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TREATMENT OF SCHIZOPHRENIA IN GENERAL HOSPITALS

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The new Mental Health Act permits even the most severely ill mental patients to be treated under general-hospital conditions, and in doing so gives legal sanction to what has already been tried out experimentally for many years. In 1950 the old private-bed accommodation of the Royal Waterloo Hospital (which became part of St. Thomas's Hospital at the start of the N.H.S.) was converted into an in-patient psychiatric unit of 12 beds, and later of 20 beds, mostly in the form of single and double rooms. It was intended to provide a treatment, teaching, and research unit within the framework of a general hospital for many patients who normally would have needed admission to mental hospitals.

The unit was equipped to provide all the newer physical treatments in psychiatry, including insulin coma, E.C.T., and leucotomy. But at the same time the atmosphere was designed to resemble a general ward so far as was possible. Thus the door of the ward always remains open, patients mix with other patients from the medical and surgical wards in the occupational therapy department, and the ward is staffed by the same student nurses as the rest of St. Thomas's Hospital, but is supervised by a sister with mental nursing experience. Patients of both sexes and with all types of mental illness are admitted; all share the same day-room and dining-room, mixing is encouraged, and the nurses are trained to foster a friendly and informal atmosphere.

Present Series

In all, 95 patients suffering from schizophrenia have been treated in this unit from 1950 to 1959 inclusive (readmissions have not been counted—only new admissions). They were admitted from many sources. The majority came from the out-patient department of St. Thomas's Hospital, but others were referred from many parts of England for investigation and treatment. The median age of all patients was 32 years. The median length of history was two years and two months from the first onset of symptoms suggestive of schizophrenia. This figure includes 36 (38%) patients who had had previous symptoms sufficient to require medical advice or time off work. If only the median length of the attack for which they were first admitted to our unit is considered the figure is 11 months.

Most of the patients were seen and personally diagnosed as cases of schizophrenia by one of us (W.S.), and they were also discussed at weekly case conferences or teaching rounds. Only patients needing special

investigation or thought likely to benefit from intensive treatment were selected for admission; chronic deteriorated patients were excluded, and, furthermore, since the ward is an entirely open one, in earlier years the most severely disturbed cases could not be taken in, and all still have to come in voluntarily for treatment. The criteria for admission have not changed very much in the past 10 years, with the exception that since the introduction of chlorpromazine it has been possible to admit and treat more recently ill and acutely disturbed schizophrenic patients. In earlier years it was found, unfortunately, that too many of these, if admitted, had to be sent on to mental hospitals sooner or later because they could not be kept in such general-hospital surroundings without risk to themselves or others. Now this is rarely necessary, as is shown below.

Follow-up

All the 95 patients treated in the past 10 years have now been followed up to see how they fared. They have been rated according to both their social and their psychiatric status. The social status is divided into three ratings (after Ackner *et al.*, 1957): (1) *independent*, if the patient was or is able to work and to support himself, or in the case of a housewife to run her house; (2) *dependent*, if out of hospital, but unable to support herself or run a home; and (3) *institutional*, if in hospital or nursing-home. The psychiatric status is rated as follows: (a) symptom-free, and apparently recovered; (b) residual symptoms, no evidence of active schizophrenia, but some deterioration compared with premorbid personality—namely, flattening of affect, depression, or deterioration in work efficiency; and (c) psychotic, evidence of active schizophrenia.

It was found that 42 patients (44%) were still regular out-patients at St. Thomas's Hospital and were seen personally by one of us (P.R.). A further 26 were also seen personally, either by making a home visit or by special appointment in the out-patient department. Six patients in hospital at the time of the follow-up were not seen, but reports were obtained from the medical superintendents. In only 13 other cases were patients not seen personally, and a rating had to be made after conversation, or a letter in a few instances, with the general practitioner or close relative. Four patients were found to be dead—two as a result of suicide. Only four patients in the series could not be reached in one way or another; but three of these were known to be out of hospital a year and a half before, and two of them were reported to be still actively paranoid at that

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time; the fourth was also last heard of out of hospital, and probably returned to Australia. All four were rated in this inquiry as still psychotic.

