

DELUSIONS OF INFESTATION TREATED BY PIMOZIDE: A DOUBLE-BLIND CROSSOVER CLINICAL STUDY

Knud Hamann and Christian Avnstorp

Department of Dermatology, Gentofte Hospital, Hellerup, Denmark

Abstract. Eleven patients with delusions of infestation were treated with pimozide using a double-blind crossover technique. Ten out of 11 patients improved. The investigation showed significant relief of itch and delusions during pimozide treatment. Brief Psychiatric Rating Scale (BPRS) points decreased significantly. Adverse effects were few but 2 patients showed dose-related depressive reactions during treatment. Pimozide treatment of patients with delusions of infestation should be entrusted to dermatologists, because these patients with delusions differ from most patients attending psychiatric clinics in that they have a monosymptomatic hypochondrial psychosis.

Key words: Delusions of infestation; Pimozide; Monosymptomatic psychosis

Delusions of infestation were first described by Thibierge (1894) who named the condition acarophobia. Perrin (1896) emphasized that the condition is one of true mental illness (6, 16).

Delusions of infestation can be seen in patients with a variety of psychiatric and physical disorders, such as paranoia, manic-depressive psychosis, toxic psychosis, monosymptomatic psychosis/paranoia hypochondriaca, and organic brain syndrome. Delusions of infestation are rarely reported in connection with deficiency states and, finally the condition can be induced from one person to another (*folie à deux*) (2, 5-8, 13, 14, 16-18).

The clinical picture is dominated by the patient's hypochondrial conviction of being infested by parasites (4-6, 16). Typically the patient brings a little box containing material such as scales, crusts, dried blood, hairs and other things picked out of the skin as proof, when he/she seeks advice from pest control authorities or from the doctor (5, 19).

Skin lesions include more or less symmetrically located excoriations and scars caused by the patient's digging (with nails, needles or scissors) or cutting (with knives, razor blades, or the like) the parasites out of the skin (15, 19). Besides physical extraction of parasites the patients often dose them-

selves liberally with insecticides as well as treating their pets, home and even relatives (19).

The prognosis for these patients has generally been poor (4, 15), but recent reports have shown some clinical effect of neuroleptics, alone or in combination with tricyclic antidepressant drugs (1, 3, 8, 11-14, 17).

As blind studies have not previously been published, we investigated the efficacy of pimozide to treat delusions of infestation, by means of a double-blind crossover study.

MATERIALS AND METHODS

Twelve consecutive patients with delusions of infestation were selected. One patient was later excluded because of renal dysfunction and sclerosis disseminatus. None of the remaining 11 patients (10 women and one man) was actually infested, nor had allergy, liver or renal disease, anemia or diabetes mellitus.

Their mean age was 65.6 years (45-83). The mean duration of the disease was 8.8 months (1-24). Four were widows, 5 were married and 2 unmarried. Ten were classified as having a monosymptomatic paranoia, while one patient had a chronic paranoid schizophrenia. Four patients were senile (failing memory) and one patient (the male) was presenile, perhaps due to alcoholism.

The patients were examined and treated as shown in Table I. In periods I and III the "pimozide" dose was adjusted after 2 weeks according to effects and side effects. The daily dose was given in the morning unless the patient became drowsy from the drug. All the patients were evaluated before entering the study (Table I) and at weekly intervals, by recording subjective (itch and feeling of vermin) and objective symptoms (excoriations and delusions).

The overall situation consisting of, state of disease, change in state of disease in relation to initial evaluation, therapeutic effect, and side effects was evaluated (Table I). The patients were rated according to the Brief Psychiatric Rating Scale (BPRS) (10) using an arbitrary rating system. Side effects (19 items) were registered.

Two patients did not complete the crossover investigation: one had a relapse in period II and was therefore taken out of the investigation and treated with Orap[®]; the other patient was too senile to cooperate.

Table I. Treatment and investigation scheme

Dosage	Period I					Period II				Period III							
	2 mg		1-5 mg			1-5 mg				2 mg		1-5 mg					
Week	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
	Global BPRS					Global BPRS Side eff				Global BPRS Side eff							

↑ = Itch, 'vermin', excoriations, paranoia evaluation; Global = global evaluation; BPRS = brief psychiatric rating scale (16 items); Side eff = side effect (19 items)

Table II. Effect of pimozide and placebo against itch, 'vermin', excoriations, and delusions

	Pimozide			Placebo			<i>P</i> ^a
	Effect	Unchanged	Worsened	Effect	Unchanged	Worsened	
Itch	10	1		1	8		0.04
Vermin	8	3		1	8		0.12
Excoriations	8	1		1	6		0.12
Delusions	9	2		1	8		0.03

^a Significance test for each symptom, in pairs.

