

ON THE CURABILITY OF MENTAL DISEASES BY "SHOCK" TREATMENT.

(AN ANALYSIS OF CASES TREATED.)

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THE treatment of mental disorders by drastic methods coming as a "shock" to the patient was applied early in history all over the world (1). The severity of the procedure usually varies with the degree of civilization achieved. The earliest method was occipital branding. Water cures followed later: "The frantic person was placed with his back to the water without being permitted to know what was going to be done. He was knocked backwards into the water by a violent blow on the chest, when he was tumbled about in a most unmerciful manner until fatigue had subdued the rage." Anglo-Saxon priests used a form of treatment described in Bald's Leechbook: "In case a man be a lunatic take the skin of a mereswine (porpoise), work it into a whip, swing the man herewith, soon he will be well. Amen." (1).

Remissions are also known to occur after an operation under an anaesthetic, after unsuccessful attempts at suicide by hanging, or intercurrent diseases.

It would be of great interest to determine which type of case is influenced by all these forms of shock. Probably the same type has responded to ancient and modern forms of "shock" treatment and a similar mechanism is presumably at work in both.

This investigation is based on five years' experience with modern shock treatments in mental disease (especially schizophrenia). The present-day methods for the production of shock are chiefly insulin treatment (2), cardiazol (3), triazol (4), nitrogen inhalation (6), or electricity (7). The most effective, least harmful and most humane of these methods will ultimately prevail until the aetiology of schizophrenia is fully known and shock possibly replaced by some aetiological form of treatment.

It is our special object to ascertain which type of case shows a favourable response to treatment and which does not. We hope to demonstrate by this study that a more accurate prediction of recoverability can be made. A longer period of observation is needed to decide on the permanence of results.

Many different factors influence recoverability. These have to be taken

into consideration when deciding whether a patient is to be treated or not. The method of investigation employed was similar to the one used by Langfeldt (8) in *Prognosis in Schizophrenia and the Factors Influencing the Course of the Disease*. Some of the most important factors influencing the outcome of treatment are duration of illness before treatment, age, heredity, bodily type, pre-psychotic temperament, intellectual level, exogenic factors and mental symptomatology. The degree of thought disorder present was also considered. A reliable measure is difficult to apply here. In each case we searched for the presence of so-called "process symptoms" (e.g. feeling of being threatened by catastrophe, marked dissociation of thinking, "theft of thought," feeling of being influenced by outside powers). All these express serious disturbance of thinking (9). All the patients were investigated from these different aspects. Only factors usually revealed by ordinary methods of psychiatric investigations have been taken into consideration. A certain subjective element cannot be avoided owing to a still existing controversy as regards the diagnosis of schizophrenia (5). It also has to be borne in mind that where human personality is concerned any strict classification, especially of mental symptomatology, is a matter of great difficulty, but the fact that not all factors were found in each case automatically led to a certain grouping. It is not intended to establish any new classification into strictly separated compartments by the method employed. It is our aim to direct attention to the most important factors to be considered for the prediction of the outcome.

RESULTS.

The results are classified following Müller (10), Guttman, Mayer-Gross and Slater (11). This classification has been most strictly applied to our material.

Good results.—T.R. : Total recovery—freedom from symptoms and signs, return to previous social environment and to previous or equivalent occupation. S.R. : Social recovery—return to previous social environment and to previous or equivalent occupation, in spite of the presence of minor signs and symptoms, such as irritability, shyness, shallowness of affective response, etc.

Bad results.—S.D. : Social defect—presence of minor symptoms as above, incapacity to carry out work of previous level, and failure to maintain self in the same degree of social adaptation. F.I. : Family invalid—presence of well-marked symptoms, incapacity to carry out any useful occupation, but manageable at home. H.I. : Hospital invalids—i.e. the inmates of mental hospitals, some continuously since the end of treatment, some relapsed after a temporary recovery.

Total remissions and social remissions are described as "good results," and social defects, family invalids and hospital invalids as "bad results", the failure to carry on with work of the previous standard being the determining

factor for establishing this border-line. This does not mean, however, that social defects or family invalids do not sometimes represent an improvement. Even hospital invalids were often greatly improved by treatment in spite of remaining hospital invalids. This sometimes justifies treatment even in unfavourable cases, as it improves their behaviour and makes them more manageable at home or in hospital. The indications for their treatment are, for example, refusal of food, restlessness or stupor, with loss of weight.

