extensive disease can be controlled and rendered non-infectious. The findings support the claim of Corpe and Stergus (1957) that a triple-drug regimen of streptomycin, P.A.S., and isoniazid is the most effective drug combination in present use. There is as yet no statistical proof of this contention, but it is perhaps significant that the results obtained in the present series, using daily streptomycin, P.A.S., and isoniazid, are superior to those reported where only two drugs were used in combination. This aspect will be discussed in a subsequent communication. The fact that little difficulty was encountered with long-term chemotherapy is probably due to a number of factors. Firstly, the patients were well indoctrinated while in hospital. Secondly, they have remained under the care of the same medical attendants throughout their treatment. Thirdly, throughout their treatment the patients have been constantly reminded of the necessity to take the drugs prescribed. Lastly, but by no means least, general practitioners have co-operated admirably in the supervision of chemotherapy.

Two striking features in the patients observed have been the rapid disappearance of tubercle bacilli from the sputum and the degree of resolution of pulmonary disease as judged radiologically by the apparent absence of large residual necrotic foci. The findings suggest that, where prompt sputum conversion is associated with considerable resolution of disease with apparent absence of large residual necrotic foci, the persistence of pulmonary cavitation need not present an indication for surgical treatment provided adequate chemotherapy has been employed from the beginning of treatment, accompanied by careful bacteriological control.

How long should chemotherapy be maintained? This problem remains unsolved. The available evidence suggests that two years is the minimum effective period. Our experience of chemotherapy is of not less than three years' duration. In view of the advanced disease of the cases in this series it has been decided to administer drugs for a minimum period of five years. Since secondary infection occurring in only one patient is the only serious complication that has been encountered here, the reported hazards in persistent cavitation of rupture, suppuration, haemorrhage, and reactivation of tuberculosis must be accepted with some reserve. At the same time it must be stressed that the patients have been followed up for only a short period. There is plenty of time for the development of late complications.

Summary

The phenomenon of open healing of tuberculous pulmonary cavities is briefly described.

A study is presented of 40 patients with advanced pulmonary tuberculosis treated by means of prolonged chemotherapy who remained sputum-negative despite the persistence of cavitation. The patients were followed up for periods ranging from one and a half to five years.

Success of the treatment is attributed to the use of a triple-drug regimen of daily streptomycin, P.A.S., and isoniazid. In certain cases the persistence of pulmonary cavitation need not necessitate surgical treatment.

Secondary infection in a cavitated lobe in one patient was the only late complication observed.

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DISTURBED CHRONIC PSYCHOTIC PATIENTS: PILOT TRIAL OF "STELAZINE"

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In the search for a more efficacious drug with which to treat long-stay psychotic patients in hospital, "stelazine" (SKK5019; trifluoroperazine) was given a trial. In the U.S.A. it had been described as having nine times the potency of chlorpromazine in blocking conditioned response. Its specificity was also stated to be greater than that of chlorpromazine. Jaundice had not been seen, but extrapyramidal signs and symptoms as in Parkinsonism had been described. Other side-effects noted included rashes, dizziness, drowsiness, lactation, lacrimation, and, on occasion, anxiety.

Method

Twenty-five female chronic psychotic patients who were extremely disturbed in behaviour unless treated with tranquillizing drugs or E.C.T. were chosen. All except three voluntary patients were detained under certificate. The duration of illness ranged from 5 to 31 years, and the average length of stay in hospital was 13 years. Twenty-three were chronic schizophrenics, of whom eight had been leucotomized, and two were oligophrenics with psychosis. In the past, 10 had had deep I.S.T. and 24 E.C.T. more recently.

All other treatment was suspended during the trial. The dosage of stelazine was built up gradually over a period of two weeks to 30 mg. daily, and in one case to 40 mg. and in another to 45 mg. daily. Treatment lasted four weeks, and the dosage was reduced gradually in discontinuing the drug.

Benzhexol hydrochloride, 6–8 mg. daily, was used to counteract side-effects.

Side-effects, (see Table).—These were pronounced and consisted chiefly of the Parkinsonian syndrome. Only seven patients did not seem to suffer from this, but one of them complained of feeling unsteady. Benzhexol was effective in decreasing the salivation but had little effect on tremor. On one occasion a patient had a pyrexia of 101° F. (38.3° C.) which persisted at 99° F. (37.2° C.) for several days until the dose was reduced. Twelve patients needed to be nursed in bed and five required feeding and full nursing attention. These patients were a constant source of worry to the nursing staff in preventing them falling out of bed or otherwise hurting themselves by their restlessness. After discontinuance of the drug these effects were apparent for more than a week, although subsiding gradually.

Side-effects	No. of Patients
Masklike facies	6
Tremor	12
Salivation	7
Rigidity	7
Flushing	3
Pallor	2
Restlessness	13
Nursed in bed	12
Needed feeding and full nursing attention	5

Loss of weight was noted in 18 cases. One patient had lost 14 lb. (6.4 kg.) (as she was obese, this was acceptable) and two patients lost 7 lb. (3.2 kg.). Seven patients had gained moderately.

The changes in behaviour were: very slightly improved, 6; no change, 10; worse, 6; and much worse, 3.

The improvement that occurred in six cases was marred by side-effects in all but two. The little progress made could have been obtained by other means without such untoward

effects. Two patients were reported as being more coherent in asking for their needs. On investigation it was found that they felt so ill that they clamoured for the doctor and, although previously mute, asked to have the bedclothes removed : it is doubtful whether this can be looked upon as real improvement.

