses of the urinary steroids of male neurotic- and manic-depressive patients revealed significant elevations of the 17-KGS, but not of the 17-KS or 17-OHCS. A statistically significant rank correlation was found to exist between the patients'

clinical states and the amounts of 17-KGS they excreted.

We are indebted to Prof. H. A. Harper, and CDR R. H. Watten, for advice in the design of this study; to Dr. Gerold Grodsky, for assistance in establishing the biochemical procedures and to Dr. E. L. Alpen, for aid in statistical evaluation.

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Received November 22, 1963. P.S.E.B.M., 1964, v115.

Connective Tissue X. Dermal Chemical Response to Atropine.* (29020)

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In studying the effects of atropine-induced vasodilatation upon the chemistry of inflammation(1) it was noticed that administration of daily doses of this drug apparently produced major alterations in the chemical composition of uninjured rat skin. This paper concerns the effects of atropine upon the chemistry of uninjured skin in the intact rat and indicates another effect of this drug upon tissue metabolism(2).

Materials and methods. Seventy-two male Sprague-Dawley rats weighing 250-275 g each were given daily dorsal subcutaneous injections of 0.1 ml of 0.15 M NaCl containing initially 5 mg of atropine sulfate/kg body weight. This dose was increased daily by 1 mg/kg, to overcome the well known ability of rats to become refractory to this drug. Groups of 12 animals each were sacrificed 24 hours after receiving 0, 2, 4, 6, 9 and 14 daily doses. The abdominal skin, not including skin from the area of injection, was removed from each animal, shaved and dissected free of fat, fascia and muscle. Aliquots of each skin were hydrolyzed in acid and the hydrolysate analyzed for its hydroxyproline, hexosamine and nitrogen content as described previously(3). The remaining skin was collected into 3 equal pools representing 4 rats each, and these pools were extracted sequentially with 0.15 M NaCl, 0.5 M NaCl and citrate buffer as has been described previously (3). The fucose(4) and protein bound sialic acid, or sialate(5), contents of these fractions, and concentrations of hydroxyproline, hexosamine and nitrogen were determined

* Supported in part by grant from N.I.A.M.D., N.I.H., Bethesda, Md.