

still present. In 10 cases of leg ulcers, various Gram-negative organisms were grown, and these cleared in only four cases. Beta-haemolytic streptococci were cultured in an insufficient number of cases to merit comment.

From these routine bacteriological findings it seems likely that, at any rate so far as the staphylococcus is concerned, the clinical improvement obtained in most cases is reflected in the results of routine cultures from the skin.

Findings

In general we found dequalinium to be non-irritant even when applied to mucous membranes and the skin of infants. However, three cases of allergic sensitization were encountered. One of these was to the base and two to the active ingredient. The latter showed positive patch tests to the active cream and no reaction to the bases applied alone. This figure of 1.2% is low enough to be acceptable in practice, but occasional cases of sensitization will probably arise, as with other antibiotic and antiseptic agents.

Our findings may be listed as follows.

1. *Impetigo*.—Dequalinium is a clean and useful agent in this condition, and it has the great advantage of not creating antibiotic-resistant strains of staphylococci. The paint is particularly valuable in impetigo of hairy areas.

2. *Staphylococcal Neonatal Infection*.—Dequalinium constitutes an effective and most useful application in all forms of neonatal sepsis.

3. *Intertrigo*.—This condition, in which monilial or pyococcal infection is an important factor, responds well to dequalinium. (It was also very effective in a case of monilial balanitis.)

4. *Paronychia*.—Chronic paronychia of pyogenic or monilial origin responded well. (In all cases advice about keeping the fingers dry was given in addition to treatment with dequalinium.)

5. It may be used with safety and success in conditions in which infection is present together with eczematous changes in the skin. It has no specific value in non-infective conditions, but the cream appears to be soothing and is pleasant to use. It may have some value as a prophylactic in such conditions as acute cheilopompholyx, eczematized ringworm of the feet, and eczema of the scalp, all of which are particularly prone to secondary infection.

Summary

A new antibacterial agent, dequalinium, has been used on 241 patients suffering from various skin conditions. In the form both of cream and of paint it was used alone, in comparison with the inert bases, and in comparison against standard routine measures of treatment.

Dequalinium was found to be of considerable value in pyococcal infections of the skin, notably impetigo and neonatal staphylococcal infections. It was also of considerable value in skin conditions in which pyococcal or monilial infection played a predominant part. It also appeared to be of value in tinea infections in a relatively small number of patients.

Non-infective conditions did not respond, but were not made worse.

Dequalinium appeared to be as effective as antibiotic preparations and dyes and is pleasant to use, colourless, and relatively cheap. No irritant or toxic properties were observed, and it can be used on the mucous membranes and on the skins of infants. However, three cases of sensitization occurred, an incidence of 1.2%. In one of these the base was responsible.

We believe dequalinium to be a useful valuable preparation against pyococcal and monilial infections of

the skin, and one that represents a welcome addition to dermatological therapy.

ADDENDUM.—Since writing this paper we have been supplied with a quantity of dequalinium cream containing 0.5% prednisolone. Some 37 cases of atopic eczema, pruritus ani et vulvi, intertrigo, and neurodermatitis have been treated with this preparation. This prednisolone-dequalinium mixture showed a superior effect to the plain dequalinium cream, when used in these states, where itching and reflex rubbing are very pronounced. There were no failures in this short series, nor was any sensitization seen.

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SIZE OF THE ADRENALS IN JAMAICANS

BY

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Not only does the pattern of disease in Jamaica differ from that encountered in Europe but the response of the Jamaican to shock is poor. Because a difference in endocrine make-up may be concerned, the weight of the adrenal glands in the Jamaican was compared with that of the European.

Variations in total adrenal gland weight may be due to cortex or medulla or both, and for this reason the weight of both components was estimated in 10 glands covering the full range of gland weights. In 20 more glands the cortical thickness was measured.

Materials and Methods

The adrenal glands from 105 (67 male and 38 female) adult Jamaicans of all racial groups were examined. The glands, obtained from routine necropsies, included material from 10 male cases of sudden and usually violent death.

