PHYSICAL TREATMENTS IN PSYCHIATRY

By

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It has been stated too frequently that new therapeutic developments in psychiatry are revolutionizing the field. While this did not turn out to be true for any of the treatment procedures, it can well be stated that those of us who entered psychiatry more than 25 years ago, lived through a period in which psychiatry changed from a specialty known for its therapeutic nihilism to a field of almost feverish therapeutic activity. Undoubtedly the physical treatments have played a decisive role in this change. They have also clearly changed the attitude on the part of the individual psychiatrist to his specialty. Our teachers were primarily concerned with attempts to organize and systematize our knowledge, while our generation, perhaps because too pragmatic, may easily be blamed for failure to link the newly-acquired information with the basic concepts developed by them, concepts which were neither confirmed nor disproved by our new knowledge. When I think of my own development as a neuropsychiatrist, I remember that I started out in psychiatry, but temporarily turned to neurology because at that time neurology seemed to give much greater therapeutic possibilities. It was only in the middle nineteen-thirties that this changed radically, and that so many more therapeutic possibilities developed in psychiatry that it became a challenge to return to this field. The introduction of the various physical treatments in close succession was an amazing coincidence. Although met by some with scepticism and even ridicule, and by others with unjustified over-enthusiasm or a competitive attitude improper for scientific progress, the new treatments evoked a beneficial optimism among psychiatrists. They helped to change the attitude of the mental hospitals in all countries and gave an entirely new impetus to the general public to become interested in matters concerning the mentally sick. It may also be said that the physical treatments gave a new stimulus to efforts at psychological and social treatments of the psychotic patient, and I dare say that the improvements in mental hospital management which are so conspicuous in your country could not have progressed so fast and met with so much public support if the physical treatments had not helped to improve the adaptability of patients in these hospitals. It is a historical fact which can be easily proved, especially in England, that those hospitals which are now the showplaces for modern hospital treatment, with open wards and social and recreational activities for almost every single patient, are also the ones in which pioneer work was done with insulin coma treatment, convulsive treatments and psychosurgery. I am going to discuss these treatments, while the newest approach, pharmacotherapy, will be left to another report and be mentioned only as far as it influences the application and indications of the other treatments.

Such a paper gives a good opportunity to take stock of the present status of the various physical treatments and to re-evaluate some of the inherent clinical and theoretical problems. Such a survey will by-pass the generally known and accepted facts and concentrate on the many debated questions. There are all too many problems still under debate, and it is regrettable that

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the newer and more publicized pharmacological developments have diminished efforts to discuss and to clarify the unanswered questions set by the preceding physical treatments.

Insulin coma treatment is a good example for this disregard of previous treatments. There has been hardly any literature on insulin coma treatment during the last few years. The appearance of chlorpromazine and reserpine led prominent psychiatrists without practical bedside experience to statements that the shock treatments were a thing of the past. This was welcomed by some hospital administrators who had always found insulin coma treatment a great inconvenience. While in our own state hospitals in New York insulin units have never been discontinued, other hospitals, including private ones, did give it up. Already once before the same trend has been observed when electroshock was introduced into hospitals whose insulin units had been hampered anyway by the war. It is a definite sign in favour of the efficacy of insulin treatment that it survived, and that a recent symposium in Zurich clearly demonstrated that experienced clinicians still feel the need for it. Its technique is practically unchanged since its introduction by Sakel in the Vienna clinic. Modifications such as the one by Shurley, who doubled the dose with each subsequent treatment until he reached coma level, or reduction of the amount by giving amorphous insulin or adding hyaluronidase have not yet been generally accepted. The dangers of protracted coma have never been entirely overcome, and even the best set-up cannot avoid an occasional fatality from cardiovascular collapse or protracted coma. The greatest handicap for the therapeutic effectiveness of insulin treatment continues to be fear on the part of the physician of producing deep coma. Many unfavourable statistics on results of insulin treatment are obviously explained by technical shortcomings in a treatment whose effective agent is apparently not the insulin as such but the coma produced by it. The light hypoglycaemia found to be useful in neurotic syndromes has no effect on the schizophrenic psychosis. Depth of coma and number of comas are the decisive factors, contrary to some statistics which seem to show that best results are obtained with short courses of insulin, namely in patients who have a good prognosis in the first place. Unfavourable results in spite of large numbers of comas are explained by the treatment of chronic cases, the failure to respond being in spite of, not because of, the large numbers of comas given.

