

RESERPINE ("SERPASIL") IN MENTAL DEFICIENCY PRACTICE

By

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THE therapeutic problems confronting those of us engaged in mental deficiency practice are manifold. This is due to the varied and mixed population inhabiting our hospitals.

There is the group known as "high grade" with intelligence quotients of 75 per cent. upwards who are admitted on account of their social inadequacy due to emotional maladjustment, sexual deviations and other psychopathic behaviour problems. The "low" and "medium grade" with intelligence quotients of 25 to 60 per cent., in addition to their deviant behaviour are intellectually so low that they could not cope outside an institution.

It is the aim of the psychiatrist to rehabilitate the former group and here in our hospital we have a very active programme to accomplish this end. The latter group are, however, an ever-pressing therapeutic problem on account of the frequency of psychomotor excitement, noisiness and destructiveness.

The present study was designed to assess the effectiveness of the new drug Reserpine in controlling deviant behaviour in such mentally defective patients.

PHARMACOLOGY

Reserpine ("serpasil") is the active principle derived from the roots of a small flowering shrub *Rauwolfia serpentina* Benth, found principally in India, Java, Africa and other tropical countries.

In India preparations of *Rauwolfia* have been in use medicinally from ancient times for the treatment of a variety of conditions including insomnia, nervousness, insanity and snake bites. Its use on a world wide scale has only been a very recent event. The empirical formula of *Rauwolfia serpentina* is $C_{33}H_{40}O_8N_2$ and its chemical properties are in agreement with the following proposed structure:

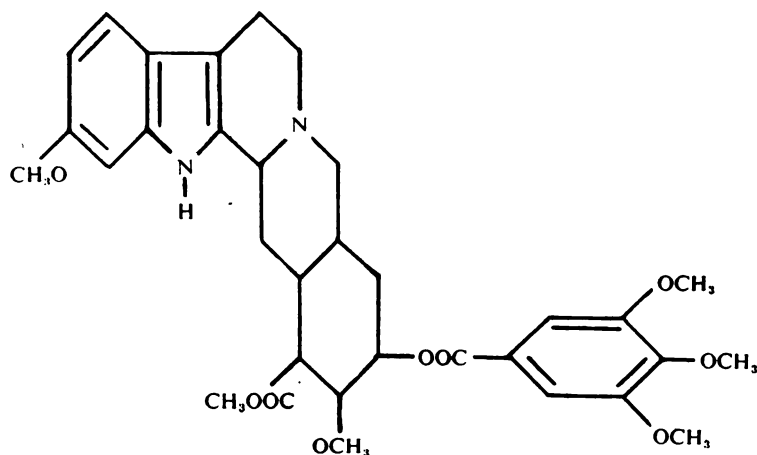


FIG. 1.—Structural Formula of "Serpasil".

The mode of action of Reserpine has been under intensive investigation (Bein *et al.*, 1953; Plummer, Earl, Schneider, Trapod and Barrett, 1954) since Muller *et al.* (1952) identified this crystalline alkaloid from the crude extract of *Rauwolfia serpentina* Benth.

METHODS

The entire investigation was conducted in the building that houses 68 of our most difficult patients. This villa is divided into two completely self contained units, each containing 34 patients. This block was chosen because the ward population is relatively stationary, the patients are the most troublesome and difficult to manage, and the Sisters in charge are never changed, so that even minor alterations in the patients' behaviour would be noticed and recorded.

SELECTION OF PATIENTS

From the 68 a group of 22 of the most inaccessible, noisy, aggressive and destructive patients were chosen; their ages varying from 11 to 57 years; their degree of mental defect being of the feeble-minded and imbecile grade. Superimposed upon the defect 7 are schizophrenic, 3 have manic episodes and 12 do not show any psychotic traits, but 7 of the latter are, in addition, epileptic.

PROGRAMME OF TREATMENT AND CONTROL

Since it is virtually impossible to get patients with identical behaviour problems and similar physical qualities for control purposes, the following procedure was adopted. Each patient received an 0.25 mgm. tablet t.d.s. for a period of three months. These were then replaced by identical "dummy" tablets. No one except myself was aware of the change. After a period of two months the active tablets were once again administered. Knowing the hypotensive action of the drug, the blood pressure was recorded twice weekly for the first two months, once weekly for the next two months and once monthly thereafter. Weekly reports were obtained from the Sisters of the morning and afternoon shifts and the night Sister kept a special record of screaming fits during the night and early morning.

RESULTS

For purposes of assessment each patient was placed in one of three groups, namely, "improved", "much improved" and "unchanged".