The nine patients who were worse required so much attention that the routine of the ward was disorganized. One became so violent that she needed to be secluded. One of the oligophrenics began to bite and fight. She had a tendency to behaviour of this type but had been controlled on chlorpromazine. The other oligophrenic was extremely nervy and agitated. Two patients were too restless to work, another became depressed, and one was continually stripping herself and her bed. Others were restless and shouting, and one threw the chairs she dusted about and broke them.

Those who showed no marked change were worried in three cases by the side-effects.

Summary and Conclusions

A short pilot trial of the drug stelazine was undertaken with 25 chronic psychotic patients. Marked side-effects, chiefly of the Parkinson type, were apparent. To these benzhexol hydrochloride gave partial relief.

With the dosage used, the side-effects of stelazine were so marked and unpleasant that it is doubtful whether the drug would be acceptable for routine use. In some cases the adverse effect on behaviour has been such that its reliability is in question. Higher dosage is unlikely to be helpful in view of the side-effects already encountered. In view of the lag of time between stopping the drug and the subsidence of side-effects, it would appear that the drug is cumulative in the body. The amount of improvement in a few cases was not sufficient to encourage further use of the drug.

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PROGNOSIS OF CEREBRAL EMBOLISM IN RHEUMATIC HEART DISEASE

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Cerebral embolism is a well-recognized complication of rheumatic heart disease. Wood (1954) reported an incidence of 13% of systemic embolism in 300 cases of mitral stenosis, and the site of the embolism was cerebral in three-quarters of these. Of 150 patients undergoing mitral valvotomy (Sellors *et al.*, 1953), five suffered a cerebral embolism ; two died within 12 hours, two remained permanently hemiplegic, and one recovered.

Brain (1955) considered that cerebral embolism, as such, was rarely a fatal condition unless the embolus lodged in the internal carotid artery. Harris and Levine (1941), however, reported that one-third of 72 patients with mitral stenosis complicated by cerebral embolism died within a few days or weeks of the latter. Daley *et al.* (1951) found that 49% of 130 patients with rheumatic heart disease suffered from cerebral embolism. They concluded that the mortality of this complication was high, and that the residual disability was often severe and crippling in those who survived.

Present Investigation

The present investigation is concerned with the prognosis of cerebral embolism in rheumatic heart disease, and is based on records of patients under the care of members of the consultant staff of Westminster Hospital.

Of a total of 172 patients with rheumatic heart disease, 34 (20%) have been accepted as having shown evidence of cerebral embolism or having a convincing history of this complication. One of these embolic cases has eluded follow-up, and the detailed analysis is of the remaining 33 patients, in whom 39 embolic episodes were recorded.

Of these 33 cases, 28 had dominant mitral stenosis, 1 dominant mitral incompetence, and 4 an admixture of stenosis and incompetence. Aortic valve disease occurred in 8 cases. At the time of the first embolus atrial fibrillation was present in 29 cases, the remaining 4 being in normal rhythm. There were 27 females and 6 males, with ages ranging from 18 to 66 years, average 42.3 years. No attempt has been made to assess the relationship between mitral valvotomy and cerebral embolism. For completeness, however, it is recorded that only three embolic episodes occurred after valvotomy—two immediately and one six hours later. These survived and were followed up for seven months, nine months, and four and a quarter years. Eleven cases coming to valvotomy had had previous cerebral emboli, but none of these had subsequent embolic episodes.

The details of the analysis are as follows:

Main disabilities resulting from 39 embolic episodes: hemiparesis: mild 8 (4 right, 4 left), moderate 16 (11 right, 5 left), severe 10 (3 right, 7 left); aphasia accompanied right hemiparesis in 14, and left hemiparesis in 3. Atypical episodes: (1) dysarthria with euphoria, (2) brief unconscious attack followed by numbness of left arm, (3) transient dysphasia, (4) nominal aphasia, (5) faintness. In addition, hemi-anaesthesia was noted in two cases and hemianopsia in one.

The probable site of embolism in 34 episodes was left hemisphere in 18 and right hemisphere in 16.

The degree of recovery in 39 episodes was: full or almost full in 26, moderate in 6, and slight or nil in 2; and 5 patients died within one month (1 was a case of malignant melanoma).

The time interval to the commencement of recovery in 22 episodes ranged from 0 to 21 days, average 5.5 days. Six further cases were noted to begin recovery within "a few" days or weeks.

The time interval to maximum recovery in 23 episodes was: up to 1 week in 8, 1–6 weeks in 6, 6–12 weeks in 2, 3–6 months in 2, 6 months to 1 year in 4, and 1–2 years in 1; the average was 130 days.

The duration of the follow-up from the first embolic episode is shown in the Table.

Duration of Follow-up in 33 Cases from First Embolic Episode

Time:	Up to 2 w.	2 w. to 3 m.	3 m. to 1 Yr.	1–Yr.	2–Yr.	3–Yr.	4–Yr.	5–Yr.	6–Yr.	7–Yr.	8–Yr.	9–Yr.	10–Yr.	11–12 Yr.	17 Yr.
Total No...	4	1	6	4	3	4	3	1	2	1	0	2	0	1	1
No. followed to death	4	1	1	1	1	1	0	0	0	0	0	0	0	0	0

Average duration of follow-up, 3·8 years.

Discussion

In this series of 172 cases of rheumatic heart disease cerebral embolism complications occurred in 34, the right and left cerebral hemispheres being involved with almost equal frequency. Hemiparesis was the major resultant disability, being severe in 10 episodes, moderate in 16, and mild in 6. Aphasia accompanied right hemiparesis in 14 episodes and left hemiparesis in 3.