This is not the place to discuss technical details, important as they may be. Whatever has been said about the need for highly qualified personnel in an insulin unit is as true as ever, if one is to avoid unnecessarily high numbers of protracted comas and other accidents. The best treatment for protracted coma still consists in its prevention, although some reports on anaesthesia techniques to keep the patient oxygenated seem to be more promising than other recommendations.

Is it worth while to maintain such a complicated, expensive and often dangerous treatment? The answer must be "yes" considering the seriousness and the therapeutic resistiveness of the disease schizophrenia for which insulin coma treatment is applied. Bourne wrote a rather sensational article entitled "The Insulin Myth", in which he stated that electric shock therapy can achieve just as much as insulin treatment. Although I agree with many of his statements, and although I do not fully agree with Sargant and many others that insulin should be given preference over electric shock in every schizophrenic, my personal experience has clearly convinced me again and again that many failures of even repeated electric shock series may still respond to insulin coma

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treatment. This is not in contrast to the experience that many schizophrenics who respond to any treatment have good and lasting remissions after electric shock alone. I, therefore, maintain that electric shock, which is easier to apply and certainly less dangerous than insulin, should be given first choice in schizophrenia, and this includes paranoid cases as well as catatonics. A difference in indications for insulin and E.C.T. according to subtypes of schizophrenia has been stated, but it has never been possible to prove this. It is true only in so far as the less favourable types like the paranoid, with its usually later and more insidious onset, show less response to any treatment, and therefore, here electric shock treatment will have to be followed more often by additional insulin coma treatment. I have no argument with those who prefer to give insulin in the first place in these cases with less favourable prognosis, but for the sake of clarity and in view of the limitations of insulin beds in most psychiatric hospitals insulin should not be considered the only treatment for schizophrenia. To what extent the indications for both forms of shock therapy have changed with the introduction of the newer drugs will be discussed later.

There is much evidence that electric convulsive treatment is still widely applied in all psychiatric hospitals. Of course, in chronic schizophrenia pharmacotherapy has practically abolished the indications for electric shock therapy which had never been too satisfactory, and this may account for a statistically impressive reduction of the number of treatments given in some of the larger mental institutions. In hospitals with more acute material its use continues to be extensive if it is not restricted by a general policy on the part of the management of the hospital. This was clearly evidenced by a recent poll among psychiatrists with special experience in shock treatments, and it was equally evidenced in the U.S. by figures from most private psychiatric hospitals. As an example, at the psychiatric pavilion of a general hospital, St. Vincent's in New York, where during the first five months of this year 278 patients had been admitted, 136, or half of the total number, received E.C.T.

Contrary to insulin coma treatment, electric shock underwent much experimentation in the hope to overcome some complicating factors. It may be mentioned here that pharmacologically induced convulsions with metrazol or similar drugs are still used in combined insulin-convulsive treatment by some. The slight superiority of metrazol in the treatment of acute psychotic states such as catatonic excitement still leads some psychiatrists to give it preference and the introduction of succinylcholine-pentothal anaesthesia, which spares the patient the unpleasant experience of metrazol, has revived interest in this type of therapy. However, this revival by Komora and Padula and others has not yet achieved great significance. It may be added, though, that in one of our State Hospitals in Maryland Kurland has introduced an inhalant convulsant drug discovered by Krantz and named indoclon (hexafluorodiethyl) in the hope of being able to avoid some of the side-effects of the electric current, such as memory impairment and fractures. This new method appears to me promising, because the patient is already unconscious and relaxed when after some irregular contractions he enters the tonic phase of the convulsion.

The side-effects attributed to the electric current, have led to constant attempts at applying different types of current. Although this kind of research initiated in the United States and is constantly being stressed by some manufacturers, it can be stated that it is just in the U.S.A. that most psychiatrists still use, and in many cases have gone back to using, the alternating current recommended by Cerletti and Bini, while in other countries, as, for instance, in Germany, the most widely used standard machine applies different currents.

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Progress in this field has been hindered by the presentation of unproven statements rather than comparative statistics when new methods have been introduced. Another hindrance was the fact that the newer techniques apply smaller current intensities for a longer period of time, and this could be—but never has been—done just as well with the alternating current. Evaluation of such techniques as the Reiter is further complicated by the fact that here the current is maintained during the whole convulsion in an effort to suppress the clonic phase. There is some evidence that such continued stimulation, already recommended in the so-called electronarcosis treatment by workers from California, may be more dangerous for the patient. Memory impairment seems to be somewhat less pronounced with the newer techniques, which may be explained by the lesser intensity of the current. The second reason given in favour of these modifications, the prevention of fractures, could not be maintained. It can be noted that some authors who used these modified currents were the first to recommend muscle-relaxant drugs for the prevention of fractures.