The results of the whole group are shown in Table I. It was surprising to find that no fewer than 82 (86%) of the original 95 patients were out of hospital; this is,

TABLE I.—Results in the 95 Cases

		Discharge State	Present State
Social ..	{ Independent	16 (17%)	66 (70%)
	{ Dependent	62 (65%)	16 (17%)
	{ Institutional	17 (18%)	9 (9%)
Psychiatric ..	{ Symptom-free	12 (13%)	46 (48.5%)
	{ Residual symptoms ..	40 (42%)	25 (26.5%)
	{ Psychotic	43 (45%)	20 (21%)
Suicide		—	2 (4%)
Unrelated death ..		—	—

in fact, 90% of the 91 patients still living. Even if, as is most unlikely, all four patients untraced are in fact in hospital, these figures are still 82% and 86% respectively.

It was equally surprising to find that no fewer than 71 (75%) seemed to be free from evidence of active schizophrenia, although 25 (26%) of these show evidence of residual symptoms. Throughout the 10 years, 39 (41%) of the patients have, however, had relapses which required further periods of in-patient treatment, and 31 (33%) of these relapsed within two years of leaving hospital; a further 17 (18%) also had milder relapses not requiring in-patient treatment. However, as can be seen from Table I, most of these patients regained their former status and became stabilized again with further treatment.

Methods of Treatment Used

Conflicting viewpoints still exist about the proper treatment of the more acute and recoverable schizophrenic illnesses. For many years one of us (Sargant and Slater, 1954) had always stressed the importance of giving insulin-coma treatment, with or without E.C.T., at the earliest possible moment; but even with the careful selection of patients admitted, it was found not uncommonly that the patient's condition deteriorated too rapidly for this to be used under general-hospital conditions, or it proved ineffective. In fact, before 1956, no fewer than 12 of our 39 patients had to be transferred sooner or later to mental hospitals, and three required the urgent calling-in of the duly authorized officer because they were no longer controllable in an open ward.

By 1956, however, chlorpromazine had been introduced and we had started to use it in larger and more effective doses, generally combined with E.C.T. As a result insulin coma seemed to be much more rarely indicated, but some patients who were below their best weight continued to receive modified forms of insulin treatment (Sargant and Craske, 1941) until their weight was restored to normal or above it; and sometimes the dose might be increased until light sopor or drowsiness, but not coma, occurred before interruption. These large doses of chlorpromazine combined with E.C.T. and modified insulin were continued until remission of symptoms had been obtained, and, on discharge, endeavours were also made to keep the patients for as long as possible on suitable maintenance doses of chlorpromazine or some other phenothiazine. And, more recently, the antidepressant drugs such as phenelzine ("nardil") or imipramine ("tofranil") have

sometimes been added to the chlorpromazine during treatment, or in the follow-up period when depressive components to the total illness were present.

It is convenient to divide the patients into two main groups—those admitted before and those admitted after January 1, 1956. Before that date only four of our patients had been treated with chlorpromazine, and only one had been given as much as 300 mg. a day—a dose now thought to be the minimum for the treatment of acute schizophrenic patients. Since that date, chlorpromazine and E.C.T. have also largely replaced insulin coma. Table II shows the different treatments given to these two groups of cases.

