ACETYLCHOLINE THERAPY IN EPILEPSY

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A diminution in the number of fits of epileptics following administration of choline derivatives has been recorded in French journals. The following investigation of the subject was carried out at Cane Hill Mental Hospital with the permission and help of Dr. Lilly, the medical superintendent.

METHOD

In order to avoid any risk of decomposition the acetylcholine bromide solution was prepared immediately before injection. The volume of the injection was maintained at 1 c.cm., and sterile distilled water was used as the solvent. Twenty-one epileptic patients were treated by acetylcholine injections, and a similar number of control epileptic patients were given an equal volume of saline hypodermically. The dose of acetylcholine was, during February, 1933, 0.12 gram once daily. During March the dose was 0.12 gram twice daily. All medicines that the patients had been receiving before the course were continued unchanged. In April, 1933, seven patients were given increasing doses of acetylcholine bromide until they were receiving 0.5 gram hypodermically twice daily. The tables show the numbers of fits per month compared with the average numbers per month of 1932.

Choline Treatment						Saline Controls					
Case No.	Age at onset of fits	Age in 1933	Average fits per 28 days, 1932	February 1 to 28, 1933	March 1 to 28, 1933	Case No.	Age at onset of fits	Age in 1933	Average fits per 28 days, 1932	February 1 to 28, 1933	March 1 to 28, 1933
1	7	50	6	5	8	22	—	40	5	4	9
2	12	41	16	19	21	23	21	43	15	14	21
3	14	48	9	10	19	24	—	49	9	9	13
4	—	—	1	1	2	25	—	65	1	0	1
5	18	48	1	0	0	26	10	54	1	1	0
6	—	48	1	0	0	27	11	43	4	5	9
7	12	32	2	2	3	28	—	37	15	12	20
8	13	32	18	24	24	29	13	29	11	22	9
9	7	64	9	4	3	30	—	62	7	5	6
10	15	44	9	1	2	31	19	37	8	9	4
11	35	60	2	0	4	32	—	60	3	2	3
12	2	39	6	5	5	33	12	35	7	4	8
13	19	26	5	0	0	34	23	33	5	7	5
14	1	37	0	0	0	35	—	58	0	0	0
15	—	56	7	9	7	36	18	57	5	6	8
16	13	40	10	10	7	37	21	48	8	9	10
17	12	44	6	10	9	38	—	44	4	8	5
18	—	62	4	4	4	39	—	60	4	5	11
19	5	54	10	8	9	40	—	44	12	14	9
20	—	62	3	5	1	41	—	55	2	3	1
21	26	53	3	1	4	42	—	48	4	7	6
Total ...		...	128	118	132	Total ...		...	130	146	158

Case No.	Average per 28 days, 1932	April 1 to 28, 1933	Case No.	Average per 28 days, 1932	April 1 to 28, 1933
3	9	14	23	15	14
16	10	12	24	9	8
17	6	9	33	7	12
19	10	7	Total ...	66	76

An attempt was made to ascertain whether the intracranial pressure was affected by the hypodermic injection of 0.5 gram acetylcholine bromide. In the case of six patients and six controls the cerebro-spinal fluid pressure was measured immediately before, and at one-minute intervals following, the injection. The observations were continued for ninety minutes after the injection. No significant alteration of the cerebro-spinal pressure was noted. No subjective or objective symptoms following the injections were noted in any case.

The conclusion arrived at is that acetylcholine bromide does not diminish the number of epileptic fits. No change in the character of the fits or of the mental condition of the patients was observed during the course.

THE USES AND DANGERS OF COSMETICS

BY

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It has been estimated that the fourth largest industry in the United States of America is concerned with the manufacture of cosmetic preparations. If they are, as is said, less commonly used in this country, they enter none the less into the daily life of an immense number of women. And it is therefore a matter of interest, not only to the dermatologist but also to the practitioner, to consider their potentialities for good or ill.

A formidable list can be made out of cosmetic constituents which have produced harmful results. I think the length of the list has sometimes influenced the views of writers on the subject, and obscured the fact that many of these substances have caused injurious effects only in rare cases, and have otherwise been found harmless or even beneficial. I do not propose to make an exhaustive list of substances which have proved irritating or toxic in one or two recorded instances, but only to consider a few common preparations and their potentially harmful ingredients.