Cases entirely uninfluenced by treatment are marked with "U"; those who showed some improvement following treatment being classified as social defect, family invalid or hospital invalid and are marked "I" in Table X. Only cases relapsing after more than six months' discharge were counted as relapses.

A. Schizophrenia.

FACTORS INFLUENCING RECOVERABILITY.

(1) *Duration of Illness.*

In the early days of insulin Sakel (2) stressed the importance of the duration of illness before treatment. Müller (10) states that good results can hardly be expected with a duration of illness of more than one year. Improvements were also observed in cases with a longer duration of illness. In cases of the remitting type results are usually good even if the first attack lies many years back. The first psychotic symptoms were usually regarded as the onset of the illness, the determination of which is frequently a matter of great difficulty.

TABLE I.—*Results.*

Duration of illness.	Total.	T.R.	S.R.	Total of good results.	S.D.	F.I.	H.I.	Total of bad results.
Up to 6 months	16	3	8	11	2	..	3	5
6-12 months	8	..	4	4	2	1	1	4
1-2 years	13	3	1	4	3	1	5	9
2-3 "	9	..	..	..	1	4	4	9
3-6 "	15	..	1	1	4	1	9	14
6-9 "	5	..	..	..	..	..	5	5
9-12 "	6	..	2	2	..	1	3	4
Total	72	6	16	22	12	8	30	50

Summary of Results.

Table I confirms the general view that favourable results decrease with the duration of illness. The only three cases which showed a social recovery after a duration of more than two years were of the remitting type.

Amongst the 37 cases with a duration of illness of up to two years, 19 were successfully and 18 unsuccessfully treated. This clearly demonstrates that many more factors must be at work influencing the outcome. A short duration of illness as the only favourable factor is not decisive enough to influence the outcome.

(2) *Heredity.*

It has been pointed out by Bleuler (12) that cases with no mental disease in the family often lead to the greatest defects. Among 1,054 cases of dementia praecox Kraepelin (13) found that 53.8 per cent. had a history of mental disease in their family. He regards this figure as too low, for information in many of these cases was incomplete. He says "dementia praecox not at all infrequently is familial, most often appearing in brothers and sisters, more rarely in parents and children." Langfeldt (8) comes to the conclusion that "heredity occurs most frequently in cured cases which have also shown an atypical picture in the acute phase of the psychosis." Though it is very often impossible to determine the exact nature of the mental illness in the family of the patient, yet it is of interest to compare cases with or without mental diseases in the family regarding their curability. There are many more obstacles to the collection of heredity data, to which we need not refer.

TABLE II.—*Results.*

Mental diseases in family.	Total.	T.R.	S.R.	Total of good results.	S.D.	F.I.	H.I.	Total of bad results.
Present	38	2	8	10	7	3	18	28
Absent	31	4	8	12	4	5	10	19

In the three remaining cases no information about heredity could be obtained.

Summary of Results.

Out of 38 cases with mental disease in the family, 10 recovered (2 total recoveries, 8 social recoveries) and 28 were treated with little or no success (7 social defects, 3 family invalids and 18 hospital invalids) This illustrates the comparatively frequent occurrence of good results in cases where such hereditary factors were present. One case showing complete recovery had a sister in a mental hospital suffering from dementia praecox ; the other patient who completely recovered had a mother who died during an alcoholic psychosis.

Out of 31 cases with no mental disease in the family, 12 recovered (4 total recoveries, 8 social recoveries) and 19 (4 social defects, 5 family invalids and 10 hospital invalids) were treated with little or no success. This demonstrates that although good results are obtainable in cases with familial mental disease, good results are more frequent in cases without mental disease in the family.

(3) *Bodily Type and Temperament.*

Bodily type and temperament are described according to Kretschmer's (14) classification. Mauz (9) found that the leptosome build combined with schizothymic temperament frequently occurs in "catastrophic and chronic progressive schizophrenics." In these unfavourable cases he found 81.3 per cent. belonging to the leptosome or athletic bodily type and 18.7 per cent. to

the dysplastic type. Amongst the more favourable cases 21.4 per cent. were of pyknic bodily build, 61.6 per cent. were leptosome or athletic and 10.3 per cent. dysplastic. Remitting cases frequently exhibit a pyknic type combined with cyclothymic temperament (Langfeldt). The mixed bodily build is seen in combination with all the different temperaments and types of the disease (Langfeldt).

