routine taking of family histories should not be omitted. Bourke and Zuck point out the significance of the high incidence of cataract in these patients and the modern trend towards general anaesthesia for ophthalmic surgery. Particular care should be taken, when thiopentone is used for dental extractions in the chair, to be on the look-out for respiratory depression after unusually small doses. A means of ventilating the patient should always be at hand. The possibility of meeting a case of dystrophia myotonica in these circumstances, among other reasons, should discourage any but the most experienced from administering thiopentone in the dental chair.

In the United States thiopentone is more widely used as a 2.5% solution than in this country. There is much to recommend this practice and little, if anything, to condemn it. In known or suspect cases of dystrophia myotonica a dilute solution, not stronger than 2.5%, should be used and a dose of 100 mg. has been recommended: respiratory depression seems to be inevitable, and with doses smaller than 100 mg. there is the chance that loss of consciousness may not result. Apparatus for the artificial inflation of the lungs must be at hand, and Dundee recommends inflation with nitrous oxide and oxygen rather than oxygen alone, because of the possibility of a return to consciousness whilst apnoea persists. If it is desired to intubate the trachea, this will usually be found possible without the use of a relaxant.

I am indebted to Dr. C. Langton Hewer for his advice, and to Mr. John Beattie under whose care the case described was treated.

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EFFECTS OF NYDRANE ON EPILEPSY IN MENTAL DEFECTIVES

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Notwithstanding the claims made concerning the efficiency of many of the recently introduced anticonvulsant drugs, epilepsy still remains a considerable medical and nursing problem. This is confirmed by Tredgold (1952), who states that fits occur in 11% of the feeble-minded, in 42% of imbeciles, and in 56% of idiots.

We decided to investigate the effects of a recently introduced anticonvulsant known as "nydrane." This drug is a benzylamide, N-benzyl- β -chloropropionamide, known in England as nydrane, in the U.S.A. as "hibicon," and on the Continent as "posedrine." It differs considerably from both the barbiturates and the hydantoin, having the structural formula:

It is a white crystalline solid with a molecular weight of 197.6 and a melting point of 94° C. The preparation is marketed in tablet form, the tablets being 0.5 g. in weight.

Previous clinical trials in Great Britain have been carried out by Hoenig *et al.* (1956) and by Robinson (1957), while Hawkes (1952) and Merlis and Martin (1956) have reported on its use in the U.S.A. There are also numerous references to its use in France and Italy.

Clinical Trial

We must emphasize that our primary aim was to discover whether this drug was objectively useful in the management of the chronic epileptic patient. We have divorced ourselves from the intricacies of the E.E.G. and concentrated on the reported day-to-day clinical state of the patient. We may stand condemned for issuing a report on an anticonvulsant without accompanying E.E.G. evidence. Surely the fact remains that with a chronic epileptic, especially in these days of staff shortages, what we wish to know is not his E.E.G. pattern but whether we have stopped or controlled his convulsions.

We may summarize our aims as follows: (1) to discover whether grand-mal epilepsy reacts favourably or otherwise with this drug; (2) to observe any change in behaviour and general conduct of the patient; and (3) to observe if any toxic effects are produced during the course of the trial.

Method and Material.—The clinical material used was 25 certified mentally defective patients of Botleys Park Hospital. They were all males aged from 17 to 50 years. Their I.Q.s ranged from 30 to 80. Eighteen of the cases were labelled as idiopathic epilepsy, six were of the traumatic type, and one of epiloia. All the cases demonstrated chronic grand-mal seizures and had previously been treated with barbiturates, phenytoin, and primidone, either singly or in combination. The method of control was similar to that carried out by one of us in a previous trial, using primidone (Sharpe, 1954)—namely, the patient acted as his own control in that an accurate assessment of his previous fit record and conduct was obtained from scrutiny of the patient's own epileptic record chart.