SOME COMMON PREPARATIONS

Powders.—Toilet powders consist of a mixture of animal or vegetable powders, colouring matter, and perfume. The vegetable powders include rice, wheat, corn flour, starch, acacia, and tragacanth. The mineral powders in use are chalk, talc, kaolin, magnesium carbonate, bismuth nitrate or carbonate, and zinc oxide. The dyes may be of vegetable origin or may be aniline derivatives. Various ethereal oils are used as perfumes, and orris root is frequently employed as a fixative. The majority of these substances are entirely harmless; and unperfumed, untinted powders are used in dermatological practice. The most dangerous powder ingredient, to which most of the recorded instances of poisoning from this source are due, is lead. Either in the form of lead acetate or lead carbonate this seems to have been a very common powder ingredient in the past, though the use of lead acetate is surprising since it is so easily soluble that a shower of rain would dissolve it away. But its danger has

long been recognized, and its use by reputable firms is now abandoned. In Germany it has been prohibited for the last forty years. Mayer reports that in Japan the poorer women still use pure lead acetate as a powder, and breast-fed children have acquired chronic lead poisoning by inhaling it from their mother's skin. Barron and Habein give a startling account of five cases of lead poisoning in one family, including three deaths, two of which were due to lead encephalopathy. Only the women of the family were affected, and though the source was not absolutely certain, there was strong presumptive evidence for the prolonged use of a face powder containing lead acetate. Bismuth is another metallic powder ingredient which may be harmful if absorbed in sufficient quantities. Cole quotes Tuttle as reporting five cases of chronic poisoning due to an insoluble preparation of bismuth in a toilet powder. Apart from lead and bismuth, toilet powders appear to cause no harm except to individuals who are allergic or hypersensitive. Eosin, for instance, which is used to colour powders, causes dermatitis in some few people, and orris root is a not uncommon allergen which may give rise to asthma or hay fever as well as dermatitis. Rice, wheat, and corn flour have also been incriminated as allergens.

Lipsticks.—These consist of a varying mixture of paraffin, lanolin, and spermaceti with a dyestuff. They scarcely ever cause irritation. The rare case of cheilitis from this source is generally due to the dye, and disappears as a rule with a change of lipstick.

Cold Creams.—These are mixtures of fats and water, with or without the addition of other ingredients. The quality depends on the fineness of division of the fats—hence the superiority of proprietary mixtures. Some face creams, however, contain, in addition, lead or mercury in the form of white precipitate or calomel. Woltman describes a case of chronic lead poisoning, due to the use for twelve years of "owl enamel cream." Creams and lotions containing perchloride of mercury in strengths up to 1 in 200, and white precipitate as strong as 50 per cent., are recommended by so-called "beauty experts" as skin bleaches; the strength of the official white precipitate ointment is 5 per cent. Their persistent use has been known to cause a facial pigmentation very difficult to remove. Goeckermann mentions two such cases, which he believes to have been associated with alkaline sweat. He suggests that the normal acidity of the sweat might account for the rarity of this result.

Many cosmetic advertisements to-day lay stress on the "radio-active" properties of the wares extolled. In the vast majority of cases this is fortunately a fraudulent statement; for, as Lord Lee of Fareham pointed out recently, in the Silvanus Thompson Lecture, such substances, "to such extent, if any, as they contain radium, must be harmful and potentially dangerous." He adds that in his view "the sale of radio-active preparations, designed for either internal or external use, should be absolutely prohibited."

Vanishing creams are relatively fatless creams, and are composed of potassium or sodium stearate and glycerin, together with a little fat and rose-water or perfume. Semi-fatless creams may contain almond oil, wax, or gelatin. Casein, an occasional constituent of vanishing creams, may produce allergic reactions.

Depilatories.—Barium sulphide is the commonest constituent, but sulphides of calcium, sodium, strontium, or magnesium are also used. These appear to be generally harmless, but in sensitive skins they may give rise to a localized dermatitis.

Wrinkle Removers.—Astringent lotions are sold for this purpose. They are as harmless as they are ineffective. Some years ago there was a vogue for the local injection of paraffin. Such injections are liable to cause fibrosis, with lymphatic blockage and local oedema, and in any case the aesthetic effects are most uncertain. The method has been abandoned. Miller and Taussig describe the appalling results of a third method of removing wrinkles. This consists in painting the face with a 65 per cent. solution of phenol. Strips of adhesive tape are applied next day, and removed forty-eight hours later, together with the adherent epidermis. The crust separates in two to three weeks. In the resulting scar wrinkles are not apparent. Unfortunately it is impossible in some cases to close the lips or approximate the eyelids!