RESULTS

Table II shows that pimozide treatment had a significant effect upon both itch and delusions ($p < 0.05$) but not against 'vermin' or excoriations. The effect of pimozide upon all four criteria tended to develop in the same direction within each patient.

During the wash-out period (period II) itching recurred in 3 out of 4 patients who had had pimozide in period I. The change in mean points for itch, 'animals', excoriations and delusions are shown in Fig. 1. The four curves at the top show the effect among patients who had pimozide in period I and the lower four show the effect among patients who had pimozide in period III.

Table III shows the significant ($p = 0.012$) fall in BPRS mean points. Ten out of 11 patients had a decrease in BPRS points. One patient was unchanged. BPRS points were constant in periods I and II for the 5 patients who had placebo in these periods. One patient had a spontaneous improvement during the placebo period.

Disease state

Ten out of 11 patients improved during the active period ($p = 0.012$); one remained unchanged. During

the wash-out period, 3 out of 4 worsened. In the placebo period 2 improved, one improved moderately, while the other improved only partly. This latter patient improved considerably in the active period.

Change in state of disease

Ten out of 11 patients improved considerably during the pimozide period. Two patients improved partly in the placebo period.

Therapeutical effects

A distinct effect was noted in 10 out of 11 patients during the pimozide period. One patient experienced a partial and another a moderate effect in the placebo period. One of these patients experienced a

Table III. Mean change in BPRS in pimozide and placebo periods

	BPRS		
	Pre	Post	Change
Pimozide ^a	19.4	5.9	13.5
Placebo	19.1	17.8	1.3

^a $p = 0.012$ (signif. test).

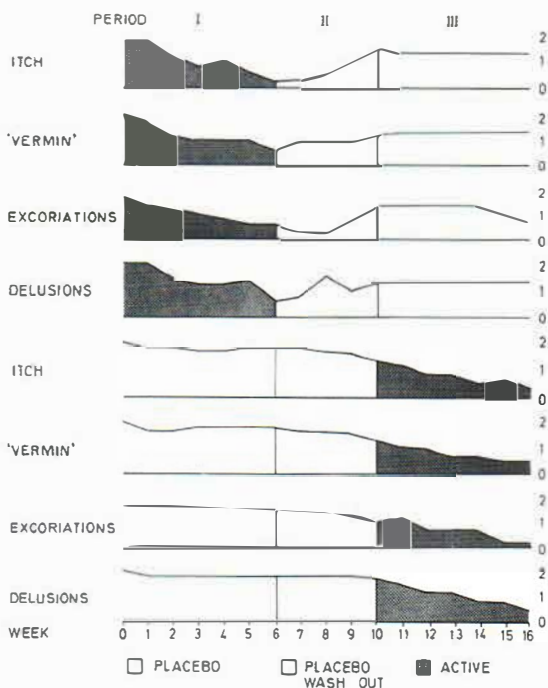


Fig. 1. The change in mean points for itch, 'vermin', excoriations and delusions.

distinct effect in the pimozide period; the other improved spontaneously.

Side effects

During the pimozide period 8 out of 11 patients had side effects and during the placebo period 5 out of 9 had side effects. In the was-out period 2 out of 10

complained of side effects. Most patients had side effects in the pimozide period (Table IV). Table IV shows an increased insomnia, drowsiness, akathisia, parkinsonism and depressive reaction.

Two patients had depressive reactions. Both improved by reducing the therapeutical dose. One patient had a depressive reaction after stopping the pimozide treatment. This reaction was worsened by a tricyclic antidepressant (Saroten®) but improved after resuming the pimozide treatment with subsequent tapering of the dose.

Seven patients were treated after the double-blind crossover study. Of these 7, 2 have stopped treatment and no recurrence has been observed (5 months' observation). Four patients did not continue the treatment after the investigation; 3 were free of symptoms and one was lost (the patient with the chronic paranoid schizophrenia).

DISCUSSION

Patients with delusions of infestation can be treated efficiently with pimozide. Pimozide had a significant effect upon itching and delusions; the same tendency was observed towards 'vermin' and excoriations. The effect towards 'vermin' and excoriations was not significant, perhaps due to the low number of observations. The distinct therapeutic effect was demonstrated by a significant fall in BPRS points. Side effects were mild to moderate, but 2 cases of depressive reactions during treatment were observed. These reactions disappeared upon reducing the pimozide dose.