Premedication with muscle-relaxant drugs is at present the main issue in electric shock therapy. It is true that medico-legal considerations have pushed more and more psychiatrists into the application of muscle relaxants. It is equally true that particularly those with large experience in unpremedicated electric shock are deeply convinced that the danger of E.C.T. to life and the number of actual fatalities become greater with any type of premedication. Although prevention of fractures is always achieved with the muscle-relaxant drugs, I cannot agree with the statement that they diminish the danger of cardiovascular complications. As logical as this may seem, clinical evidence definitely contradicts this assumption. I have seen several cardiac patients who were able to stand unpremedicated electric shock in previous episodes without any trouble, but when started on succinyl-choline and pentothal premedication went into a collapse-like condition. When treatment was continued without premedication, the patients again did not show any distress. It is true that the high fatality rate of curare and similar drugs in former times does not apply to succinylcholine. There remains the fact, however, that a convulsion as such, as is well known from the literature on epilepsy, hardly affects even patients in poor physical condition and suffering pre-existing physical disease, and the same is true for electrically induced convulsions as evidenced by the experience with E.C.T. prior to the introduction of muscle-relaxant drugs. A recently reported case of a patient who after many unpremedicated electric shocks died in the first treatment given with pentothal premedication without succinyl-choline suggests that the pentothal rather than the succinyl-choline or the combination of the two is responsible for untoward results in some instances. Therefore some psychiatrists use a technique, first published by Impastato, in which succinyl-choline is given first, and instead of pentothal an immediate subconvulsive stimulus is used to make the patient unconscious and unaware of the suffocating feeling of the succinyl-choline injection. This subconvulsive stimulus is then followed 30 or 45 seconds later by the convulsive stimulus, when muscle relaxation has set in. One advantage of this technique is that much smaller amounts of succinyl-choline, often less than 10 mg. are sufficient for complete muscle relaxation. In my experience, a disadvantage of this method is that the current used for the first stimulus is often either too low and, therefore, felt by the patient, or too high, thus leading to a convulsion before the succinyl-choline has had a chance to act. Also post-treatment discomfort and excitements seem to be more frequent without the pentothal. In all treatments

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with succinyl-choline I insist on the presence of an anaesthetist. Where pentothal is not contraindicated because of cardiac or pulmonary conditions we use the drip method for the slow introduction of pentothal and give the succinyl-choline into the tubing, which is left in after the treatment for eventual emergency measures, a technique used by the anaesthetist Dell'Aria in my own clinical material. However, I avoid premedication wherever possible, as, for instance, in young females and in patients who have had previous E.C.T. without complications and in whom bone complications need not be expected.

I may add that I also avoid premedication with barbiturates alone wherever possible.

A discussion of psychosurgery is easier and less likely to meet with opposition in England than elsewhere. In spite of Walter Freeman's pioneer work in the U.S.A., psychosurgery soon became a more widely used procedure here than in America. Yet, in the U.S. also frontal lobe operations found a broader application than could be expected considering the psychodynamic approach of American psychiatry. It certainly became a more widely accepted procedure in the States than in continental Europe, where poor public relations of psychiatry in some countries and a greater concern with the possibility of post-traumatic impairment of brain function made psychiatrists unduly reluctant to use frontal lobe surgery. In the United States the number of operations had been increasing steadily, and the arrears of suitable cases in our mental hospitals had not yet been exhausted, when the new tranquillizing drugs appeared on the scene. At this point, largely owing to the advertising slogan that the drugs make surgical brain-destruction a thing of the past, operations were radically discontinued. It is only lately that figures have been slowly rising again, and that patients for whom lobotomies had been recommended but postponed two or three years ago are being reconsidered for the operation, and I must add in some of my own cases of my own observation too late, because in the meantime the deterioration in some has progressed to a point where frontal lobe surgery can no longer be recommended.

