

lyte feedings have been well reviewed.⁵ Colle, Ayoub and Raile¹ reviewed 32 cases of diarrhoea in infants who had been treated with oral fluids of high electrolyte content, and commented on the danger of this type of feeding. The isolated finding of a high C.S.F. protein is of interest, but we have no explanation for it; it has been reported in association with hypernatraemia by Fineberg.⁵ The 38 g. of protein alone would require 275 ml. of water for excretion of the breakdown products.

A third contributory factor to this state was the maturity of the baby. The newborn is more susceptible to acidosis, as its capacity to compensate is diminished. It is unable to produce urine of low pH and probably has an impaired production of ammonia.

It is difficult to say which of these mechanisms was most responsible. It can probably be safely assumed that the excessive quantity of high protein supplement produced the picture of uraemia and hyperchloraemia in this child. The biochemical pathways which led to this have not been proven but were probably a combination of catabolism of casein, dehydration, and renal immaturity.

SUMMARY

A case of reversible hyperchloraemic uraemia produced by giving high protein feeds to a premature infant is described and the possible mechanisms of its production are discussed.

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SPECIAL ARTICLES

WHY SUCH APPREHENSION OVER "SHOCK TREATMENT"?

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It is said that often the severest critics, and those with the strongest bias against anything (medical treatment being no exception) in society, are not infrequently persons who little understand or appreciate that which they criticize. Electroconvulsive therapy (ECT), or "shock treatment" as it is unfortunately labelled (since the term falsely implies harm, abuse, terror, punishment, etc.), is

certainly one of the most maligned, least understood, and most feared of modern medical treatments. The classic text of Kalinowsky and Hoch¹ remains one of the standard references for obtaining help in learning of the historical and technical aspects of this therapy, although tremendous strides have been made since the work was written in modifying the technique and making it more comfortable for the patient who experiences it.

The theories² which exist today regarding the nature of ECT and how it accomplishes its results are too involved to elaborate upon here. To say that its action is not completely or properly understood is an artful manner of attempting to avoid the admission that we do not know how it works, for in fact we do not, although many of us in psychiatry are lacking in the courage to say so.

The fact is that the treatment is nothing more than the passage of a small current of electricity through the brain for one or two seconds, with the expectation that such a stimulus, crude though it may be, will serve to erase or modify temporary cerebral dysfunction responsible for the presenting mental disorder. Perhaps the effect takes place upon enzyme systems, permeability of all membranes, tissue oxygen levels or uptakes, presumably in central regions of the brain. We simply do not as yet know, but in properly selected cases we assume that the electric current influences one or other aspects of cerebral metabolism. Aird³ discusses neurophysiological aspects of ECT in a recent paper, to which interested readers are referred.

ECT has its most striking effect upon the most recent, acute, spontaneously occurring breakdowns (most specifically psychotic depressions and acute schizophrenic attacks), and upon chronically ill patients with acute exacerbations over and above their "base-line" levels. It is presumed that such illnesses (embraced under the legal term insanity—or psychosis as we prefer to call it) have their origins in cerebral metabolic dysfunction, and in their treatment we have a most useful weapon in ECT.

We do not really know for certain how acetylsalicylic acid relieves pain or reduces fever, but do not refrain from using it despite our ignorance. The analogy for ECT is similar and obvious.

As noted before, "shock" is an unfortunate term to apply to ECT, quite apart from the aura of mystery and fear associated with it by the public and many of the profession. The very word alone suggests danger and sadistic assault in keeping with the mediaeval ideas many persons possess even today regarding mental illnesses. This is regrettable, since ECT is extremely safe with little risk involved, particularly now that succinylcholine and allied drugs are being used so freely for concomitant relaxation to modify the inevitable grand mal convulsion.

Many patients dislike ECT, but cannot say why. They are rendered unconscious instantaneously either by passage of the current itself or by the preceding intravenous sedative, so that they experience no conscious discomfort from ECT proper. But if patients who have had ECT have a feeling of antipathy towards it, who looks forward to going to the dentist to have caries drilled? Who looks

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forward to abdominal surgery with the production of a painful scar which will remind us of our operation for weeks to come with every cough, laugh, sneeze and strain? What diabetic enjoys stabbing himself with a needle at least once a day? Sometimes one must undergo a little more discomfort or pain in order to be relieved of the original. If this is what happens in a mentally ill person, it may be still a small price to pay for restoration of health.