Dosage.—The scheme of dosage followed closely on that of other workers—namely, it is additive in the first instance, and finally any other anticonvulsants are replaced with nydrane. Irrespective of what previous drugs were being used, 0.5 g. of nydrane a day was added to the patient's treatment for the first seven days. Following this, the previous anticonvulsants were gradually withdrawn and substituted by 0.5 g. of nydrane weekly until the maximum dose was reached. In this series the maximum maintenance dose was found to vary from 3 to 4 g. a day, and usually this was divided into three equal parts. In practice we started withdrawing the hydantoins first and then gradually withdrew the barbiturates. We did attempt to control the epilepsy with nydrane alone. Unfortunately, this was found to be impossible, as in all except three cases a maintenance dose of barbiturates had to be given. The full course of treatment lasted for six months.

Toxic Effects

As nydrane is a relatively new and little-used drug in this country we decided to investigate thoroughly its possible toxic effects after prolonged usage, bearing in mind that we were subjecting our patients to large doses over many months. The scheme of investigation was as follows.

Pre-treatment.—Full blood count, Hb, R.B.C., W.B.C. and differential. Urine examination for albumin by the salicyl-sulphonic acid test, Benedict's qualitative test for reducing substances, and an examination of the centrifuged deposit.

During Treatment.—Weekly: routine examination of the urine as above. When reducing substances were found these were subjected to further examination to identify them. "Tes-tape" was used to detect glucose. The non-glucose reducing substances were subjected to paper chromatography and compared with known marker substances. Monthly: routine blood counts, Hb, W.B.C. and differential. After three and six months: serum proteins were estimated

by the biuret method and blood urea by the Nesslerization method; the formol-gel and Kunkel zinc sulphate flocculation tests were also done.

Results

Since we were looking for any possible toxic effects from the use of nydrane, results of the laboratory investigations are given separately as follows. *Haemopoietic system*: No evidence of disturbance was observed, there being no significant fall in the haemoglobin content or white-cell count. *Liver function*: This was apparently normal after three and six months of treatment. *Renal function*: At some time during the six months three cases showed a copper-reducing substance which was regarded as of no significance; six cases showed a trace of albumin, which in every case was only transient and cleared up even on continuation of treatment.

The blood urea of four cases showed a slight elevation above 40 mg. per 100 ml.—namely, 54.1, 42.8, 47.4, and 48.2 mg. per 100 ml.

Epilepsy and General Behaviour

In order to simplify the analysis of results of the treatment, with particular reference to grand-mal epilepsy, the following scheme was adopted. The basis of this is the percentage increase or decrease in the number of fits during six months under treatment with nydrane as compared with the previous number over a similar period before using the drug. Patients were recorded as being worse if they showed more than 25% increase in their fits during treatment. Where they showed a reduction of more than 25% they were regarded as improved, while those showing an increase or decrease of not more than 25% were regarded as showing no change.

Table I summarizes the results of the effect of nydrane on grand-mal epilepsy. Applying the χ^2 test of statistical

TABLE I

Grand-mal Attacks	No. of Cases	Percentage
Worse	3	12
No change	5	20
Improved	17	68
Total	25	100

analysis we have three alternative hypotheses. If we expect that 25 out of the 25 patients should be improved by nydrane medication, the χ^2 after applying Yates's correction is 2.25; postulating, however, that there would be no change in any of the 25 patients, the χ^2 after correction is 15.21; and postulating that all 25 patients will be made worse the χ^2 is 18.45. These figures would appear to indicate, therefore, that the first of the three hypotheses is more likely to be correct than either of the other two, and our results in obtaining 17 improved cases out of 25 on nydrane treatment are statistically significant.

The influence of the drug on the patients' general behaviour was recorded as 2 definitely worse (8%); 15 showed no appreciable change (60%); 5 showed a slight improvement in having a more co-operative attitude (20%); and 3 showed much improved conduct (12%).

When dealing with mentally retarded patients it is always valuable to correlate results with I.Q. range. This was carried out, and the results are shown in Table II.

Applying the χ^2 test to two I.Q. ranges of 30-49 and 50-70+, and omitting those with I.Q. below 30 because there were fewer than 10 of them, we have four possible hypotheses. In respect of those with I.Q. 30-49, and applying Yates's correction in all cases, postulating that nydrane will make all patients worse we get a χ^2 of 9.02; postulating that nydrane will effect no change we get 4.22; postulating that the drug will improve all cases, χ^2 becomes 1.22; and postulating that it will suppress all seizures we get 7.22. These figures clearly indicate that the assumption that nydrane will improve all patients is more correct than the other hypotheses.