If we try to establish the present state of our knowledge, we must clearly differentiate between the two main groups of patients in whom psychosurgery is indicated. The first group deals with chronic schizophrenics in whom all other treatments have been tried unsuccessfully. Aggressive behaviour on one hand and suffering under the threat of delusions and hallucinations on the other hand are the main indications in this group of chronic schizophrenics. The decisive factor for or against the operation in such cases is the degree of deterioration that is present at the time the decision has to be made. It is more and more being recognized that severe deterioration, which usually makes the relatives most desirous to have an operation performed as a last resort, is a serious handicap to a favourable outcome. While it had always been regarded as a pre-requisite that shock treatments be applied properly and extensively before an operation was considered, today it must be requested that pharmacotherapy be given a fair chance in such chronic schizophrenics who have not responded to shock treatments. Ample experimentation with several of the drugs available is in order before psychosurgery should be considered. Careful psychopathological observations are necessary in each case to evaluate the effect of drug therapy. It is not sufficient to have a disturbed patient calmed down to a point where he merely sits around in complete lassitude to the satisfaction of the nursing personnel. It has been evident to observing psychiatrists that chronic schizophrenics whose deterioration has not progressed too far can enjoy life and are able to make a fair adjustment outside hospital

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after psychosurgical intervention, while similar patients under tranquillizing drugs are often completely inactive, listless and uncomfortable. In such cases psychosurgery is preferable. It should also be investigated by trial visits home whether or not a patient who responds favourably to the drugs is willing to take the medication once he is outside the hospital. There are also those cases in which the effect of the drugs fades off, and finally those in whom the psychiatrist experienced in psychosurgery evaluation as well as in drug therapy convinces himself that the result obtained with any of the available drugs does not reach the degree of improvement which he would have expected with psychosurgery in this patient. In all these instances surgery should be considered. It will be difficult to demonstrate results obtained in the comparable groups treated with pharmacotherapy and psychosurgery, although research in this direction would be most desirable. Careful psychopathological observation of individual cases is most important, and tends to show clearly that psychosurgery still has definite indications in well-selected cases of chronic schizophrenia.

A group of patients in whom psychosurgery continues to be a most valuable procedure are the cases classified by Hoch and Polatin as pseudo-neurotic schizophrenia. This is equally true for severe and incapacitating obsessive-compulsive neuroses, and it may be permitted to discuss these two groups together as far as the indications for psychosurgery are concerned. It has been shown convincingly by Hoch and his co-workers that these patients, whom we see with particular frequency at the New York State Psychiatric Institute, present remarkable therapeutic results after psychosurgery. Patients who had never been able to lead any normal life, undergo professional training or hold any kind of job, are able to do so for the first time. The figure of 80 per cent. of improvements given for this group goes far beyond anything that could be obtained in such patients prior to the advent of psychosurgery. Since we are often dealing with highly intelligent people, the decision to impair brain function by psychosurgery has always been a difficult one. Therefore, it was obvious that the new drugs should be amply tried in this type of patients and that psychosurgery should be delayed. Although anxiety is their main symptom, pharmacotherapy must be given preference in all cases that are able to lead a satisfactory life under prolonged medication. The term "chemical leucotomy" has been used, but it is not quite correct for various reasons. One major difference is that patients under medication, if they improve, are aware of their previous suffering and feel happy about the relief they have obtained, while the lobotomized patient does not even remember his previous symptoms, at least not spontaneously. If asked about them it may occur to him that he had those symptoms, but he has never thought about them any more. While this could be considered a pleasant state of affairs, it is actually a sign of impairment of critical faculties, and this is not limited to the illness but also concerns other matters. Therefore, even in patients in whom the operation is successful and not too much brain tissue destroyed, the intellectual impairment, regardless of what some of the psychological tests show, is more pronounced than under drug therapy. This is an important factor in favour of the drugs, but it is not a sufficient reason to do away with a valuable operation as long as we do not have better drugs, with fewer side-effects and more therapeutic efficacy.

Psychosurgery became less objectionable when less extensive operations were introduced. The standard lobotomy of Freeman and Watts was given up in favour of a variety of smaller operations leading to fewer personality changes. It was at that time that Freeman himself turned entirely to Fiamberti's trans-

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orbital lobotomies as the least extensive operation. In our own experience this method is not sufficient. It is true that psychopathological side-effects are rare, although, as in all blind operations, haemorrhage may occur. The greater safety of open operations in the hands of an experienced neurosurgeon made it easy for us to decide on somewhat larger procedures, and Ranzerhoff, the surgeon operating at the New York Psychiatric Institute, uses pre-coronal operations pretty much of the same type as McKissock here with his rostral leucotomy. It appears, however, that in a number of patients this operation also is not sufficient. I personally feel that re-operations are indicated in cases in whom neither improvement nor side-effects are noticeable after the first operation. It also became apparent that the larger standard operation, with its risk of personality changes, is still indicated in a number of cases, and at the height of our psychosurgical activities, shortly before the advent of pharmacotherapy, the pendulum was again swinging toward the use of more extensive cuts.