The glands were dissected clean of fat and connective tissue, blotted dry with filter paper, and immediately weighed in grammes to two places of decimals on an analytical balance before fixation in 10% formol-saline solution. Ten of the glands, covering the whole range of weights, were selected and the cortical and medullary masses estimated by a modification of the methods of Swinyard (1940) and Allbrook (1956). Frozen sections were cut at intervals of 2 mm. and the unstained sections projected at eight diameters enlargement on to photographic paper. The photographic enlargements were cut out and the cortical and medullary components weighed separately to give a ratio. From this ratio and the weight of the whole gland the cortical and medullary weights were calculated.

In 20 more glands the thickness of the cortex was measured by means of a micrometer eyepiece. Each gland was divided by three parallel cuts made lengthwise. Frozen sections were cut from three of the surfaces and four different fields measured on each section, giving 12 measurements of cortical thickness in each gland.

Observations

The average weight of the paired adrenal glands from 105 adult Jamaicans was 8.58 g. (4.55 to 14.14 g.). The average of the 67 males was 8.78 g. (4.55 to 13.94 g.) and of the 38 females 8.22 g. (5.08 to 14.14 g.). In the 10 male cases of sudden and usually violent death the average paired adrenal gland weight was 7.33 g. (5.40 to 10.38 g.).

The average paired adrenal gland weight of 46 normotensive males was 8.59 g. (4.55 to 13.82 g.), of 21 hypertensive males 9.21 g. (4.58 to 13.94 g.), of 22 normotensive females 8.10 g. (5.13 to 14.14 g.), and of 16 hypertensive females 8.39 g. (5.08 to 13.35 g.). The paired adrenal gland weight was independent of the body weight (Fig. 1).

The cortical weight, but not the medullary weight, was directly proportional to the adrenal weight (Fig. 2). The average cortical thickness as measured in 20 glands was 1.13 mm. (0.85 to 1.80 mm.).

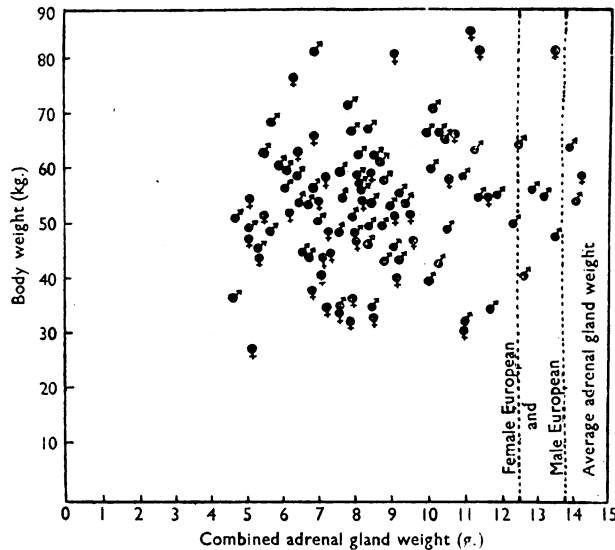


FIG. 1.—Combined adrenal gland weight in Jamaicans is independent of the body weight, and in most instances is less than the European average combined adrenal gland weight.

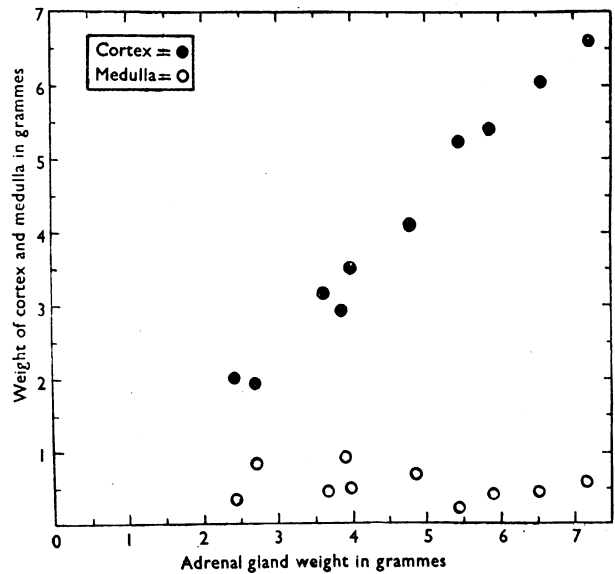


FIG. 2.—Cortical but not the medullary weight is proportional to the total adrenal gland weight.