TABLE III.—*Results.*

Type of build.	Total.	T.R.	S.R.	Total of good results.	S.D.	F.I.	H.I.	Total of bad results.
Leptosome	29	..	6	6	6	4	13	23
Pyknic	6	1	3	4	1	1	..	2
Athletic	21	4	5	9	3	1	8	12
Dysplastic	10	..	..	..	2	1	7	10
Mixed	6	1	2	3	..	1	2	3
Total	72	6	16	22	12	8	30	50

TABLE IV.—*Results.*

Type of temperament and bodily build.	Total.	T.R.	S.R.	Total of good results.	S.D.	F.I.	H.I.	Total of bad results.
Schizothymic and leptosome	24	..	3	3	6	3	12	21
" and pyknic	2	..	..	..	1	1	..	2
" and athletic	9	..	1	1	2	1	5	8
" and dysplastic	10	..	..	..	2	1	7	10
" and mixed	1	..	..	..	..	..	1	1
Cyclothymic and leptosome	4	..	3	3	..	1	..	1
" and pyknic	3	1	2	3	..	..	..	..
" and athletic	5	3	2	5	..	..	..	..
" and dysplastic . . . . .	..	..	..	..	..	..	..	..
" and mixed	2	1	1	2	..	..	..	..
Atypical and leptosome	1	..	..	..	..	..	1	1
" and pyknic	1	..	1	1	..	..	..	..
" and athletic	7	1	2	3	1	..	3	4
" and dysplastic . . . . .	..	..	..	..	..	..	..	..
" and mixed	3	..	1	1	..	1	1	2
Total	72	6	16	22	12	8	30	50

Summary of Results.

Among 46 cases with a schizothymic temperament, 42 showed unfavourable results and only 4 were successfully treated, though 3 social recoveries occurred in spite of a combination of schizothymic temperament with leptosome build. All three had a short duration and an acute onset of their illness. One had a tendency to remission, while a second exhibited process symptoms and relapsed. The outcome was found to be mostly unfavourable in cases where the schizothymic temperament was combined with dysplastic bodily build.

Out of 14 cyclothymics, 13 were successfully treated and 1 showed a bad result. All patients showing this temperament combined with pyknic or athletic bodily build recovered.

Schizothymic temperament plus athletic type is also frequently unfavourable. The athletic type apparently has no decisive influence in either direction.

(4) *Prepsychotic Intellectual Level.*

Patients who were clever children, generally with a schizothymic temperament, have, as a rule, a bad prognosis. If schizophrenia attacks a feebleminded person, however, deterioration seems to appear more rapidly (Langfeldt).

TABLE V.—*Results.*

Prepsychotic intellectual level.	Total.	T.R.	S.R.	Total of good results.	S.D.	F.I.	H.I.	Total of bad results.
Low	20	..	..	..	4	4	12	20
Average	43	6	15	21	7	2	13	22
High	9	..	1	1	1	2	5	8
Total	72	6	16	22	12	8	30	50

Summary of Results.

It is evident that amongst the patients successfully treated, there is none with a low and only one with an exceptionally high prepsychotic intellectual level. The unfavourable group of cases often shows both.

(5) *Exogenic Factors.*

It is generally known that the greater the weight of an exogenic trauma prior to the outbreak of the psychosis, the better the prognosis.

TABLE VI.—*Results.*

Nature of trauma.	Total.	T.R.	S.R.	Total of good results.	S.D.	F.I.	H.I.	Total of bad results.
Alcoholism	4	1	2	3	..	..	1	1
Puerperium	3	2	..	2	..	..	1	1
Trauma capitis	1	..	1	1	..	..	..	..
Excessive strain	2	..	2	2	..	..	..	..
"Love affair"	14	1	5	6	3	..	5	8
Death of close relative	2	2	..	2	..	..	..	..
Unfavourable milieu	2	..	..	..	2	..	..	2
Nil	44	..	6	6	7	8	23	38
Total	72	6	16	22	12	8	30	50

Summary of Results.

