

THE USE OF ELECTROPLEXY (E.C.T.) IN PSYCHIATRIC SYNDROMES COMPLICATING PREGNANCY

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ELECTROPLEXY is now a widely accepted and used treatment in psychiatric practice. Primarily it is by far the most reliable means of terminating or resolving depressive attacks, months or indeed years before the anticipated remission of these illnesses on their own accord. Less commonly it is also regarded as an effective treatment in some schizophrenic states, particularly the acute type, or schizophreniform illness, "but actually most schizophrenics are treated at some stage of their illness with electrically induced convulsions" (Kalinowsky and Hoch, 1952). Neither depressive nor schizophrenic syndromes are infrequent in pregnancy and the question must therefore be posed in some of these complications whether electroplexy is justified; whether it can be used safely either alone or with relaxants; and what, if any, deleterious effects may be imposed on the mother and/or foetus.

Information about electroplexy in pregnancy is somewhat scanty. One well-known textbook (Diethelm, 1950) lists pregnancy as a contra-indication to electroplexy. Kalinowsky and Hoch (1952) review the situation under the heading of "contra-indications" in the chapter on "Convulsive Therapies" in their textbook of psychiatric treatments and rather paradoxically give two reports by Goldstein *et al.* (1941), who induced epileptic fits by metrazol without mishap, and Boyd and Brown (1948), who "surveyed the literature on E.C.T. in the gestational and puerperal periods . . . but found no serious damage to mother or child". The best known British book on physical treatments in psychiatry, by Sargant and Slater (1954), does not mention the subject at all. Mayer-Gross *et al.* (1954) in their "Clinical Psychiatry", only refer to the problem briefly: "Affective disorders during pregnancy have been successfully treated with convulsion therapy, without untoward effect on the course of the pregnancy or on the child", and give two references, Goldstein *et al.* (1941) and Thorpe (1942). Noyes (1953), under the heading of "contra-indications", says—"pregnancy is not usually considered a contra-indication . . . electric shock is a safer form of therapy than insulin in the psychoses of pregnancy".

The two papers which have given rise to reflection perhaps more than others have been the observations by Yamamoto *et al.* (1953) and the sequelae to a pregnant schizophrenic's treatment by insulin coma therapy published by Wickes (1954).

Yamamoto *et al.* (1953) described a pregnant woman who was given twelve electro-convulsive treatments about the sixth month of pregnancy. The labour was uneventful but when just over two and a half years the subsequent child was found to be definitely mentally retarded with no associated neurological signs. Although the authors at the time pointed out that they did not believe there was any connection between the treatment and the mental

condition of the child, nevertheless such an association produced subsequent interest and inevitable speculation.

Since anoxia is believed by some to be the operative therapeutic factor in the mode of action of electroplexy (McCowan, 1951), the case of hyperteleorism described by Wickes (1954) is of possible interest. Here was the case of a mentally defective child with hyperteleorism and optic atrophy who was born to a schizophrenic mother who had received insulin coma therapy from the second month of pregnancy. He suggested that the insulin, or possibly the anoxia induced by it, was responsible for the foetal defect—since hyperteleorism is due to a defect of the sphenoid bone occurring before ossification begins in the ninth week. Wickes felt that this time was very important and although shock therapy and epilepsy are said not to harm the developing foetus, nevertheless he quotes Boyd and Brown (1948) that there are no records of E.C.T. having been given before the tenth week.

In this connection, it is known that the foetus depends for its growth and development on an adequate supply of nutrients from the mother, particularly oxygen. It is known that a moderate deficiency over a short period may seriously injure the foetus (Ingalls *et al.*, 1950). When near term the foetus can survive a total lack of oxygen for about 30 minutes provided its circulation is intact, but it is doubtful if it will always escape completely unharmed (Brinkman, 1953).

Other views are much more precise and positive. Thorpe (1942); Polatin and Hoch (1945); Forssman (1955); Laird (1955); Russell and Page (1955); Charatan and Oldham (1954) have all given electroplexy to pregnant women and they consider such treatment justifiable and indeed safe. Forssman (1955) actually examined 16 children (oldest nearly 7, youngest nine months) whose mothers all had had convulsion treatment during pregnancy. None of the children was abnormal mentally and all were in good general condition. Apart from this particular article, however, and eight cases mentioned by Laird, all the other authors have described only one, two or rarely three cases.

From another angle, Clemesen (1927) and Burnett (1946) found little or no evidence of abortion or interference with labour as a result of fits occurring in known epileptics, although Burnett (1946) refers to one case where miscarriage occurred in an epileptic but points out that this was subsequent to a heavy fall during a fit.

From a consideration of these reports, therefore, there would seem little cause for hesitation; but the occasional report (e.g. Wickes's suggested correlation with E.C.T. and Diethelm's definite opinion that such treatment is contra-indicated), together with the striking absence of positive direction and amplification in standard textbooks (e.g. Kalinowsky and Hoch, 1952), suggested publication of a further 15 cases. All these patients received electroplexy at some stage during their pregnancy; any difficulties during the actual labour were watched for, and all the subsequent children were followed up to assess their general and mental growth and capacity.

