PROCHLORPERAZINE (STEMETIL) IN MENTAL DEFICIENCY

By

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Introduction

THE use of tranquillizers in mental deficiency has shown a divergency of effects. Noce, Williams and Rapaport (1) claimed that reserpine produced some improvement in all their thirteen adult hyperactive low-grades, and Rettig (2) reported that chlorpromazine produced decreased hyperactivity in twenty-three of his twenty-seven adult defectives of all grades. Blair and Herold (3), using ten "matched-pairs" of hyperactive defective children, found behaviour improvements in nine of them on chlorpromazine, with an average I.Q. gain of 10·4. Using six different tranquillizers on twenty-five adult defectives of all grades, Rudy, Himwich and Rinaldi (4), found that all gave some benefit, with chlorpromazine the most effective. Fischer (5) showed that twenty out of his twenty-two low-grade adult defectives (many with psychotic overlay) were improved in behaviour on reserpine. Using sixteen "matched-pairs" of E.S.N. children, Segal and Tansley (6) claimed that hydroxyzine produced improved scholastic performance in fourteen of them, and Bergin and Bergin (7) stated that the epileptics in particular in their thirty-four low-grades were improved by promazine hydrochloride.

On the other hand Gillie (8) found that mepazine had little effect on her thirty low-grades, and Craft (9) obtained no effect on his twenty-three low-grade adults with hydroxyzine. The same author (10) found no improvement in his sixteen hyperactive adults with chlorpromazine, and four developed stupor, collapse and severe excitation.

In view of this, the purpose of the present trial was to try to obtain some indication of the effects of a tranquillizer, prochlorperazine ("Stemetil") on the different types of mental defectives, as well as the overall response. Stemetil is a phenothiazine derivative, incorporating a piperazine ring in the side chain, and has been used for its anti-emetic action in migraine, Ménière's syndrome, etc. In larger doses it is claimed to reduce over-activity, aggression and agitation with less central depression than chlorpromazine, and its main side-effects are disturbances of an extra-pyramidal type. Milne and Berliner (11) showed appreciable behaviour improvement in all their fifty male schizophrenics on 75 mg. of Stemetil daily, but noted slight drowsiness as an occasional accompaniment, with five showing rigidity and tremors.

Procedure and Dosage

Out of approximately 900 patients of all ages and grades, 88 were finally picked as presenting behaviour disturbances of such a degree as to constitute nursing problems. These comprised 21 children between 6 and 14 (average age, $10\frac{3}{4}$ years) and 67 adults between 15 and 66 (average age $36\frac{1}{2}$ years). Of the

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children, 4 were idiots, 14 imbeciles and 3 feeble-minded, their I.Q.s ranging up to 70 per cent. Fourteen attended the hospital school. In the total were 28 males and 60 females, and the adults comprised 42 low-grade (idiots and imbeciles) and 25 high-grade (feeble-minded).

These were all personally assessed clinically along with nursing gradings under the headings of type of behaviour disturbance, degree and type of hyperactivity, work capabilities, recreation, socialization, sleep and personal pride. Each group (children, high-grade and low-grade adults) was further subdivided into epileptics, psychotic overlay—schizophrenics, psychotic overlay—affectives, and simple hyperactives.

Twenty-six had previously been on tranquillizers, with little or no effect, and a further 17 on sedatives. Apart from two who remained on nightly sedation, all other drugs were stopped, with the exception that the epileptics remained on anti-convulsants.

The children weighed between 3 and $6\frac{3}{4}$ stones (average 5 stones) and were given 5 mg. Stemetil t.d.s. for two months. The adults varied between $5\frac{1}{2}$ stones and $18\frac{1}{2}$ stones (average 9 stones), and all started on 12·5 mg. of Stemetil t.d.s., rising to 25 mg. t.d.s. after two weeks for the remainder of the two months' course. Subsequently, 13 adults had to be reduced to between 12·5 mg. and 50 mg. daily, but this had no relation to their weight, the average for this group being $8\frac{1}{2}$ stones. It is significant, however, that this group contained 77 per cent. low-grades in contrast to the 37 per cent. low-grades in the total adults.

Individual mental progress was assessed at two weeks, four weeks, and eight weeks, and urine examinations and blood counts performed during the course showed no abnormalities in any patient. There were no skin rashes or cases of jaundice, but five showed slight drowsiness that did not merit an alteration in dose. Twenty-three per cent. showed other complications, however, which are discussed below. The final mental assessments were made under the headings of "Much improvement", "Some improvement", "No change", and "Worse".

RESULTS

It will be seen from Table I that 65 per cent. of the total cases showed some appreciable response, and that this figure remains approximately the same in the sub-divisions of children, low-grade and high-grade adults.

TABLE I

	Worse	No Change	Some Improvement	Much Improvement
	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)
Total cases (88)	9	26	30	35 (65% responded)
Children (21)	4	29	38	29 (67% responded)
Low grade (adults) (42)	10	24	33	33 (66% responded)
High grade (adults) (25)	12	28	16	44 (60% responded)

Table II showed the effects in the different diagnoses, where it is apparent that the schizophrenic group showed the poorest response, and the affectives and simple hyperactives the best, with the epileptics between the two.