When patients state that they dislike ECT, they are often hard-pressed to qualify this comment with specific reasons and often say, "I really don't know why, I just don't like those treatments!" One interesting hypothesis has been offered to explain patients' fear of ECT. Gallinek¹ feels that the basic anxiety characterizing man's existence in the world is normally neutralized by his sense of familiarity. While awakening from ECT, recollections of relation to the past and ability to project into the future may be extremely obscured. The temporary disruption of one's sense of familiarity after ECT provokes anxiety, and results in a strong and progressively increasing fear of the treatment. In his series of 100 patients on ECT, 67 had marked fear of the treatment, and 33 had little beyond reasonable concern which could be dispelled by reassurance.

A patient who has had an *unsuccessful* course of ECT will not likely advertise this therapy in a favourable light, nor will his family, if proper explanations are not forthcoming. We can expect similar adverse comment from a person who has had an expensive course of vitamin and iron "shots" for fatigue and lethargy, or one who has had repeated antral lavage for "facial neuralgia" due to a sinus infection, or one who has had numerous lens changes for headache due to "eyestrain", or one who has had penicillin therapy for uncomplicated coryza—if the results in all cases are not favourable.

The patients who show the most satisfactory response to ECT are those who are selected after careful study and considered opinion as to expected response. We make errors in the choice of such patients, but are after all only human. We can, however, say with certainty that no patient is made worse by this treatment. The commonest error is to offer a course of this therapy to a person who is psychoneurotic, with some degree of depression, and who has had much in the way of other "treatments" for this long-term disorder. Such therapy may help the depression, but will do nothing to "shake loose" the neurotic tendencies, or help the patients to "snap out of" their prevailing neurotic traits. If there is no positive result, then once the temporary side effects of amnesia and confusion clear (in a few days to a week), the patient is relatively unchanged. Primarily psychoneurotic patients who have had unsuccessful ECT may claim they are worse when in fact they are not, but this may be due to their frustration and disappointment over the result, or a subconscious desire to seek a psychological whipping-block upon which to blame their continuing wretched state of existence. On the other hand, neurotic patients with hysterical tendencies may improve, but

the element of suggestion may be an important contributing factor.

To those physicians who are yet sceptical, I offer an invitation on behalf of the psychiatric faculty, which I know will be backed up by my colleagues everywhere. I suggest that a brief period of time might be spent on the admission ward of a mental hospital, or the psychiatric ward of a general hospital, in order to observe patients before, during and after a course of ECT, paying particular regard to the day-to-day mental status and to the technique of therapy. Such an observer will, without much doubt, be most favourably impressed with the simplicity of the whole procedure, and should feel much relieved at the absence of any agony, brutality, "punishment", deep, dark secrets and the like. It is also hoped that the clinical results will show the merit of this therapy. ECT brings about a grand mal seizure, now usually softened with muscle relaxants. We do not feel that the fit itself is the therapeutic agent, but more likely a side effect, which in itself is an indication to us that the strength of the electrical stimulus has been sufficient. If voltage is lowered below the seizure-inducing level, a "petit mal" seizure occurs and is of no therapeutic value.

Numerous modifications of technique have been introduced over the years, regarding unilateral² versus bilateral leads, gradual increment of current strength (glissando), "reverse glissando",³ induction of petit mal first to produce unconsciousness followed by a grand mal seizure so as to allay apprehension about succinylcholine apnoea,⁴ and so on. Although the use of muscle-relaxing agents such as succinylcholine is popular,⁵ they have not been completely accepted for routine usage and are considered controversial by some workers such as the noted authority Kalinowsky.⁶ In fact, one recent work¹⁰ frankly suggested that depressed patients treated by "unmodified" ECT (without muscle relaxants) seemed to stay in hospital for a shorter period, received fewer treatments, and were more likely to remain well than those treated with "modified" ECT.

It seems to matter very little how simple or how complex the technique is made, provided that a grand mal seizure is induced by a current of electricity. For that matter, there is still present an interest in the old technique of inducing convulsions with pentylenetetrazol (Metrazol). Kumora and Padula¹¹ recently discussed the use of this traditional agent—as modified by succinylcholine, claiming that such treatment seemed to facilitate ensuing psychotherapy.

