

FURTHER CONTRIBUTIONS TO THE TREATMENT OF EPILEPSY.

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IN an earlier article (*vide* p. 107) a preliminary report was made on the treatment of epilepsy by peptone, *B. coli* and papaverine sulphate; in the intervening months extended opportunity has arisen for comparing the various methods of treatment and endeavouring to form some opinion of their efficacy.

Before quoting any records it is opportune to say that practically every case has been treated extensively with the ordinary medicines, and that nearly every one has had long courses of luminal. Latterly we have been using the equivalent product gardenal.

A further point to mention is that elimination has been carefully watched, and toxic foci have been remedied as far as possible. From time to time the ketogenic diet has been tried on patients not included in the present series; others have been treated with gardenal alone; and, where there was any indication, isolated cases have been treated with endocrines. An endeavour has been made to have as large a number of "controls" as possible, although it is a truism to say that no two epileptics are alike.

Wherever possible, our plan has been to cut down the amount of luminal administered, and to treat first by peptone; if no real benefit has been derived, then *B. coli* is injected; and only in the most intractable cases is papaverine sulphate given.

PEPTONE TREATMENT.

"Armour's No. 2" 5% peptone has been used, and the course has been made to last a month by weekly subcuticular injections. The dosage for the first series of injection has been the same for both males and females, commencing with $\text{m}\nu$, and increasing by this amount for the following three doses. At least a month's rest has been allowed before a second course has been started, and this has a commencing dose of mx , and three further doses of mxx . Any subsequent course has consisted of four injections of mxx .

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No reaction in temperature has ever been found, and skin reactions are rare, and by no means difficult to deal with.

As stated, at least one month's rest is given after each series of injections; one has taken as an indication for a further course the increase of fits up to the lowest level that was normal prior to peptone treatment.

During the whole of the treatment by peptone, gardenal (or luminal) has been continued, but in much decreased dosage.

Results are shown in the following table :

Sex.	Number of patients.	Decrease in fits per month.					Increase in fits per month.					No change.
		1.	2.	3.	4.	5.	1.	2.	3.	4.	5.	
Male	14	..	3	..	I	2	I	I	I	..	..	3
Female	20	6	3	2	I	..	I	2	I	..	2	I
	34	6	6	2	2	2	2	3	2	..	2	4

In addition, two males have shown decreased fit-incidence of more than 5, and one female has shown an increase of more than 5.

Some explanation of the table seems essential. In the first place the fit-incidence has been averaged over the longest possible period of time prior to the peptone treatment, and the average has been taken at a low figure; it is not suggested that the results should be better; they are given as a true comparison.

There have been no cures; only two epileptics have been discharged, and both had a low fit-incidence. Neither was treated with gardenal, but they had a course of peptone. Recent reports suggest they are doing fairly well, in spite of the discontinuance of treatment by peptone. It is reported that their fit-incidence continues below the previous normal level.

It is impossible to say definitely which cases have reacted well to peptone; if one were to generalize, it might be safe to say that the younger case had shown a slightly better result. In fact, only one case over 40 years of age has shown a decrease under peptone, and she, prior to fits, always exhibited an urticarial rash around the base of the neck.

There has been a slight tendency for the fit to change from the major to the minor type in several cases, but there is no suggestion (apart from the two cases discharged) that the peptone treatment has in any way lessened the mental impairment so prominent in the insane epileptic.

Whilst figures are the basis on which one must assess demonstrable results, another factor has to be considered; with each succeeding year of exhausting seizures the epileptic tends to drift into dementia which may be accompanied by an increasing fit-incidence, or by a pre-epileptic irritability, which causes difficulty from the hospital point of view. From this aspect, the peptone treatment has seemed to have some real success; the "manageability" of the patients so treated has very markedly increased, and disagreements between them have become exceptional.