It will be seen from Table III that in the earlier group no fewer than 12 (31%) of 39 patients had to be transferred to mental hospitals, either because they remained unimproved after treatment or because it had become too difficult to control them in an open general-hospital ward; three of these, as already mentioned, had to be quickly removed to observation wards under the supervision of the duly authorized officer. However, it has since been found that with the use of large doses of chlorpromazine, combined with E.C.T. given as soon

TABLE II.—Treatments Given

	1950-5	1956-9
Number of cases	39	56
More than 2 E.C.T.s	18 (46%)	31 (55%)
Insulin coma	22 (56%)	5 (9%)
Modified and sopor insulin	11 (28%)	31 (55%)
Chlorpromazine { Total	4 (10%)	47 (84%)
More than 300 mg. a day	1	35 (63%)

TABLE III.—State of Patients on Discharge

	1950-5	1956-9
Total	39	56
Social status { Independent	7 (18%)	9 (16%)
	{ Dependent	42 (75%)
	{ Institution	5 (9%)*
Psychiatric state { Symptom-free	4 (10%)	8 (14%)
	{ Residual symptoms ..	32 (57%)
	{ Psychotic	16 (29%)+

* Significant, $P < 0.02$. + Significant, $P < 0.01$.

as possible after admission, all but the most violent and negativistic patients can now be rapidly brought under control and treated in general-hospital surroundings. This has resulted in only 5 (9%) of the group of 56 patients treated since 1956 having to be transferred to mental hospitals, and only one requiring the urgent assistance of the duly authorized officer.

Also, one cannot help being impressed by a comparison of the psychiatric states of the two groups as recorded on their discharge from the unit. No fewer than 27 (69%) of the earlier group of 39 patients still had evidence of active schizophrenia when they left hospital, whereas in the later group of 56 patients only 16 (29%) were still judged to be actively schizophrenic on discharge. The great increase in the number of patients leaving hospital with the rating "residual symptoms" in the second group was probably due to the fact that many patients whose psychosis had been quickly controlled by treatment and maintenance chlorpromazine still showed some flattening of their affect, or fatigue and residual mild depression, probably in part due to the use of maintenance chlorpromazine.

When the length of in-patient stay is considered, again a very marked advantage is shown in favour of the 1956-9 group. It was found that the average stay had

been reduced from 10.7 weeks to only 6.3 weeks. Furthermore, in the earlier group only 10 (26%) out of 39 had left hospital in less than one month, and all these 10 were still psychotic when they left, three requiring the duly authorized officer and a further four having to be transferred to mental hospitals. However, when comparison is made with the 22 patients in the 1956-9 group, whose stay was also less than a month, it is found that only 10 (45%) patients left hospital still classed as psychotic, and only four instead of seven required admission to a mental hospital. Only one patient in this later group required the calling-in of the duly authorized officer.

These figures tend to confirm the clinical impression that the later group have shown a marked improvement in overall treatment results. Table IV shows the results of a follow-up study designed to determine the actual state of these two groups of patients two years after discharge from hospital, since it is only by this method that the different lengths of follow-up can be equated. Patients leaving hospital after August, 1958, have been left out, as at the time of follow-up they had not completed two years. Two groups of 39 patients are left. The results show significant differences between the two groups, in that 20 (51%) in the first group remain psychotic after two years compared with only 8 (20%) in the later group (treated mostly with E.C.T., chlorpromazine, and modified insulin). Similarly, in the former group 12 (31%) were in hospital at the time of follow-up compared with only 2 (5%) in the later group.

TABLE IV.—*State of Patients Two Years After Discharge*

	1950-5	1956-August, 1958
Total	39	39
Dead (unrelated) .. .	2	0
Independent .. .	18 (46%)	24 (61%)
Dependent .. .	7 (18%)	13 (34%)
Institution .. .	12 (31%)	2 (5%)*
Symptom-free .. .	14 (36%)	12 (31%)
Residual symptoms .. .	3 (8%)	19 (49%)
Psychotic .. .	20 (51%)	8 (20%)

* Significant $P < 0.01$.

Some of the credit for maintaining the advantage of the later group should be given to the maintenance doses of chlorpromazine that most of these patients have continued to receive after leaving hospital. It is difficult to produce figures to confirm the clinical impression that maintenance chlorpromazine prevents relapse, since maintenance therapy was given to all those thought likely to relapse; however, in five cases it was felt that the return of schizophrenic symptoms requiring readmission to hospital was directly due to the patient leaving off chlorpromazine, and the response to further treatment helped to confirm this impression.