The number of physical treatments (as opposed to psychotherapy and the numerous environmental therapies of a hospital treatment program) in psychiatry is decreasing. Insulin therapy is gradually fading from the picture—both the sub-coma and especially the deep coma varieties. The number of leukotomies being carried out is also dropping sharply. In our own active 2200-bed hospital, from a peak of 29 in 1956, the number fell to 11 in 1958. We are left, therefore, with a multitude of drugs—mostly tranquillizers and sedatives—and ECT. ECT usage for depressions is now threatened by the introduction of newer antidepressant drugs, although it will still remain a specific therapy for

acute schizophrenic breakdowns, some recently diagnosed schizophrenias, some post-partum psychoses, and schizophrenias in acute exacerbation.

The reports about imipramine (Tofranil), the newest "psychic energizer" (a serious misnomer, since there is nothing to substantiate a postulated decrease in cerebral metabolic function in depressions), are exciting but not entirely conclusive. Sloane, Habib and Batt¹² note that placebo therapy in a double blind study with this drug gave as much improvement in the first two weeks of therapy as did the drug proper. The onset of action is reported to take from a few days to several weeks. Spontaneous remission in a hospital setting might therefore be taking place in some patients despite drug therapy. Further research may help to clarify this point.

But rather than wait impatiently for a drug to take effect while a patient remains ill, with consequent continuing attention on the part of staff and the prolonging of occupation of a much-needed hospital bed, why delay use of ECT when it is known that this treatment is specific for the patient's depressive illness, and that improvement should commence after the second to fourth treatment?

Authors have recently noted the concomitant use of ECT with imipramine at first, while waiting for the drug to take effect. In such cases, it would be hard to rule out the improvement as being completely the result of the few ECT sessions alone, without the drug having any part to play whatsoever. Again, it is too early in the use of these drugs to draw definite conclusions. Lehmann, Cahn and deVerteuil,¹³ incidentally, note that the effects of this drug are much less spectacular than the therapeutic action of ECT as regards immediacy and intensity of its results. Without doubt, competitive pharmaceutical houses will soon be bringing out their versions of imipramine—more effective, freer of side effects, of more rapid onset, and so on.

CONCLUSIONS

ECT continues to be a safe, useful, in many cases life-saving agent, a *specific* in the treatment of *certain* mental disorders. We do not as yet know how it accomplishes its effects. Few of us in practice really think of it as a type of "punishment", a means of "regressing" our patients to "infantile levels of complete dependency upon the psychiatrist father figure", as do some of our more analytically oriented colleagues, nor do we see it as producing any "death-rebirth" phenomenon, nor do we use it to "shock persons back into their senses" or "knock crazy ideas" out of patients' heads. It is simply a means of altering cerebral function to a more favourable level, and in properly selected cases, improvement is quick to appear.

The breach between psychiatry and other branches of medicine is ever-present, but hopefully narrowing with time. To close it, we will require continuing liaison in every possible way, and one of these is through mutual exchange of ideas regarding elucidation of scope of treatment, policies and attitudes. In this regard, an attempt

has been made to reveal and clarify the nature of what remains one of the useful physical treatments we have at our disposal in psychiatry. It is hoped that many fears have been dispelled as a result, and mutual understanding might thereby have been significantly improved.

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SOME OBSERVATIONS ON GENERAL PRACTICE WITHIN A PREPAID HEALTH PLAN

ANON.

WIDESPREAD PUBLIC acceptance of the government's prepaid hospital scheme and the general success of the plan make it likely that within the not-too-distant future something similar will be proposed in respect of doctors' services. What effect this would have on the fabric of practice in Canada and on the patient-doctor relationship is already a heated topic of medical debate. In the shadow of these developments, it was felt that a study of general practice in which insured patients and private patients were approximately equal, both numerically and in social composition, would be of value at this time to the profession as a whole. The purpose of the study was to compare and contrast the demands of the two groups upon the practitioner serving them.

The insured patients under consideration were enrolled with a comprehensive prepaid program that has been operating for over 20 years. It is a plan that provides coverage for all medical and surgical services, including diagnostic radiology, and no limit is set upon the number of consultations a subscriber may seek or on his freedom to change from doctor to doctor. It is operated within a fee-for-service framework, and the subscriber population in the area is dense enough for profitable study (40-50%).

The practice under consideration is a busy one in a town and rural community of about 6000 people, and I joined it for a year in June 1958. The period chosen for analysis was the 12 months immediately preceding my association with it.