TABLE II

Results	I.Q. Range		
	Below 30	30-49	50-70+
Worse	0	0	2
No change	0	3	2
Improved	4	6	4
No fits	0	1	3
Totals	4	10	11

Similarly, for the group with I.Q. 50-70+ we get figures for the χ^2 test corrected of 6.56, 6.56, 3.84 and 5.12. These indicate some preference for the hypothesis that patients on nydrane in this I.Q. range will be improved, but improvement is not so marked as in the lower I.Q. range above.

Discussion

It will be clearly evident from a perusal of the above results that nydrane exerts a marked anticonvulsant action in grand-mal epilepsy. The results which we have recorded compare favourably with those of Hawkes (1952), who found that 39 out of 59 patients had adequate control of convulsive seizures when given a clinical trial with hibicon. Similar, too, were the observations of Hoenig *et al.* (1956).

When comparing our results it must, however, be remembered that our clinical material, far from being of the neurological out-patient variety (as were the cases used by Hawkes), consisted of very chronic in-patients, several of whom were deteriorated and resistant to the usual therapeutic drugs—the worst possible cases.

We observed no attack of status epilepticus as mentioned by Hoenig *et al.*, but did notice an increase in excitability together with an increased incidence of convulsions during the transitional period. This was especially marked on withdrawal of the barbiturates, and, as has already been seen, in only three cases were we able to control the seizures without the use of barbiturates. It was found that the two drugs appear to be synergistic in their action, as our average daily dose of phenobarbitone was found to be reduced. We understand that nydrane combined with phenobarbitone is now available (nydrane co.).

In consideration of the results of the comprehensive investigations of toxicity carried out by one of us (G. D.) we make the following comment. It would appear from laboratory investigations that slight impairment of renal function was evident in some cases. This, however, was only transient and cleared up in spite of continuation of treatment. However, it must be borne in mind that in some cases we were using large dosages, up to 4.5 g. daily over a period of several months. It would therefore be wise to show caution in using large doses of nydrane over prolonged periods.

Turning to the clinical field, there was a notable freedom from signs and symptoms of toxicity apart from one patient who developed a temporary ptosis which we regard as being unconnected with the use of the drug.

Comment is worth while concerning the influence of the drug on the general behaviour of the patient. Chronic epileptics are well known to be a problem in this respect. We think it significant that 8 of our 25 patients did show some definite improvement in general behaviour. The relationship of the degree of control of fits to the mental state in general and to the emotional state in particular is difficult to reduce to figures. There was, however, a definite clinical impression that in some cases reduction of nydrane dosage during the course, with consequential slight increase in frequency of convulsions, resulted in improvement in general conduct and emotional stability. In a sense this probably implies previous overdosage and supports the view that, with nydrane as with certain other anticonvulsants, optimum dosage is not necessarily that which produces the greatest reduction in convulsions, but rather is the dosage which brings about the greatest improvement in the total clinical picture.

Our conclusions are that nydrane is of use in the control of chronic grand-mal epilepsy from the point of view both of reducing convulsion rate and of improving the patient's general behaviour.

Summary

A series of 25 cases were treated with nydrane over a period of six months.

In relation to grand-mal convulsions, 68% improved, 20% showed no change, and 12% were worse.

General improvement in behaviour of varying degrees was shown in 32%.

Transient renal disturbances were found in some cases.

We thank Dr. J. M. Crawford, physician-superintendent of Botleys Park Hospital, for permission to publish this paper. We are grateful to Dr. S. Phillips, of Rona Laboratories Ltd., for the supply of the drug used in this trial.

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Medical Memoranda

Ear Presentation : A Case of Transverse Arrest at the Outlet

With improved antenatal care malpresentations and abnormal labours are becoming more rare, and a description of a case of ear presentation is of interest, if only on account of its extreme rarity. I have found only one similar instance in the literature (Walker, 1928).