Operations using cuts in special cortical areas did not prove to be superior, and are followed by a greater incidence of post-operative epilepsy. Most workers seem to agree that the quantitative principle is applicable to the results of psychosurgery, namely that the effect both on the removal of psychiatric symptoms and on the occurrence of personality changes depends on the quantity of the brain tissue destroyed. A good point in favour of this is that results quite comparable to our own with precoronal operations were obtained by the Boston group with bi-medial operations, and by some others with still different cuts. Attempts to pre-determine the extent of the cut with injections of novocaine prior to the operation, as well as technical modifications using chemicals, electro-coagulation, or ultrasound for the destruction of brain tissue in psychosurgery are still in the experimental stage, and probably they will have to be taken up again more extensively after the premature statement that psychosurgery is a thing of the past has been proved to be unjustified.

It is obvious from the above that the indications for shock treatments and surgery have been greatly modified in the large group of chronic schizophrenics, including the pseudoneurotic type of schizophrenia. This is not quite so in the acute group. The indications for shock treatment appear to have changed little in acute schizophrenia. Attempts with pharmacotherapy are perfectly in order, but they should not be extended beyond the time when shock treatments are no longer of help. It is easy to cover up excitement, delusions, hallucinations and other symptoms of acute schizophrenics with drug therapy. However, they usually recur when pharmacotherapy is discontinued. Since, according to most statistics, shock treatment becomes rather ineffective after six or twelve months of illness, its application should not be delayed for more than a few months, while an attempt with pharmacotherapy is being made. On the other hand, symptomatic psychoses or exogenous reaction types usually clear up under pharmacotherapy alone without shock treatment. Nothing has been changed regarding the treatment of depressions. It is recognized by most workers that all types of depressions continue to be the domain of E.C.T. States of excitement respond to pharmacotherapy in many, but in my experience by no means all instances. Psychotic episodes in some organic brain conditions need no longer be subjected to shock therapy, nor do the withdrawal symptoms of addicts, which respond well to a few convulsive treatments, but better to chlorpromazine or reserpine. I may add, however, that deliria after withdrawal of barbiturates do not seem to be prevented by the newer drugs.

Two points remain to be discussed: the relation between somatic and psychological treatments, and some questions of theory.

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The somatic treatments in psychiatry have often been described as an adjunct to psychotherapy, or else they have been rejected altogether because they interfere with the basic concept of some psychiatric schools which claim that the patient himself has to work out his problems. Even some ethical doubts have been raised, as, for instance, that shock treatments change a conscious person with ethical thinking into a temporarily debilitated, primitive, instinct-driven person. In psychosurgery the impairment of ethical and religious feeling had been deplored and used as an objection to this treatment, a point which interfered with the wider use of lobotomies in many European countries. In the United States the interference, temporary or permanent, of the interpersonal relations between doctor and patient has been a frequent objection to any somatic treatment. This objection found a strong resonance in lay publications and was used again and again in attempts to discredit the physical treatments.

In the U.S. the bias against somatic treatments has changed with the introduction of pharmacotherapy, but even their publicity did not do away entirely with the strict alternative: somatic or psychological treatment. There are still some private hospitals which refuse to apply any somatic treatments or limit their use to extreme cases in order to render the patient accessible to the true treatment, which for them can only be psychotherapy, in neurotics and psychotics alike. However, not only the public hospitals but also the vast majority of private hospitals with their large turnover lean heavily on the use of somatic treatments. It is a strange paradox that those hospitals that apply shock treatments may still give lip service to psychotherapy, more so than some European centres for shock treatments. The emphasis which M. Müller in Switzerland and more recently, Hoff in Vienna place on psychotherapy during insulin coma treatment does not seem to have any parallel in insulin units of our hospitals. Even group psychotherapy, used in our public hospitals in spite of the shortage of psychiatrists, is applied mostly to patients not undergoing shock therapy, thus again conforming to the alternative—either somatic or psychotherapeutic approach. The good results of shock treatments in some of our large institutions without any attempt at psychotherapy, in my opinion, is the best proof that the effect of shock treatments does not depend on the simultaneous use of psychotherapy.