This table confirms the view expressed above. Exogenic factors are found in about 80 per cent. of cases treated with good results, whereas none is found in about 80 per cent. of the unfavourable group.

(6) *Age of the Patient at First Attack.*

Guttman, Mayer-Gross and Slater (11) found no significant influence of age on the prognosis, though their results suggest that where the illness begins at 20 years of age or less, the prognosis seems to be better than where the attack occurs at a later age.

TABLE VII.—*Results.*

Age at onset of psychosis.	Total.	T.R.	S.R.	Total of good results.	S.D.	F.I.	H.I.	Total of bad results.
15-23	30	1	6	7	6	3	14	23
24-30	32	4	7	11	5	4	12	21
31-40	10	1	3	4	1	1	4	6
Total	72	6	16	22	12	8	30	50

Summary of Results.

Out of 30 patients from 15 to 23 years of age, 7 made a good recovery, whereas in 32 patients from 24 to 30 years of age, 11 showed a good result and 21 a bad one. In the case of 10 patients from 31-40 years of age, 4 showed good and 6 bad results. This confirms that age has no decisive influence on the outcome.

(7) Acute or Insidious Onset.

The acute onset of illness is generally regarded as favourable, the insidious onset as an unfavourable sign.

TABLE VIII.—*Results.*

Type of onset.	Total.	T.R.	S.R.	Total of good results.	S.D.	F.I.	H.I.	Total of bad results.
Acute	38	5	15	20	5	1	12	18
Insidious	34	1	1	2	7	7	18	32
Total	72	6	16	22	12	8	30	50

Summary of Results.

This table confirms that acute cases show a much greater tendency to remission than those of an insidious onset. Of the two insidious cases that recovered, one (a total recovery) was of mixed bodily type with a cyclothymic temperament and the other (a social recovery) was of athletic build with atypical temperament and short duration of illness (see Table X).

(8) Mental Symptomatology.

In order to be able to assess the significance of the mental symptomatology the cases were collected under headings characterizing their type of mental symptoms. We used the same classification as Langfeldt, but a separate group for paraphrenia was added. Thus the cases appear divided into paranoids, paranoid catatonics, catatonics, hebephrenics, atypical cases and paraphrenics. "Atypical" cases have a symptomatology which is not classifiable in any of the above groups. They are composed of mixed psychoses with schizophrenic, manic-depressive or hysterical features. The paranoids are subdivided into cases (1) where ideas of persecution or poisoning were most prominent, (2) cases with somatic sensations of influence without catatonic symptoms or

ideas of persecution, (3) cases with so-called projection symptoms (e.g. hallucinations of hearing or sight, "theft of thought," feeling of passivity and so on), without ideas of persecution.

The most prominent features have been chosen for classification; a certain amount of overlapping between the different groups remains of course unavoidable. Langfeldt concludes in his *Study on the Prognosis of Schizophrenia* that the symptomatology of the acute phase of the psychosis need not be decisive for the further course of the disease, but an unfavourable outcome has to be expected where "process symptoms" are combined with a schizothymic temperament and leptosome build. Mauz (9) gives a good prognosis in cases with manic-depressive features.

TABLE IX.—Results.

Type of mental symptomatology.	Total.	T.R.	S.R.	Total of good results.	S.D.	F.I.	H.I.	Total of bad results.
Paranoids { (1)	5	..	3	3	..	..	2	2
{ (2)	4	..	..	..	1	1	2	4
{ (3)	7	..	..	..	3	1	3	7
Paraphrenics	10	..	3	3	..	2	5	7
Paranoid catatonics	9	..	1	1	3	1	4	8
Catatonics	19	2	5	7	1	2	9	12
Hebephrenics	9	..	..	..	3	1	5	9
Atypical cases	9	4	4	8	1	..	..	1
Total	72	6	16	22	12	8	30	50

Summary of Results.

Atypical cases usually show the greatest number of good results. Catatonics are the next favourable. Acute paranoids (1) and paraphrenics often exhibited good results if their paranoid system was changeable and not systematized. Paranoid catatonics seem less favourable than catatonics. Paranoids with somatic sensations of influence or with marked projection symptoms always showed bad results. In hebephrenic patients no good results were observed.