Hair Dyes.—These have been grouped as: (1) Vegetable dyes, such as henna. Henna does not irritate, but its frequent use makes the hair brittle. (2) Metallic dyes. Silver, copper, mercury, lead, nickel, cobalt, and bismuth are used in dilute solutions. The metal combines with the sulphur in the hair to form a deposit of metallic sulphide. If these metallic dyes are used frequently the metal will be to some extent absorbed, and will give rise in time to symptoms of chronic poisoning, a much more serious sequel than the dermatitis of the scalp which may appear at the time of application. (3) Compounds of metallic salts and vegetable products, such as pyrogallic acid. In these not only the metallic salts but also the pyrogallol are potentially toxic and irritant. (4) Aniline derivatives, of which the best known is paraphenylendiamine. The aesthetic advantage of this dye is that it does not merely coat, but penetrates the hair. It is easy to apply, gives a fast colour, and can produce a very varied range of shades. For these reasons it became rapidly popular. As its popularity spread its danger soon became manifest. Its unrestricted sale is now prohibited in Germany, Austria, and France. This dye causes a very severe and persistent dermatitis, probably the most persistent of the dermatites due to external applications. Miller and Taussig report a case where the eczematous lesions lasted for six months. Not only is "para" an irritant of the skin, but it may also produce gastro-intestinal and nervous symptoms, including retrobulbar neuritis. Several fatal cases have been recorded. The client's sensitivity to the dye can be estimated beforehand by the Sabouraud-Rousseau test. But some hairdressers, presumably owing to carelessness in application or observation, have failed to detect sensitivity, with disastrous results. Several cases have recently been reported of poisoning from "inecto," a popular preparation containing paraphenylendiamine. Unfortunately this does not complete the list of irritants in the process of hair dyeing. The first step in the process consists in the removal of the sebum. This is usually done by applying an alkaline wash, such as caustic soda or ammonia, after the shampoo. If the alkaline wash is too strong it may produce a dermatitis of the scalp. When the hair has already been dyed, or has been unsatisfactorily dyed, it may be necessary to remove the dyestuff by bleaching. This may be done with hydrogen peroxide, which does not irritate, but its excessive use may injure the hair shaft and cause the hairs to break off short. Other substances used for hair bleaching are oxalic acid and hydrochloric acid, the danger of which need hardly be stressed. More disturbing still is the employment for this purpose of potassium cyanide.

Hair Lotions.—Cases of dermatitis or chronic intoxication have from time to time been traced to the use of hair lotions. The incriminated substances have been quinine, salicylic acid, and resorcin. These, while beneficial in suitable strengths, may cause dermatitis if given in too great strengths or to sensitive individuals. Resorcin has the added drawback of causing a dirty discoloration of white or blonde hair. Cole describes a case of dermatitis due to arsenious oxide, given in a hair tonic. Sir Thomas Oliver records a case of asthma which came and went with the use or abandonment of a hair wash containing lead.

DISCUSSION

Such a formidable record of injurious effects might well lead one to condemn cosmetics outright. This is often and unfortunately done. I say "unfortunately" because the result is rarely to deter people from their use, but rather to drive them into the hands of unqualified and ignorant, or even of definitely fraudulent, persons. It seems a pity, therefore, that cosmetics should sometimes be condemned by the medical profession as wholly injurious, not only for their chemical constituents but also for their physical properties, on what appear to be very insufficient grounds.

McKenna, in an article in the *British Medical Journal*, states that cold creams and vanishing creams "block the sebaceous and sweat glands," and that their use leads eventually to acne rosacea and acne vulgaris. This is a common indictment. But is there any proof of its validity? McCafferty and Genovese experimented on twenty-five cases, and were unable to detect clogging of