Discussion

One of us (Sargent, 1958) has already put forward preliminary evidence that, in our own general-hospital unit, chlorpromazine, together with E.C.T. and modified insulin, seemed to be proving a quicker and more satisfactory method of treating early schizophrenia than the use of insulin coma, with or without E.C.T. These reported follow-up findings have helped to confirm this. It has now been found possible to treat in a general hospital many patients who would previously have required admission to a mental hospital, and also, since using large doses of chlorpromazine, we have been able to treat more patients more quickly and with better results.

We have found, however, that if acute schizophrenic cases are to be treated in an open ward in a general hospital it is essential that treatment should be started as soon as possible. Generally speaking, provided that the patient presents no real diagnostic problem, chlorpromazine should straightway be given in doses of about 300 mg. a day. This dosage should be progressively increased to a maximum of 1,400 mg. a day if necessary, and then lowered to the minimum required to control abnormal thought and behaviour. As soon as possible, and often straightway on admission, E.C.T. is also started and given at the rate of two or three treatments weekly, later being reduced to one or two treatments a week. The amount of E.C.T. given is always adjusted to each patient according to the symptoms present and the therapeutic response obtained, the position being reassessed before each treatment. In addition, modified insulin is generally used in patients who are under-weight, and, although we have no statistical evidence of its value in this series, it remains a strong clinical impression that patients are often greatly helped, and their recovery is stabilized, by restoring body weight to normal after discharge.

We have still, on occasion, tried insulin coma when other treatments have proved unsuccessful, and feel that although its use is rarely necessary—owing to the apparent efficacy of the combined method now being used—no treatment should yet be given up entirely that may help even very few patients from drifting into 30 years of chronicity in a mental hospital. And in some patients insulin coma may even yet be shown to provide a better quality of treatment remission than is seen with other methods.

It has also been surprising to find on follow-up that such good overall results have been obtained under general-hospital conditions in a disease which has generally been regarded as of such poor long-term prognosis for so many patients. However, as mentioned above, the patients admitted have been a selected group. The results we have obtained may also in part be due not only to the active physical treatment programme used, but also to the atmosphere of hope engendered in the patient who undergoes his treatment in a general-hospital *milieu*, to the more favourable amount of medical and nursing care possible in a small unit, and, finally, to the fact that early discharge with close out-patient supervision enables the treated schizophrenic to be rehabilitated as quickly as possible. No specialized forms of psychotherapy were, however, used or found necessary to obtain these results.

It has been an outstanding finding, recently seen also in other parts of the country (W. Maclay, 1960, personal communication), that such smaller active treatment units in general hospitals result in less chronicity than when similar early-recoverable psychiatric patients are sent for treatment in the larger and segregated mental hospitals. If these findings are confirmed and their treatment implications fully understood, more beds may well seem to be desirable in general hospitals for the treatment of suitable psychiatric patients.

Summary

The results of a follow-up of 95 schizophrenic patients treated in a general-hospital psychiatric unit in the past 10 years are reported. It was found that no fewer than 82 (86%) of the original 95 patients were out of hospital, and 71 (75%) appeared free from evidence of active schizophrenia.

A comparison of two groups of patients—one treated predominantly with insulin coma and E.C.T., and the other with chlorpromazine, modified insulin, and E.C.T.—shows a significant advantage for the latter group, and a reduction of the average stay from 10.7 to 6.3 weeks. A comparative follow-up also confirms the superiority of the results of treatment in the latter group.

The methods used and the advantages of treating selected schizophrenic patients in a general-hospital setting are also discussed.

Statistical Note.—The probabilities were calculated by chi-square to give some estimate of the differences, but as the original selection was not randomized the tests may not be fully appropriate. We are grateful to Dr. E. D. West for statistical advice on our figures.