The outlook was always unfavourable if the psychosis was superimposed on a high-grade mental deficiency.

It is evident that the mental symptomatology, as such, does not suffice to predict the outcome because many cases belonging to the more favourable type did not recover. The fact that no good results were seen in hebephrenics and paranoids (2) and (3), might be due to the relatively small number at our disposal for this investigation, as spontaneous recoveries have sometimes been observed even in cases with this unfavourable symptomatology (8).

(9) Summary of the Factors Previously Considered (see Table X).

All the different factors, if considered singly, possess no absolute specificity classifying the case on the favourable or unfavourable side. A better assessment of recoverability can be made if all factors are considered at the same time.

TABLE X.

Number of case	TYPE OF MENTAL SYMPTOMATOLOGY	FAVOURABLE FACTORS					UNFAVOURABLE FACTORS					RESULTS					
		acute onset	Short duration of illness	pycnic or athletic	cyclothymic	Tendency to remission	insidious onset	Long duration of illness	dysplastic or leptosome	schizothym	"Process" symptoms	HR	ER	SD	FI	HE	unimproved (%)	RELAPSES
1	Paraphrenic																
2	Catatonic																
3	Atypical																
4	Atypical																
5	Atypical																
6	Atypical																
7	Atypical																
8	Paraphrenic																
9	Paraphrenic																
10	Catatonic																
11	Catatonic																
12	Catatonic																
13	Catatonic																
14	Atypical																
15	Catatonic																
16	Atypical																
17	Paranoid-Cat.																
18	Catatonic															u	
19	Catatonic																
20	Paranoid-Cat.															i	
21	Paranoid-Cat.															i	
22	Atypical																
23	Paranoid(1)																
24	Atypical																
25	Paranoid(1)																
26	Catatonic																
27	Catatonic															u	
28	Paranoid-Cat.															u	
29	Paranoid(3)																
30	Paraphrenic																
31	Paranoid(1)																
32	Catatonic															u	
33	Paranoid-Cat.															i	
34	Paranoid-Cat.															u	
35	Paraphrenia																
36	Paranoid(3)															u	
37	Paranoid(2)															u	
38	Hebephrenic															u	
39	Paranoid(2)															i	
40	Paraphrenia															u	
41	Paraphrenia															i	
42	Paranoid-Cat.															i	
43	Hebephrenic															i	
44	Paraphrenia															u	
45	Paraphrenia															u	
46	Hebephrenia															u	
47	Paranoid(3)															u	
48	Hebephrenia															u	
49	Paranoid(3)															u	
50	Paraphrenia															i	
51	Catatonic															u	
52	Catatonic															u	
53	Catatonic															u	
54	Hebephrenic															i	
55	Hebephrenic															u	
56	Paranoid(3)															i	
57	Paranoid(2)															u	
58	Catatonic															u	
59	Catatonic															u	
60	Catatonic															u	
61	Paranoid(2)															u	
62	Hebephrenia															u	
63	Paranoid-Cat.															i	
64	Paranoid(1)															u	
65	Paranoid(1)															u	
66	Paranoid(3)															u	
67	Paranoid(3)															i	
68	Paranoid-Cat.															u	
69	Catatonic															u	
70	Catatonic															u	
71	Hebephrenic															i	
72	Hebephrenic															i	

It will be shown that the proportion of favourable to unfavourable factors, and especially the amount of the latter, enables us to predict the result with more precision

The first column in Table X gives the number of the case treated. The second column shows the type of mental symptomatology. Paranoids appear as Paranoids (1), (2), (3), signifying the three subgroups described in Table VIII. Five favourable factors are collected in the next column. They consist of: (1) Acute onset, (2) short duration of illness, (3) pyknic or athletic build, (4) cyclothymic temperament, (5) tendency to remissions. The unfavourable factors are: (1) Insidious onset, (2) long duration of illness, (3) dysplastic or leptosome build, (4) schizothymic temperament, (5) process-symptoms. The first four favourable factors are the exact counterpart of the first four unfavourable factors in the following column. The fifth favourable factor, tendency to remission, was only regarded as being present when one or more spontaneous remissions had occurred before. Obviously in recent cases this factor could not be ascertained. The fifth unfavourable factor, process-symptoms, illustrates the degree of dissociation of thought. As a result of Table I the limit of "short duration of illness" was fixed at two years. The presence of one of the factors mentioned is marked in "black," and if absent the corresponding square is left blank. Pyknic and athletic bodily types are shown together in one column, dysplastic and leptosomes appear in another. Cases where the space for bodily build is left blank are of mixed bodily type. The same applies to the column for cyclothymic and schizothymic temperament. Where the space for either of these temperaments is left blank, it indicates an atypical temperament.