the pores in any one. McKenna ridicules the cleansing properties of cold cream, which are so often advertised. But if any observer will apply cold cream to the face and then rub it off with cotton-wool he will find that the cream has removed a considerable layer of dirt and dust—more, in fact, than can be removed with a damp sponge or towel. McKenna further dismisses the use of creams and skin foods on the ground that, with the exception of glycerin, none of the usual constituents are absorbed. But Sutton's experiments have shown that fats *are* absorbed, though in very varying degrees. McKenna would apparently confine the toilet of the face to the use of soap-and-water. He says that it is only in exceptional cases that the skin of the face is irritated by toilet soaps, if we exclude the cheaper soaps containing coco-nut oil and an excess of free alkali. This is by no means a universal experience. McCafferty and Genovese, in addition to their tests with cold cream, made further tests with soap. They chose patients with moderately dry skins, and observed the effect of a few weeks' use of soap-and-water on the face. They found that mild desquamation appeared, with a feeling of tautness. This disappeared with the application of cold cream. They conclude very reasonably that soap-and-water are suitable for oily skins, and cold cream for dry skins. Vanishing creams they condemned as of no value, on the ground that these creams were only used as a basis for powder, and the same purpose could be served equally well by cold cream. From an aesthetic point of view this is not quite true. The fatty nature of cold creams makes them too shiny for use by day, and it is for this reason that women dislike them.

An Experiment with Vanishing Cream

There is, however, a popular feeling that vanishing creams are "drying." On theoretical grounds it would seem possible that their high glycerin content might prove irritating. As I could find no statements on the subject I tested them myself. Trials were made with forty individuals, mostly girl undergraduates and a few older women. Pond's vanishing cream was rubbed into the right side of the face at night and rubbed off in the morning. The other side of the face was left untreated, and used as a control. The duration of the tests was from four to six weeks in April and early May, a period in which many women notice a temporary roughness of the face, generally attributed to spring winds. The results were as follows:

In twelve cases the untreated side of the face became rough, while the treated side remained smooth.
In one case both sides desquamated, but the untreated side was the rougher.
In one case both sides desquamated equally, which was rapidly cured by cold cream.
In one case only the treated side desquamated.
In one case small pustules appeared on the treated side.
In twenty-four cases there was no change.

In fact, in twenty-four cases vanishing cream proved harmless, though three of these cases had naturally dry skins. In thirteen cases the cream was beneficial. In only one out of forty cases did the cream cause dryness.

The use of cosmetics is looked upon more kindly on the Continent than in Great Britain. In contradistinction to such criticisms as those of McKenna, we have the opinion of Kromayer that "salves and pastes and the like cause no change in the skin that can produce a bad cosmetic effect." Sabouraud goes further, and says that he would almost prefer bad creams and bad cosmetics to none at all. He has noted, as have many others, that actresses as a class look younger than their contemporary sisters. One sometimes hears the complaint that it is "unnatural" to put creams and lotions on the skin, but it is equally "unnatural" to wash off the natural oils with soap-and-water. We live in dry, warmed houses, and expose the skin to sharp alternations of heat and cold. Is it not to be expected that it should need protection and re-oiling?

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THE TREATMENT OF ABSCESS OF THE BREAST *

BY

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Although great strides have been made in preventing infection of the lactating breast, mammary abscess is still an everyday occurrence. For many years teaching concerning the treatment of these abscesses has remained stereotyped. Under the well-known principle of awaiting for fluctuation, or at any rate until localization has occurred, and then obtaining free drainage by incisions radiating from the nipple, results in the majority of cases are good. The objections which can be raised to this well-tried method are mainly these: (1) the resulting scars are too often unsightly; (2) a proportion of cases continue to discharge for weeks or months; (3) the dressings, if secondary infection is to be minimized, require the frequent attention of a skilled nurse. About two decades ago an innovation was introduced. Briefly it consisted of an early but small incision followed by suction with a Bier's hyperaemic bell. I saw something of this method and the pain which it caused, and the results which ensued, were such that I gladly returned to the methods of our forefathers. The method of treatment which presently will be described is free from all the objections of its forerunners.

Most abscesses of the breast are of the intramammary variety (as opposed to subcutaneous or retromammary), and it is lactating women who are usually sufferers. Infection occurs in one of two ways: (1) Staphylococci enter the lactiferous ducts and cause clotting of the milk. Within the clot these organisms multiply, and the acini severed by the obstructed duct become the seat of a lively inflammation. (2) Streptococci enter through a crack or abrasion of the nipple, and inflammation proceeds apace in the interglandular tissues. Unless it is arrested the infection spreads to the glandular mechanism. Even

* Being part of an address to the Swindon Division of the British Medical Association, February 22nd, 1933.