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ANTICOAGULANT TREATMENT IN PROGRESSING STROKE*

BY

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It is probably agreed by most workers in the field of cerebral vascular disease that anticoagulants should not be used as a routine in the treatment of cerebral infarction, and that in the acute full-blown stroke they are contraindicated, as they are ineffective and may be dangerous. Moreover, in this type of lesion differentiation from intracerebral haemorrhage is particularly difficult and sometimes impossible. My initial experience suggested that if these acute strokes were excluded from the overall results, then treatment seemed beneficial, and so I decided to plan a controlled clinical trial of anticoagulants in patients suffering from the slower-onset type of cerebral infarction—the progressing stroke.

Selection of Patients

The patients for this trial were selected from consecutive "stroke" admissions to the Ashford Hospital, Middlesex, during the four years 1956 to 1959. The details of these are shown in Table I.

The selection of patients was made in two ways. The first was a positive selection which included patients with a pre-hospital history of progressing symptoms and patients who after admission to hospital showed increase in severity or in distribution of their disability. The second was a negative selection made by excluding from this first selected group patients in whom past experience had shown that anticoagulants might be dangerous. I had previously found that major haemorrhage was much more likely to occur during the treatment of patients with established cerebrovascular disease if they showed any of the following

features: (1) loss of consciousness at the time of commencing treatment; (2) severe hypertension, with a diastolic pressure reaching 120 mm. Hg. or above; (3) age over 70 years, with few exceptions; (4) evidence of past severe hypertension, such as cardiac enlarge-

TABLE I.—Analysis of Patients Admitted to Ashford Hospital Suffering from Acute Cerebral Vascular Lesions, Showing Sex and Aetiology

Year	No. of Patients	Male	Female	Embolism	"Thrombosis"	Haemorrhage
1956	140	67	73	9	63	68
1957	147	70	77	10	66	71
1958	147	72	75	8	72	67
1959	136	73	63	7	76	53
Total	570	282	288	34	277	259

ment, retinal changes with haemorrhages or oedema, and evidence of severe renal dysfunction; (5) xanthochromic or blood-stained cerebrospinal fluid; (6) evidence of hepatic disease or definite history of peptic ulceration, etc.

Analysis of Material

In the four years, 122 patients out of the 277 admitted with the diagnosis of cerebral thrombosis came into the category of progressing stroke. The above-mentioned contraindications to anticoagulant therapy reduced this number to 80, and this group of 80 patients formed the series for the trial. Patients were placed in the control or treated group by random selection, and, apart from anticoagulants, were treated in the same way. Of these 80, four had to be withdrawn from the trial owing to recognized mistakes of diagnosis—two, by chance, in each group. Three had cerebral gliomata, and one, who was fortunately in the control group, had an intra-cerebral haematoma. In the final trial, therefore, were 76 patients, and these have been analysed according to age and sex in Table II. The distribution is seen to

TABLE II.—Analysis of Series According to Age and Sex

Age	No. of Patients	Treated		Untreated	
		Male	Female	Male	Female
40-49	8	2	2	3	1
50-59	26	7	5	8	6
60-69	42	12	10	12	8
Total	76	21	17	23	15

be reasonably even between the groups; over half the patients are between 60 and 70, and the ratio of men to women is four to three.

Distribution of Infarction

The distribution of cerebral infarction was commonly in the middle cerebral territory, and of the 76 patients 65 were in this group. Of the others, 8 were in the vertebral-basilar territory with brain-stem lesions, two showed occlusion of the posterior cerebral and one occlusion of the anterior cerebral artery. This proportion of six middle cerebral infarctions to one elsewhere is close to the seven to one for all types of infarction (Murphy, 1954; Glynn, 1956; Carter, 1960) but greater than the series of Adams (1958), who in a series of 58 patients over a five-year period found middle cerebral, 22; vertebral basilar, 22; posterior cerebral, 4; lateral medullary syndrome, 3; and uncertain, 7. This surely must have been a very selective group.

*An address given on January 5, 1961, at the Third International Conference on Cerebrovascular Disease at Princeton, New Jersey, U.S.A.