The number of factors can, of course, be extended, but this selection appeared sufficient for this purpose. Mental disorders in the family are amongst many others not considered in this summary, because individual predisposition partly expressed by some of the selected factors is of far greater importance. The cases appear in six groups. The first has none of the unfavourable factors; the second, one; the third, two; the fourth, three; the fifth, four; and the sixth, five. No definite information about the number of relapses can be given yet because all the cases in the table were discharged in the course of the last five years, some of them only recently.

No Unfavourable Factors.

All the 9 patients with no unfavourable factors showed good results. One catatonic and 4 atypical cases left as total recoveries. Four patients made social recoveries, one of them having an atypical symptomatology and 3 being paraphrenics. No patients with a more unfavourable mental symptomatology, e.g. hebephrenics and paranoids, were found in this group.

The most favourable outlook therefore is characterized by an atypical

symptomatology, acute onset with short duration of illness, pyknic bodily build, cyclothymic temperament and none of the unfavourable factors collected in Table X.

One Unfavourable Factor.

Out of 9 patients with only one unfavourable factor, 1, a catatonic, made a total recovery, 7 left as social recoveries 4 of these were catatonics, 2 atypical and 1 paranoid catatonic. Only one, a catatonic, remained a hospital invalid. Catatonics were the most frequent type in this group. Atypical cases were much less frequent than in the previous group. Hebephrenics were again absent.

The one unfavourable factor in the case resulting in total recovery was the insidious onset, which was also found in one social recovery of this group. Long duration of illness was found in 3 cases, one of which remained a hospital invalid. This was a case that periodically exhibited acute catatonic excitement. The duration of the attacks was shortened by treatment, but a repetition was never prevented in spite of 43 comas and 15 cardiazol fits. Leptosome build was apparent in another 3; one of these relapsed. Schizothymic temperament was exhibited in one case, which also relapsed. No patients of this group showed process-symptoms.

The next most favourable outlook is therefore characterized by catatonics with only one unfavourable factor. Total recoveries are less frequent however, but social recoveries are usually obtainable. Not a single patient with either long duration of illness, dysplastic or leptosome build or schizothymic temperament made a total recovery. Relapses occurred where one of the last two factors was present.

Two Unfavourable Factors.

Two unfavourable factors were found in 10 patients; 4 of them made social recoveries. Amongst these were one atypical case with insidious onset, long duration of illness, but pyknic bodily type, cyclothymic temperament and a tendency to remission; the second was a catatonic of leptosome build and schizothymic temperament. This case also exhibited a tendency to remission. The third case, a paranoid (1), combined the same two unfavourable factors, and both the last cases had an acute onset and a short duration of illness. The fourth case, again a paranoid (1) with non-systematized delusions, had a leptosome build, process-symptoms, an atypical temperament with an acute onset and a short duration of illness.

Four patients left as social defects; amongst these were: 1 catatonic with long duration of illness and process symptoms, who relapsed; 1 atypical case with schizothymic temperament and leptosome build. This case had an acute onset, short duration of illness and also relapsed. Both these relapsed social

defects were cases of high-grade mental deficiency with a superimposed schizophrenic disorder. Two further cases were paranoid catatonics; one of them had a combination of leptosome build with schizothymic temperament, but acute onset, short duration of illness, and a tendency to remission on the favourable side. The other paranoid-catatonic had a schizothymic temperament and process-symptoms with an acute onset and a short duration of illness. He was of athletic bodily build.

The two hospital invalids, one a catatonic and one a paranoid catatonic, exhibited process symptoms, had long duration of illness and were both of athletic bodily build.