CASE HISTORY

A primigravida aged 25 attended the antenatal clinic from December 12, 1956, until her confinement, her estimated date of delivery being April 26, 1957.

At the thirty-fourth week she developed signs of toxæmia and was admitted to hospital for rest and observation. Her condition remained *in statu quo* until the thirty-seventh week, when an increase in the blood pressure and the appearance of albumin in her urine suggested a deterioration. Therefore on April 9 labour was induced by low artificial rupture of the membranes. The cervical os was tight, and at this time the cervix was hardly taken up. Presentation was confirmed as right occipito-anterior. Although she experienced fairly strong pains soon after this procedure, labour in the first stage was rather intermittent,

FIG. 1.—Showing relationship between foetal skull and maternal bony pelvis.

seven days elapsing before full dilatation was complete. The presentation during this time varied between right occipito-anterior and right occipito-lateral.

At 8.30 p.m. on April 17 dilatation of the cervix was complete, and the second stage began with a midwife in attendance. By 9.30 p.m. little advance had been made in the presence of strong and regular contractions, the head being fixed low in the cavity. Vaginal examination revealed an ear presentation, and this could be confirmed visually by separation of the labia and slight retraction at the introitus (see Fig. 1).

Procedure.—With the patient under general anaesthesia and in the lithotomy position the following situation was found. The left ear was presenting, the occiput on the right, the anterior fontanelle lying postero-laterally to the left. The head was firmly wedged into the lateral walls of the pelvis. Posteriorly there was plenty of room between the bregma and the sacral curve, and the posterior (right) shoulder was impacted in the midline under the promontory, closely in apposition to the right ear. The head could not be pushed up. With the right hand in the sacral curve the posterior shoulder was disengaged from the promontory and passed to the right, thus bringing the back of the foetus round more anteriorly. The head was then pushed up, the occiput disengaged from the symphysis and swept downwards and forwards, flexing the head and rotating it into the right occipito-anterior position. Delivery was achieved by forceps extraction; the placenta, separating after the manner described by Matthews Duncan, was delivered by Credé's manœuvre.

The mother had a normal puerperium, although she had a slight thrombosis in the left leg a week after delivery.

The Mother.—Height 5 ft. 8 in. (173 cm.). Weight 12 st. 6 lb. (79 kg.). Pelvimetry: Angle of inclination of the brim 40 degrees. Measurements:—At the brim: true conjugate, 5.6 in. (14.2 cm.); transverse diameter, 5.2 in. (13.2 cm.); both oblique diameters, 4.85 in. (12.3 cm.). At mid-cavity: antero-posterior diameter, 6.4 in. (16.2 cm.); transverse diameter, 4.5 in. (11.4 cm.). At outlet: Antero-posterior diameter, 5.3 in. (13.5 cm.), transverse diameter, 5.0 in. (12.7 cm.). The radiologist's report: "This is a large symmetrical pelvis with much available space in the mid-cavity in the antero-posterior diameter. A fairly small angle of inclination of the brim and no obvious promontory are noted."

The Baby.—Born alive. Weighed 5 lb. 1 oz. (23 kg.) at birth. Moulding was minimal. There was no caput succedaneum, or any deformities. The infant's general condition at birth was excellent. Cephalometry:—Diameters: occipito-frontal, 4½ in. (10.8 cm.); suboccipito-bregmatic, 3½ in. (8.9 cm.); biparietal, 3½ in. (9.2 cm.). Circumference: occipito-frontal, 13½ in. (34.3 cm.).

Postulated Mechanism.—(1) At the beginning of the descent the foetus was in a completely right occipito-lateral

FIG. 2.—Right lateral aspect showing position of foetus immediately before correction of malpresentation. Diagram on left illustrates mechanism; expulsive forces represented by continuous line, resultant acting where foetal skull is in contact with side walls of pelvis/pelvic floor by dotted line.

position with the head deflexed. (2) As the head came down into the flat pelvis, anterior asynclitism developed, the head remaining deflexed. (3) Absence of "bite" between the head and the pelvic walls due to the relatively small size of the head resulted in failure of internal rotation and flexion. (4) The shallowness of the brim and absence of an