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TABLE II

	Worse	No Change	Some Improvement	Much Improvement
	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)
Total epileptics (28)	11	28	36	25 (61% responded)
Total psychotic-schizophrenics (12)	0	67	25	8 (33% responded)
Total affectives (16)	12	12	25	50 (75% responded)
Total simple hyperactives (32) ..	9	16	28	47 (75% responded)

When the grades of oligophrenia were further broken down into the psychiatric groups, as in Table III, the schizophrenic group showed the poorest response in all cases, but only in the low-grade adults did those with additional epilepsy show a good response. The simple hyperactives responded fairly well in all grades, as did the affective children and low-grade adults. Only half of the high-grade affectives responded, however, and a third of this group were, in fact, made worse.

TABLE III

	Worse	No Change	Some Improvement	Much Improvement
Children:	(Per cent.)	(Per cent.)	(Per cent.)	(Per cent.)
Epileptics (6)	17	50	33	0 (33% responded)
Psychotic-schizophrenics (1) ..	—	100	—	— (no response)
Affectives (6)	0	17	33	50 (83% responded)
Simple hyperactives (8) ..	0	13	50	37 (87% responded)
Low-grade Adults:				
Epileptics (15)	6	20	47	27 (74% responded)
Psychotic-schizophrenics (5) ..	0	60	40	0 (40% responded)
Affectives (4)	0	0	25	75 (100% responded)
Simple hyperactives (18) ..	17	22	22	39 (61% responded)
High-grade Adults:				
Epileptics (7)	14	29	14	43 (57% responded)
Psychotic-schizophrenics (6) ..	0	66	17	17 (34% responded)
Affectives (6)	33	17	17	33 (50% responded)
Simple hyperactives (6) ..	0	0	17	83 (100% responded)

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Complications

Only two children showed side-effects, one being a little drowsy, and the other complaining of generalized "pins-and-needles" with transient erythema. Both continued on an unaltered dose.

Of the adults, five had slight drowsiness not requiring an alteration in dose, but 20 showed more severe effects, 6 having to be taken off Stemetil and 13 clearing up on a reduced dose.

Table IV

	Low-Grade	High-Grade
Rigidity and tremor	5	1
Excessively drowsy	6	2
Severe worsening of behaviour	1	3
Dizziness	–	1
Headaches (transient)	–	1
	12	8

The average weight of those patients showing severe complications was 9 stones, the same as for the test group as a whole, but it will be seen from Table IV that, whereas the distribution of low-grade to high-grade is approximately the same as in the total group, there is a predominance of drowsiness and extra-pyramidal effects in the low-grade complications.

Discussion

The results as a whole show that 65 per cent. of the patients derived benefit from Stemetil, and in some cases this was considerable, such as one hyperactive low-grade who was able to wear normal clothes for the first time in years. In several cases there had been no previous response to a variety of other tranquillizers, and it is significant that in nine cases the nursing staff spontaneously asked for the patients to be put back on the drug shortly after the trial ceased. Similarly, the School Supervisor reported that all her children showed better concentration and progress, this being in agreement with the findings of Segal and Tansley (6) using hydroxyzine, though the trial was too short to produce a significant alteration in I.Q.

It will be seen that the schizophrenic group was the most resistant to any effect, 67 per cent. showing no change. None was made worse, however. The epileptic groups also did not do much better, none of the epileptic children being "much improved" and 17 per cent. being worse, the adults following a similar, though less well-marked, pattern. This is in contrast to the findings of Bergin and Bergin (7) using promazine. The proportionately better effect amongst the low-grade epileptics might be ascribed to the greater general incidence of epilepsy amongst this grade.

The most effective general response was seen in the affectives and simple-hyperactives in all grades, with the possible exception of the affective high-grades. This might be due to the difficulties of differential diagnosis from other psychotic overlays at this intellectual level, however, and it should be remarked in general that sub-dividing mental defectives into reaction-types can only be tentative and not assertive. The useful value of tranquillizers in hyperactive defectives is in agreement with the several other authors mentioned above, but not with the negative findings of Gillie (8) and Craft (9, 10). In view of the known

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action of Stemetil it would be expected that it would have its best effect in the hyperactive and affective (particularly agitated) groups.

When the dosage and complications of Stemetil are considered, it will be seen that there is a predominance of low-grades amongst those showing extra-pyramidal effects and drowsiness, on relatively high doses. This is in accordance with the known general effect that relatively smaller amounts of drugs acting on the central nervous system may be required for the smaller physical amounts of such tissue functioning in low-grade defectives. In this respect it appears that weight is less of a guide to dosage than intelligence, when these extremes are considered.

In general, it would seem that Stemetil has a real value in alleviating behaviour disorders in mental deficiency practice, and thus facilitating the training and education of patients who would not otherwise function at their full capacity. It seems of particular value in the affective-hyperactive groups of patients of all grades and ages, but it is necessary that a finer grading of personality and reaction-types be achieved before the worsening of some patients can be avoided. This appears worthy of further study.

SUMMARY

A new tranquillizer, prochlorperazine ("Stemetil"), was given for a trial period of two months to 88 mental defectives of all grades and ages. Sixty-five per cent. of them showed appreciable behaviour improvement. The simple hyperactives and those with affective disturbances gave the best response. Defectives with schizophrenic overlay proved the most resistent, and epileptics showed a variable response, being better with the low-grade adults.

Extra-pyramidal and sedative complications occurred mainly in a proportion of the low-grade adults, and all the side-effects were transitory, disappearing with diminished dosage.

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