It is evident from the above that schizothymic temperament combined with leptosome build may still offer a fairly favourable prognosis if the onset of illness is acute, the duration of illness short and the mental symptomatology favourable, e.g. atypical, catatonic or acute paranoid with ideas of persecution. A paranoid catatonic symptomatology seems to offer a less favourable outlook. A total recovery, however, is not to be expected if the patients show more than one of the unfavourable factors.

Three Unfavourable Factors.

Of 14 cases exhibiting three unfavourable factors, not a single one made a lasting recovery, while the only social recovery, a paranoid (1), relapsed. Out of three social defects, two (a paranoid (3) and a paranoid catatonic) relapsed. Another social defect, a hebephrenic, remained unimproved. Three patients left as family invalids, while 7 remained hospital invalids. This group does not contain any atypical cases and only few catatonics. Paranoids with somatic sensations of influence or projection symptoms first appear in this group.

The unfavourable combination of this group—schizothymic temperament with leptosome or dysplastic build and process symptoms—was never overcome by acute onset, short duration of illness or a more favourable mental symptomatology. It seems that three unfavourable factors definitely turn the scales.

Four Unfavourable Factors.

Four unfavourable factors were exhibited in 19 cases. None of these showed a good result. Four patients left as social defects, 3 as family invalids and 13 remained hospital invalids. The mental symptomatology is similar to the previous group, but hebephrenics and paranoids (2) and (3) are more frequent.

Five Unfavourable Factors.

Five unfavourable factors were found in 11 cases. Eight remained hospital invalids, 2 left as family invalids and 1 as a social defect (U). He has since

been readmitted. The mental symptomatology is the same as in the previous group. Shock-treatment has not produced any good results when four or five unfavourable factors have been present.

THE SPONTANEOUS RECOVERY RATE IN SCHIZOPHRENIA IN COMPARISON TO RESULTS OF SHOCK-TREATMENT.

Spontaneously recovering cases have been studied under similar aspects (8, 9). The comparison between the type of case recovering spontaneously and the one showing good results from shock treatment reveals that both have the same characteristics. Only few statistics comparable with results of shock treatment are available. Previous ones usually dealt with the final result of schizophrenia 10–20 years after the first attack. Guttman, Mayer-Gross and Slater (11) recently reported on the “short distance prognosis of schizophrenia” from a material selected for a particularly good prognostic outlook with a duration of illness up to 12 months before admission to the Maudsley Hospital. They found total and social recoveries in 35 per cent., social defects in 8 per cent., and family plus hospital invalids in 51 per cent. of the cases. Among our patients who were of the same duration of illness, we find as a result of shock treatment, total plus social recoveries in 50 per cent., social defects in 4.16 per cent. (relapses deducted in both categories), hospital plus family invalids in 45.8 per cent. Our cases were not selected for a particularly good prognostic outlook. In addition to an increase in the number of recoveries, many authors reported a shortening of the psychotic attack which is in itself a justification for shock-treatment (10, 15, 16, 17).

B. Affective Psychoses.

A report about results in this group is only preliminary. It cannot be considered in as detailed a manner as the previous one, because our experience with shock treatment of the affective psychosis is still limited.

Müller (10) recently summarized results of shock treatment in non-schizophrenic psychoses. Several authors have reported on its beneficial effect in acute mania (10). More successes are reported in depressive cases (18) where, in figures collected from different authors, Müller found 60 per cent. recoveries and 27 per cent. improvements. The definite value of shock-treatment in such cases is still doubtful because of their high spontaneous recovery-rate. The immediate beneficial effect in many cases cannot be denied.