The group "much improved" comprises those patients who became more accessible, no longer aggressive and generally socially more integrated to the extent that they were able to attend the Occupational Therapy Department. Delusions and hallucinations, though still present, do not dominate the whole of the patient's life.

The "improved" group refers to patients whose tendency to impulsive behaviour, noisiness, destructiveness and hyperkinesis has been reduced to a degree where recourse to such therapeutic measures as paraldehyde and other forms of sedation, and particularly single room treatment are no longer necessary.

CASE REPORTS

Case 1. History:

A feeble-minded female aged 40 years, who was admitted to this hospital in 1940. At that time she was capable of holding a reasonably intelligent conversation, and was quite well orientated. In 1941 she proceeded on licence, but had to be returned to the hospital a year later

because she was unmanageable. She deteriorated progressively, developing hallucinations and delusions, finally she completely withdrew from her surroundings, losing interest in everything and everybody. She became aggressive and would strike anyone who tried to make contact with her.

Treatment: She was given 0.25 mgm. tablets of "serpasil" t.d.s. A fortnight after the commencement of treatment she began to take interest in her surroundings, she would listen to the radio, smile and answer questions. The greatest surprise to us all was when she asked for a cigarette and to go to the "pictures"—something she had not done for years.

Control period: About three weeks after the administration of the control tablets, the patient began to show signs of deterioration. She became unco-operative, irritable and aggressive. Within six weeks she reverted to her former state. A fortnight after the active tablets were exhibited the patient improved once again. She is now in the Occupational Therapy Department doing some very nice work, and what is more important, she is quiet, happy and relaxed. She has continued in this state for the past four months on the above dose, i.e. 0.75 mgm. daily divided in three doses.

Case 2. History:

A female epileptic imbecile, aged 35 years. Admitted to this hospital in 1950. She was extremely noisy and aggressive with frequent outbursts of psychomotor excitement, when she attacked anyone in her path. In her quiet moments she was destructive to clothing. She had to be sedated, and warded in a single room quite regularly.

Her behaviour both during the treatment and the control periods was similar to the above case. She has remained much improved for the past four months on the same dosage. In addition, her epileptic fits have diminished, both in frequency and severity. The other cases including the two above mentioned, are summarized in the accompanying table.

Summary of Results

Condition	Much Improved	Improved	Unchanged	Total
F.M. + Schizophrenic patterns ..	4	2	1	7
F.M. + Manic episodes ..	3	—	—	3
F.M. + Epilepsy—3 patients ..	4	2	—	6
Imbecile + Epilepsy—4 patients ..	3	2	1	6
Totals: 7 epileptic patients ..	14	6	2	22

DISCUSSION

It would appear from this study that "serpasil" has a definite, continuous and lasting beneficial effect on difficult mentally defective patients. While this investigation consists only of 22 patients and further study on a larger sample is undoubtedly desirable, it is, nevertheless, significant that 14 patients showed great improvement, 6 improvement, and only 2 out of the total of 22 remained unchanged.

A number of interesting observations emerged from this study, apart from the tranquillizing effect of "serpasil" the drug may be given in conjunction with other drugs, e.g. anticonvulsants. Good results are obtained in small doses which can be given apparently indefinitely. Toxic effects were not encountered in this study. One patient developed an allergic rash which might have been coincidental, in any case it cleared up with anti-allergic treatment.

That the action of "serpasil" is on the hypothalamic centres (Bein, 1953) appears consistent with this study, since an outburst of excitement when it does occur always coincides with a rise in blood pressure, together with other signs of autonomic dysfunction.

The epileptic fits in three patients diminished in both frequency and severity, while in the remaining four, the severity of the fits only was effected. "Serpasil" does not, however, replace anticonvulsants.

Arising from the improvement of "serpasil" therapy, the decorum in the ward has greatly improved, and the single room is rarely, if ever, used. In these days of shortage of nursing staff, this drug may prove of immense value to those of us engaged in mental deficiency practice.

SUMMARY

The results and observations of "serpasil" therapy in 22 most unmanageable patients are presented. The physical set up and methods of study are described.

Fourteen of the patients were much improved, 6 improved and 2 remained unchanged.

The fits in 3 of the epileptic patients diminished in frequency and severity and in the remaining 4 in severity only.

ACKNOWLEDGMENTS

I wish to thank Dr. D. H. H. Thomas, Medical Superintendent, for constant encouragement and advice; Ciba Laboratories Limited for a very liberal supply of "serpasil" and control tablets; and the nursing staff for their co-operation and invaluable help.

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