Discussion

The average combined adrenal weight in the Jamaican male (8.78 g.) was less than that in the European male (13.82 g.) (see Table) and the difference was statistically

significant (observed difference was 15.0 times the standard error). In the Jamaican female it was 8.22 g. and in the European female 12.66 g., and the difference was also statistically significant (observed difference was 11.16 times the standard error).

Average Combined Adrenal Gland Weights in Europeans and Jamaicans

	No.	Average Combined Adrenal Gland Weight	σ
European males (Roessle and Roulet, 1932) ..	328	13.82 g.	± 2.80
European females (Roessle and Roulet, 1932) ..	277	12.66 „	± 2.90
Jamaican males ..	67	8.78 „	± 2.43
„ females ..	38	8.22 „	± 2.18

Since the cortical but not the medullary weight was directly proportional to the adrenal weight (Fig. 2), the smaller adrenals in the Jamaican are almost certainly due to a reduction in the all-important cortical mass. This was not an unexpected finding, since the majority of Jamaicans are of African or mixed African and Caucasian descent, and Swinyard (1940) and Allbrook (1956) have demonstrated a smaller cortical mass in the African than in the Caucasian.

Further evidence of a reduced cortical mass in the Jamaican was obtained by measuring the cortical thickness. Only one report of cortical thickness for purposes of comparison could be found. Goldzieher (1946) gives figures of 2.1 to 2.5 mm. These measurements were made presumably on glands from subjects of Caucasian descent. In our material the average cortical width in 20 glands was only 1.13 mm. (0.85 to 1.80 mm.).

No general agreement exists on whether the adrenal glands in the male are heavier than in the female. Roessle and Roulet (1932), in a large series, found that they were, but Swinyard (1940), in a small series, found the adrenal glands in the female were larger in both the white and negro races. Goldzieher (1946) thought the male glands were larger, but Dawson (1956) found no difference. In the present series the slight increase in the male as compared with the female average was statistically inconclusive.

Enlargement of the adrenal glands has been described in a number of conditions, including hypertension (Dawson, 1956). In Jamaican hypertensive cases the average adrenal weight was higher than in the normotensive cases (9.21 g. to 8.59 g. in the male and 8.39 g. to 8.10 g. in the female), although the difference was statistically inconclusive. These values are far below the corresponding figures given for European hypertensive cases by Dawson (1956).

Biochemists investigating steroid metabolism have noticed that the endocrine pattern of Africans differs from that of Europeans. Barnicot and Wolffson (1952) report that the mean 24-hour urinary 17-ketosteroid excretion in Africans is about half that of Europeans and that this finding applies to Africans living in London as well as to those in Nigeria. Friedmann (1954) has found a similar low excretion in Southern India. It has not yet been possible to estimate steroid excretion in Jamaica, but Thorn tests carried out on 18 patients taken at random from the surgical wards suggest a functional adrenocortical deficiency (Keating and A. Bras, 1957, unpublished data). Circulatory insufficiency during and after surgery which responds to cortisone treatment is fairly common here (Keating, 1956), and it would appear that an inadequate adrenocortical reserve may well be usual in Jamaican coloured patients.

What part a small adrenal cortical mass plays in the different pattern of disease in the Jamaican as compared with the European can only be a matter of conjecture, since so many variables are involved. Nevertheless it is of interest that in Jamaica a high proportion of renal as opposed to essential hypertension is encountered, that myocardial infarction is relatively rare, and that polyarteritis nodosa is practically unknown. Also, a different or rather exaggerated response

to injury is suggested by the frequency of keloids and by a curious dissociation between peptic ulceration, which is common enough, and perforation, which is unusual.

Summary

The adrenal glands in Jamaicans are smaller than in Europeans.

This reduction in size is probably due to a reduced cortical mass.