Mayer-Gross and Slater (19) state that “the prognosis of the single attack is better the more purely affective the symptoms. The presence of atypical features, e.g. depersonalization, severe hypochondriasis and paranoid symptoms, augur a more prolonged course,” but do not always exclude a spontaneous

TABLE XI.—*Results.*

Type of mental symptoms.	No. of case.	Age.	Sex.	No. of attack.	Duration of illness.	Mainly affective.	Marked atypical features.	Results.				
								T.R.	S.R.	S.D.	F.I.	H.I.
Mania	73	56	M.	1	6 months	..	+	..	..	+	..	..
	74	28	M.	2	"	..	+	..	..	..	..	+
Depression	75	26	M.	1	Less than 6 months	+	..	..	+	..	..	..
	76	32	F.	1	ditto	+	..	+	..	..	..	..
Involutional melancholia	77	36	F.	1	1-2 years	+	..	..	+	..	..	..
	78	50	M.	1	1 year	+	..	+	..	..	..	..
	79	47	F.	1	Less than 6 months	+	..	+	..	..	..	..
	80	49	M.	1	6 months	..	+	..	..	..	..	+
	81	55	M.	1	1 year	..	+	..	..	..	..	+
	82	55	F.	1	1-2 years	..	+	..	..	..	..	+
	83	45	F.	1	"	..	+	..	..	+	..	..
	84	56	F.	1	"	..	+	..	..	..	..	+

recovery. They state, further, that the average duration of an untreated attack of mania or depression is from five to seven months. With advancing age the duration becomes longer. Acute cases with a more severe attack and longer intervals of remission have a better prognosis than those with mild symptoms and shorter intervals.

Summary of Results.

The two manic cases remained uninfluenced by treatment, but one of them made a spontaneous recovery 13 months after admission. Insulin and cardiazol had been tried shortly after the onset of his breakdown. Both cases had marked atypical features and were very degraded in their habits.

The depressives showed a better response to treatment. Out of three cases one made a total and two a social recovery during the treatment period (of up to about 60 insulin days and 12 convulsions). No case exhibited marked atypical features.

Out of seven involutional melancholics, two made a social recovery, showing no marked atypical features. All the rest were accompanied by marked atypical features, e.g. paranoid ideas or hypochondriacal delusions. One case was discharged as a social defect and four remained hospital invalids.

NEUROSES.

Staehelin (10) reported the favourable influence of insulin treatment in cases of neuroses, especially anxiety states. Debenham, Hill, Sargant and Slater (20) suggested a modified form of insulin for certain war neuroses. Janke and Sal y Rosas (10) tried cardiazol in obsessional cases and hysterics.

We have tried shock treatment in an anxiety hysteric and in an obsessional case ; both had a duration of illness of between one and two years, and both were discharged as total recoveries after completion of treatment. They both responded better to insulin than to cardiazol.

SPECIAL INDICATIONS FOR THE DIFFERENT FORMS OF SHOCK TREATMENT.

It is not regarded as expedient to look upon insulin treatment and convulsant therapies as rivals, because each has its special merits. We still use insulin shock treatment for slightly restless and anxious schizophrenics with loss of weight. The quietening effect of the insulin, the improvement of appetite and more rapid increase of weight seem to be of advantage in such cases. A combination with a convulsant was always tried if 10-20 comas did not yield any result. In obsessional or anxiety neurotics with loss of weight, insulin seems to be the better treatment. In anxiety cases the modified form of insulin treatment with increasing doses up to a maximum insufficient to produce coma or hypoglycaemic excitement may be tried. The latter modified form of treatment is also indicated in agitated depressives on the days when no convulsant is given, or when convulsants or insulin shock are contraindicated for somatic reasons.

In the majority of cases of acute paranoid states, catatonic stupors or excitements, we always start with a convulsant. The electrical method is preferred now because of its greater simplicity and the lack of apprehension attached to it. A convulsion is induced two or three times a week, the improvement usually becoming apparent after about the third to sixth convulsion. We do not regard it as justifiable to induce more than about twelve.

In some cases insulin shock treatment was given when a rapid improvement with convulsants had first been obtained, the aim being to stabilize such improvement, for it is found that insulin often produces a more lasting effect than convulsants (10).

CONCLUSIONS.

An investigation was made into various factors influencing the recoverability of schizophrenic patients undergoing shock treatment. None of these factors, if considered singly, possesses sufficient specificity to enable us to predict the outcome. It has been shown that the proportion of favourable to unfavourable factors is a fairly reliable guide for the prediction of curability, the number of unfavourable factors being of special significance.

A preliminary report on the treatment of affective psychoses and neuroses is given.

The special indications for the choice of the most beneficial type of shock (insulin or convulsant) to be applied to the different varieties of schizophrenia and to the affective psychoses and neuroses are stated in conclusion.

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