INCIDENCE OF CASES REQUIRING ELECTROPLEXY

All cases here were seen over a five-year period in an acute psychiatric hospital. During this time, 3,173 patients were admitted to the female side of the hospital, so the incidence of pregnant women in this hospital requiring such treatment was only 15, or 0.47 per cent. There were of course many other pregnancies but other means, e.g. psychotherapy, change and manipulation of

environment, analeptic drugs, etc., were apparently sufficient to resolve any associated psychiatric complications.

RESULTS OF TREATMENT

Fifteen patients of ages varying between 18 and 35 years (mean 27.0) were considered in this study. Twelve of these were endogenous depressives or showed a considerable depressive component in their symptomatology. One was an acute schizophrenic reaction and another an exacerbation of a chronic paranoid schizophrenic syndrome. Each patient was given electroplexy according to her individual requirements, these differing little from non-pregnant cases. Thus, of this number ten had unmodified and five had modified treatment. The latter was invariably carried out with thiopentone and Brevidil E. (suxethonium). The details of the pregnancy and treatments can be seen in the following table.

TABLE

Case No.	Parous State	State of Pregnancy at Time of Treatment (months)	No. of Treatments
1	1st	6
2	1st	6
3	2nd	7 (M)
4	2nd	6
5	2nd	6
6	1st	5 (M)
7	3rd	4
8	3rd	5 (M)
9	4th	4 (M)
10	3rd	5
11	1st	6
12	1st	5 (M)
13	1st	5
14	6th	6
15	1st	6

M=modified with Pentothal and Brevidil.

It is of interest that Case 7, whose pregnancy when treated was her third, had had two previous miscarriages at the 2nd and 3rd month. Case 9 was under close obstetric supervision, as she was Rhesus-negative and difficulties were thought possible as this was her fourth pregnancy. No precipitation of labour or any suggestion of a miscarriage was noted in any of these cases and indeed it was difficult to persuade Case 7 later that her subsequent successful labour with a normal child was not a direct result of the electrical treatment. In Case 2 there was prolonged labour, but from common obstetrical causes. The child was normal and certainly no psychological retardation or physical anomalies could be detected when he was aged 4½ years.

A follow-up of all the children born after this particular treatment had been carried out on their mothers during pregnancy was made. The mother and the child were interviewed personally and not only the mother's views of the child's development were noted but as objective a scrutiny as possible was made of these children at the time. All 15 children have been examined; the oldest was 5 years, the youngest 11 months. Not only was their state at the time of examination assessed, but their developmental history in relation to their upbringing

revealed no significant discrepancy or anomaly. Two of the children certainly showed neurotic traits—apprehension, shyness, timidity and undue sensitivity, but in each case the families were heavily loaded with neuroticism and there appeared little doubt that their present state was a characteristic result of a highly neurotic, unstable and insecure family environment. None of the 15 children, either at the time of examination or retrospectively as viewed by their development, showed any signs suggesting intellectual deficiency. None showed any physical abnormalities.

DISCUSSION

An annotation in the *British Medical Journal* of 16 April, 1955, under the heading of "E.C.T. in Pregnancy", notes that on enquiry of "eight experienced psychiatrists . . . all but one said that they had given E.C.T. during pregnancy but had hesitated to put the fact on record". The annotation goes on to say that "since the alternative to treatment is an intensely unhappy pregnancy with the possibility of labour and the puerperium in a psychotic state, and since severe depression in early pregnancy is sometimes considered as justifying termination, there would appear to be slight reason for hesitation".

This, together with the paucity of advice and amplification in most psychiatric textbooks on this question, prompted the present investigation, which it is hoped will be helpful in at least adding to the number of cases on record. It may also stimulate publication of any anomalous sequelae to such treatment, hitherto unknown. That the numbers involved are small can be easily seen from the figures given here, yet nevertheless it appears perfectly natural that one might pause for an appreciable time when confronted by a pregnant woman who apparently needs electroplexy. The hazards in pregnancy, although lessening as time goes by, still seem formidable enough without adding to them. Yet the lack of any untoward reaction in either mother or child in the present group as a result of this therapy seems to justify its use when the mothers are disturbed mentally. The results certainly tend to confirm the observations of Forssman (1955) and Laird (1955) and perhaps add to the literature two further cases in which electroplexy was given without any ensuing complications when the pregnancies were less than two months in duration. This latter is of importance, as Charatan and Oldham (1954), in a survey of 12 cases in the literature, speculated that "electro-convulsive therapy administered early in pregnancy . . . may well increase the risk of foetal injury".

SUMMARY

1. Fifteen cases are presented of pregnant women whose mental condition necessitated electroplexy at some time during their pregnancies.
2. Ten cases had unmodified treatment: 5 cases were modified with a relaxant and pentothal. No complications or difficulties ensued.
3. A follow-up showed no immediate complication either after the treatment or during labour. Furthermore all the children developed normally and none showed any evidence of mental defect or retardation.
4. The literature of E.C.T. in pregnancy is reviewed.

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