This does not mean that psychotherapy of some kind is not desirable in the rehabilitation of patients who have undergone shock therapy with a more or less satisfactory result. This is true for many physical illnesses as well, and it is of course, more so in patients whose sickness has expressed itself in emotional symptoms and in their interference with the patient's interpersonal relations. The patient himself must be taught to understand his previous emotional difficulties, and he and his family must learn to handle their relationship, which has often been changed by residual symptoms of the illness. The various treatments present entirely different problems as far as psychotherapy is concerned. In insulin treatment the transference situation is a favourable one if the same physician watches the patient during his temporary physical and psychopathological manifestations in the state of hypoglycaemia, and is with him during the stage of recovery from hypoglycaemic symptoms, when many patients show a definite need for communicating with the physician. Deep psychotherapy should be left to the end of insulin treatment and limited to individual cases in whom personality changes not subject to insulin remissions remain after the removal of the more dramatic symptoms. In electro-convulsive therapy psychotherapy is hardly possible because of the patient's confusion,

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and it is definitely unnecessary in depressions which clear up after a few treatments. Attempts to use the blurring effect of a few electric shock treatments in neurotics under psychotherapy have been made, but are quite unsatisfactory. Neuroses, apart from depressions that occur in neurotic patients, are no indication for electroshock, and its indiscriminate use in such patients with their tendency to conversion symptoms has contributed much to the grudges against the treatment.

A most interesting problem for psychotherapy is presented by psychosurgery, although orthodox psychotherapeutic procedures would be bound to fail here. Active rehabilitation of schizophrenics, which has received much attention by some hospitals, is not an indispensable requirement. Patients become rehabilitated by time, and little difference can be seen between results in public hospitals with little or no post-operative psychotherapy and those in the highly developed post-lobotomy units of private institutions. There is, however, a large group of patients, and this applies particularly to obsessive-compulsive neurotics and pseudoneurotic schizophrenics, in whom only the impact of the symptoms on the patient is reduced, and in whom a psychotherapeutic working out of their problems is possible for the first time after the operation. These patients can be quite successfully taught to live with their symptoms; others will benefit from working with a psychotherapist who is experienced with this type of patient, and as Cattell pointed out, is willing to adjust his technique to the special requirements of these patients.

It is highly disappointing that all theories of the shock treatments were postulated only to be easily disproved. While insulin coma treatment was found incidentally and a theory presented only as an afterthought, convulsive treatment owes its existence at least partly to a claimed antagonism between epilepsy and schizophrenia. This antagonism is neither proven, nor would it explain the fact that affective disorders rather than schizophrenias respond best to convulsive therapy. Both insulin and convulsive treatments have in common that severe pathophysiological changes are brought about by them, as evidenced by numerous neurological manifestations. These organic cerebral manifestations of all physical treatments in psychiatry including psychosurgery are the strongest argument in favour of a somatic cerebral basis of the diseases in which they are effective. The nature of the somatic cerebral changes which influence the disease remain entirely unknown. In E.C.T. electroencephalographic and psychological changes demonstrate a severe disorganization of brain function, but contrary to some recent attempts to correlate the intensity of these changes and the therapeutic effect, it is undeniable that the best results can be obtained with a few convulsive treatments in depressions without such manifestations. Cause and effect are not only mixed up by those who see the appearance of psychopathological manifestations such as amnesia as proof for a psychological theory of the treatment, but equally by those who consider signs of disturbance of cortical function as the organic cause for improvement.

The question whether our treatments are specific or only symptomatic seems highly academic. In my opinion there is definitely something specific in the way shock treatments clear up in a predictable manner at least some psychotic syndromes, even though future episodes of the same illness cannot be prevented. There are few treatments in medicine which are strictly specific for one disease. It is strange that in psychiatry, where until 25 years ago we had no treatments at all, we are stricter in our criteria for treatments than specialists in any other field of medicine. If a symptomatic improvement can be maintained for any length of time it is just as useful as the discovery of insulin for diabetes. The

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effect of electric shock therapy in most manic-depressives, who are able to live a normal life for years between their episodes, goes even beyond the effect of insulin for diabetes. I am making this statement because a pseudo-scientific scepticism carried into psychiatry not by clinicians, but by basic scientists and statisticians paralyses therapeutic efforts in our field.