It is suggested that this reduced cortical mass is concerned in the poor response to shock reported in Jamaicans and others of African descent. It may also play some part in the different pattern of disease encountered in Jamaica.

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CONVERSION TESTING OF SCHOOLCHILDREN AFTER B.C.G. VACCINATION

BY

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In the absence of a specific test to measure resistance after B.C.G. vaccination, tuberculin conversion is generally accepted as the criterion of successful vaccination. The consistently high level of conversion produced by the Danish fresh B.C.G. in this country has raised the question whether testing after vaccination is necessary. The nurse, who may be exposed to repeated and heavy tuberculous infection, can legitimately expect a conversion test to confirm the success of her vaccination; this applies equally to other contacts. But where mass vaccination is given to individuals not at special risk there is not the same necessity for individual testing, provided that a vaccine is used which is known consistently to produce a satisfactory conversion rate.

In 1954 the medical officers of health of the nine local health authorities in the Oxford Region* organized a joint scheme for recording and analysing the results of the vaccination of 13-year-old schoolchildren; the object of the scheme was to find out whether the conversion rate was high enough to warrant dispensing with the conversion test in schoolchildren.

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Standardization of Procedure

Only non-contact schoolchildren were included in the scheme; contacts were referred to the appropriate chest physician. One test only was used for prevaccination- and conversion-testing; in five areas the single test was a Mantoux 10 T.U., and in the other four it was the Heaf test. Tuberculin-testing and vaccination was carried out at the appropriate school or clinic.

At the first session the child was given either a Mantoux 10 T.U. or a Heaf test on the left forearm; the standard preparations of P.P.D. issued by the Ministry for each test were used. The second session was held two to four days later, when the test was read; the criterion for a positive Mantoux was 6 mm. of induration and over. Negative reactors were vaccinated intracutaneously with 0.1 ml. Danish fresh vaccine (0.75 mg./ml.). The third session was held not earlier than four weeks after vaccination, and the test used at the first session was repeated on the right forearm. The fourth session was held two to four days later, when the test was read and the vaccination reaction inspected.

The results were recorded on a special card which was coded at the Regional Records Department and punched on Powers-Samas cards. Only those record cards which showed that this standard procedure had been followed throughout were classified as valid for statistical analysis.

School Year, 1954-5

This year was spent in getting the scheme started. School medical officers were learning the technique of vaccination, while the medical officers of health were enlisting the aid of headmasters and obtaining consent from parents. Seven of the areas began vaccinating during the year, but two did not start until the following school year. Buckinghamshire County Council was unable to carry out conversion testing throughout, owing to staff shortages; figures from this area have therefore been omitted. The results for 1954-5 from the six areas are given in Table I, but in view of the many growing pains the results from this year are excluded from the final analysis.

TABLE I.—Vaccination Results for the School Year 1954-5

	Mantoux 10 T.U.	Heaf Test
Number of B.C.G. vaccinations	2,610	634
.. validly tested for conversion	2,387	632
.. of positive reactors	2,139	624
.. of negative reactors	248	8
Conversion rate	89.6%	98.7%

School Year 1955-6

This year saw the scheme in full operation, and it was hoped to reach a conclusion by the end of the summer term. Unfortunately the Ministry reported that the P.P.D. issued for Mantoux testing had been found to be substandard; this defect was observed in the autumn of 1955 and was rectified in April, 1956. The P.P.D. for the Heaf test was not affected. In consequence, although the Heaf test conversion rate of 98.1% was reliable, the Mantoux conversion rate of 94.7% had to be regarded as unreliable; it was therefore decided to continue the scheme for a further year. The results for 1955-6 are given in Table II.

TABLE II.—Vaccination Results for the School Year 1955-6

	Mantoux 10 T.U.	Heaf Test
Number of B.C.G. vaccinations	5,352	3,034
.. validly tested for conversion	4,756	2,869
Number of positive reactors	4,504	2,814
.. of negative reactors	252	55
Conversion rate	94.7%	98.1%

School Year 1956-7

No further troubles occurred during this year. Forty different batches of vaccine were used and valid conversion