B. coli TREATMENT.

Where patients have not reacted to peptone, or where its effect has not been sustained, intravenous injections of *B. coli* have been tried. The same routine in regard to the length of course has been carried out; a reaction has been sought, but in few cases has it been obtained, and a detoxicated strain has always been used. Somewhat large doses have been given, the first series ranging from 25 to 100 thousand millions, with an increase for following courses.

No ill-effects have followed the treatment.

Sex.	Number of patients.	Decrease in fits per month.				Increase in fits per month.				No change.
		1.	2.	3.	Over 5.	1.	2.	3.	Over 5.	
Male	8	1	1	1	2	..	..	1	1	1
Female	4	..	1	..	1	..	..	1	..	1
	12	1	2	1	3	..	..	2	1	2

Of the patients showing a decreased number of fits, two showed an increase in fits under peptone, whilst one reacted fairly well to peptone, but more satisfactorily to *B. coli*.

Only twelve cases have been treated by *B. coli* for a sufficient time to quote results. Unless there are special indications, the usual way of treatment is to try peptone first, and to go on to *B. coli* if there is not a real improvement after a trial extending over five or six months.

Certain patients probably derive benefit from peptone, but become immune to the non-specific protein desensitization induced; and it would seem that the injection of the detoxicated strain of *B. coli* carries out a further desensitization. Other cases show definite evidence of toxæmia, acneiform eruptions being most commonly met with, and the ordinary methods of intestinal disinfection

do not seem to have much control over the *B. coli* content of the fæces. In such patient there is a marked improvement in the health of the skin and alimentary canal under *B. coli*, together with a decrease of fit-incidence. One such patient has had his fit-incidence cut in half, and is now up and about most days, instead of spending more than half his time in bed in a stuporose condition. From this point of view at least the extra trouble of the treatment has been well worth while.

PAPAVERINE SULPHATE TREATMENT.

Where no benefit has been derived either from peptone or *B. coli*, or where the patient will not suffer injection methods, a solution of papaverine sulphate (gr. 1 to $\frac{1}{2}$ oz.) is given. No gardenal is given with it, and the patient has to be watched for the onset of a mild stupor. The action of the drug seems somewhat remote, and cumulative. It is said to act on hyper-excitable nerve-endings; it is only given to such cases as do not react to luminal, peptone or *B. coli*, and is sometimes used to take the place of the standard bromide and borax mixture.

Two demented female epileptics have shown quite a good tolerance, with a decreased fit-incidence, but neither was able to stand any dose of luminal, and both were too violent for either peptone or *B. coli* treatment. Under papaverine they are more tranquil, have fewer fits, and show less tendency to relapse into stupor. In each case, the pre-epileptic period is less troublesome.

CONCLUSIONS.

Unfortunately, none of the methods of treatment have suggested a cure for epilepsy; from that point of view they are a disappointment. They entail a considerable amount of additional work, which is recompensed by the greater well-being of the patient, and a slightly diminished number of fits. As shown, only two cases have been discharged, and in each case epilepsy was the physical basis of the insanity, rather than the immediate cause of certification.

It is, perhaps, a fair summary to say that the patients treated are those who did not react sufficiently to any treatment; some are well on the way to dementia and are never likely to be able to resume normal lives. Syphilis has been definitely negated in all and they can be classified as true epileptics. One feels that, as a result of more than a year's experience of the various methods, some improvement has been found in health and behaviour, making hospital routine easier, and delaying the onset of the last stages of dementia.

It is hardly fair to pick mental hospital patients as representative epileptics; peptone has been used by one or two outside physicians in cases of mild epilepsy, and they say that they have seen some definite benefit in certain cases. They, also, are unable to say in what class of case such treatment may be expected to be of use.

One can say with safety that despite the reduction of the amount of gardenal exhibited, patients treated by peptone or *B. coli* are, on the whole, more tranquil and less liable to the irritable states which either replace or precede the true epileptic attack.

I am again indebted to the Medical Superintendent, Dr. H. G. Drake-Brockman for permission to quote work done in the hospital.