It cannot be denied that statistical evaluation of therapeutic results with any of the treatments discussed here, leaves much to be desired. There are few comparisons available between groups treated in different ways, although our large institutions would lend themselves extremely well to such statistical evaluation under the guidance of experienced clinicians. What is available in statistics is far more contradictory than the experience of different clinicians working under the most varying conditions and arriving more often than not at the same conclusions. The difficulty of statistical proof cannot be a reason to withhold treatments which have therapeutic value even though the degree of their therapeutic effect is still debated. It is also unjustified to discredit treatments by reports that a newer treatment procedure is superior because it achieves results in some individual patients who have failed under previous ones. All treatments should be applied in different stages of the disease if we want to obtain some results. The advent of newer methods should not interfere with the application of previous treatments.

All the somatic treatments, particularly the newer drugs, have contributed to a different attitude on the part of physicians but also of the public toward the psychoses. In the United States, relatives of mental patients are asking us more and more whether maybe it is not so much a childhood experience but rather something chemical in the brain that makes the patient psychotic. Actually, the drugs which brought about this change were also found empirically rather than on the basis of any chemical knowledge regarding the diseases which we are treating. Therefore, there is no reason to be ashamed of the other physical treatments which also have an empirical basis. Neither our knowledge of psychiatric illness nor our treatments stand on firm ground for the time being. I should like to close, however, with an appeal to clearly separate our scientific scruples from our clinical efforts in the individual patient.

DISCUSSION

By **Dr. L. C. Cook**

When I was preparing a critical review of physical treatments for the first volume of *Recent Progress in Psychiatry*, published in 1944, I was always delighted to come upon any papers by Dr. Kalinowsky, because they seemed to me so logical and well-balanced, and I found myself in agreement with nearly everything he wrote. In fact, I felt he must be an exceptionally intelligent and understanding psychiatrist to have come to much the same conclusions as I had myself! So it is with particular pleasure that I follow him this morning, and once again I am not disappointed. I am sure we have all listened with enjoyment and admiration to such a sound and authoritative review of the present position of physical treatments in psychiatry.

Dr. Kalinowsky rightly reminds us that most of the hospitals now in the forefront of modern rehabilitation projects were also pioneers in adopting physical treatments, and undoubtedly physical treatments, by rendering patients more accessible to re-socialization and better able to appreciate normal social activities, have made it much easier to carry out these projects; nevertheless,

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he may have missed the point that those men who had the foresight and judgment to take full advantage of the possibilities of physical methods of treatment at their outset were also likely to have the talents and temperament necessary to introduce and steer successfully through storms of criticism and forebodings of disaster the drastic changes in policy involved in giving so much freedom and responsibility to patients who were then considered to be irresponsible and potentially dangerous. I refer particularly to such men as Dr. T. P. Rees of Warlingham Park Hospital.

I am glad that Dr. Kalinowsky does not think that insulin coma treatment should be jettisoned. I have certainly found it to produce a better qualitative remission than E.C.T. in some types of schizophrenia, particularly where ideas of reference and passivity feelings are present without marked withdrawal from reality or superficiality of affect. I prefer to try E.C.T. first in recent florid schizophrenic reactions and in catatonic states, but in recent paranoid reactions of the type just mentioned, I still prescribe insulin coma treatment, with Dr. Kalinowsky's emphasis on adequate depth and number (40–50) of comas. Whether certain tranquillizers alone or combined with convulsion treatment will eventually prove to have an equally good effect, it is, I think, too early to say.

Dr. Kalinowsky speaks of "the slight superiority of metrazol" over E.C.T. in the treatment of some acute schizophrenic states, and I must say that my experience amply confirms this. In particular I have found that the remissions obtained after metrazol are more enduring and of better quality than is generally thought. Four years ago I was able to undertake a follow-up of the 138 female patients suffering from schizophrenia of all types and durations whom I treated with metrazol convulsions between June, 1937 and March, 1940. Of the 56 discharged as recovered or remitted within six months after treatment, we managed to trace all but nine, which, considering the war-time upheaval and destruction in the south-east areas of London where most of them lived, is no mean feat. Of the 47 traced, one was killed in an air-raid three years after recovery, working as an air-raid warden, 30 had remained well with no sign of psychotic relapse, 16 had suffered relapses and 10 of these recovered from their relapse, but several had subsequent relapses. Of the 16 who relapsed, 2 kept well for approximately 13 years before relapsing, 1 for 10 years, 2 for 9 years, 5 for 2½ to 5½ years, and the remaining 6 for 1 to 2½ years. Of the 9 patients we were unable to trace, one was still well 5 years and 2 between 2½ and 3 years after discharge.

I think it is not unduly optimistic to expect that the great majority of the untraced patients have kept out of hospital, because it is the general custom of psychiatric hospitals in this country to write for imformation if a newly admitted patient has previously been in a mental hospital.

I am with Dr. Kalinowsky in thinking that muscle relaxants do not diminish the strain on the heart. Where serious cardiac risk exists I should feel happier in giving unmodified cardiazol (which, of course, is a heart stimulant), than using any modified procedure. Our practice with E.C.T. at Bexley Hospital is to give brevidil E to prevent fractures and other injuries, but only in a dosage (actually 75 mg. in 1 c.cm.) sufficient to modify, but by no means abolish convulsive movements, and just enough pentothal (0·17 gm. in 3 c.cm.) or evipan (0·33 gm.) to allay anxiety and the unpleasantness of the relaxant. Our long experience with this method has shown that fatalities should not occur, and that the only at all common contra-indication is severe myocardial damage.

The question of having an anaesthetist tempts me to quote another

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distinguished American neuropsychiatrist, Dr. Walter Freeman, in quite another context. Some years ago, when his transorbital leucotomy was the subject of rather scathing attacks in some quarters, he told me that he had really introduced this technique because, in what he termed the "backwoods" mental hospitals in America, it was impossible to get a surgeon, let alone a neurosurgeon, to do the many operations necessary. This applies no less to getting anaesthetists in this country for perhaps 4 or 5 daily sessions in a large mental hospital, apart from the not infrequent emergency treatments which should be given forthwith. And in any case I don't think with our technique an anaesthetist is necessary, except perhaps for the peace of mind of some nervous psychiatrists.

Passing to psychosurgery, it is usually considered that a standard leucotomy, i.e. bilateral incisions as far back as possible, is the only method likely to be successful in schizophrenia. If that is so, surely few would disagree that all other treatments with less danger to life and to the personality should be tried first; and as the results of the phenothiazine tranquillizers and of reserpine have in many cases been so successful, I do not feel justified in advising standard leucotomy until these tranquillizers have been proved ineffective. After all, it only means six months' delay. The difficulty comes when the more severe symptoms are eliminated by tranquillizers, leaving a schizophrenic residue, which may or may not be remedied by leucotomy. In considering the problem presented by these cases it must be remembered, as Dr. Kalinowsky points out, that standard leucotomy tends to impair the critical faculties, while pharmacological treatment does not.

It is heart-warming to find an American psychiatrist so courageous as to say categorically "the effect of shock treatment does not depend on the simultaneous use of psychotherapy"; I fully agree that the physical treatments can and do produce complete recoveries from psychotic illnesses without psychotherapy. Nevertheless, there is little doubt that most psychotic breakdowns have both physiogenic and psychogenic antecedents, while the illness itself often produces social and domestic problems. It would amount to gross neglect not to explore and try and solve conscious and unconscious psychological difficulties, as well as the practical problems so likely to beset a patient remitting from a psychotic illness, and I am sure all psychiatrists, however materially minded, try to do this.

Dr. Kalinowsky's warning against giving E.C.T. in most neurotic conditions is necessary and welcome. It is sometimes particularly tempting to give E.C.T. to hysterical hypochondriacs who claim to be miserably depressed, but these are the very patients most likely to annexe the temporary side-effects of the treatment, such as headaches, nausea, memory defect, etc., as a permanent addition to their complaints, as a heaven-sent cause for grievance and as a plausible reason for their woeful state of invalidism. On the other hand, syndromes presenting as purely reactive depression sometimes clear up remarkably well with a few E.C.T.s.

I am interested in Dr. Kalinowsky's observation that patients subjected to psychosurgery have been found to fare equally well with or without rehabilitation psychotherapy. I have found that, after standard leucotomy especially, tactful but firm stimulation is often essential for longish periods before discharging the patient, and that if he is sent home to unsympathetic or impatient relatives before being fully rehabilitated, disaster is likely to follow.

It should not be necessary to have to defend the use of physical treatments

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in psychiatry after 20 years of successful usage, and I think there are very few psychiatrists in this country so bigoted as to say that none of them should ever be used. At the same time there exists strong divergence of opinion as to the scope of their usefulness in general, and especially concerning the choice of treatment in various conditions and the advantages and disadvantages of different techniques; and although most of Dr. Kalinowsky's opinions happen to coincide with my own, I feel sure that many in the audience will have dissenting views. For this reason I am rather sorry that the discussion is limited to questions, but I have no doubt that questioners will be ingenious enough to adopt the well-known parliamentary "Supplementary Question" technique in order to make clear their real views.

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