Treatment had to be maintained for at least 6 weeks

Table IV. Side effects

	Pimozide (11)			Placebo (9)		
	Number of patients	Points (sum)	Mean points	Number of patients	Points (sum)	Mean points
Dry mouth	1	3	3	0	0	0
Blurred vision	1	2	2	1	1	1
Constipation	0	0	0	1	1	1
Dizziness, vertigo	4	7	1.75	4	8	2
Hypotension, syncope	1	1	1	0	0	0
Headache	1	1	1	1	3	3
Insomnia	1	2	2	2	2	1
Drowsiness, fatigue	5	8	1.6	1	1	1
Akathisia	2	4	2	1	1	1
Parkinsonism	2	3	1.5	1	1	1
Depressive reaction	2	5	2.5	0	0	0

() Total number of persons in the period.

before delusions were brought under control. The dosis varied between 1 and 5 mg per day. Depot injections can be used when patients are suspected of failing to take their medication (3). Oral medication has the advantage that the dose can be changed from day to day and the patients can stop the treatment whenever they want.

This investigation confirms that there appears to be a clear-cut difference in the type of patient who reports to the dermatologist or the pest control officer and those who come direct to psychiatric clinics. In those who are referred to the dermatologist the idea of infestation is in many cases the only abnormality detected (6). Among our patients, 4 had failing memory and one had a presenile dementia. This accords with Skott (16) who found that half of his patients had organic brain disease.

Patients with delusions of infestation ought to be treated by dermatologists—otherwise they will not be treated at all (3, 4). The prognosis after neuroleptics is impressive and it is therefore important that these patients be treated especially because a few may commit suicide (2) in the acute phase of the disease when the patient is in great despair.

ACKNOWLEDGEMENT

Pimozide was provided by Janssen Pharma A/S, Denmark. The statistical work was done by cand. stat. Susanne Møller, Statens lægefaglige Forskningsråd.

REFERENCES

1. Avnstorp, C., Hamann, K. & Jepsen, P. W.: Parasit-forrykthed behandlet med pimozid (Orap®). *Ugeskr Læg* 142: 2191, 1980.
2. Bebbington, P. E.: Monosymptomatic Hypochondriasis. Abnormal Illness, Behavior and suicide. *Br J Psychiatry* 128: 475, 1976.
3. Frithz, A.: Delusions of infestation: treatment by depot injections of neuroleptics. *Clin Exp Dermatol* 4: 194, 1979.
4. Gould, W. M. & Gragg, T. M.: Delusions of parasitosis. *Arch Dermatol* 112: 1745, 1976.
5. Hansen, E. Bjerg: *Paranoia hypochondriaca*. Frederiksberg boktrykkeri, København, 1976.
6. Hopkinson, G.: The psychiatric syndrome of infestation. *Psychiatr Clin* 6: 330, 1973.
7. Krik, L.: Amfetaminspsykose. *Ugeskr Læg* 137: 644, 1975.
8. Munro, A.: Monosymptomatic hypochondriacal psychosis manifesting as delusions of parasitosis. *Arch Dermatol* 114: 940, 1978.
9. — Monosymptomatic hypochondriacal psychoses. *Can Psychiatr Assoc J* 23: 497, 1978.
10. Overall, J. E. & Gorham, D. R.: The brief psychiatric rating scale. *Psychol Rep* 10: 799, 1962.
11. Reilly, R. M., Jopling, W. H. & Beard, A. W.: Successful treatment with pimozide of delusional parasitosis. *Br J Dermatol* 98: 457, 1978.
12. Reilly, T. M.: Pimozide in monosymptomatic psychosis. *Lancet* i: 1385, 1975.
13. Riding, J. & Munro, A.: Pimozide in treatment of monosymptomatic hypochondriacal psychosis. *Acta Psychiatr Scand* 52: 23, 1975.
14. — Pimozide in monosymptomatic psychosis. *Lancet* i: 400, 1975.
15. Rook, A., Wilkinson, D. S. & Ebling, F. J. G.: *Textbook of Dermatology*, 3rd ed. Blackwell Scientific Publications, Oxford, London, Edinburgh, Melbourne, 1979.
16. Skott, A.: Delusions of infestation. Reports from the Psychiatric Research Centre, University of Gothenburg, 1978.
17. Sneddon, I. B.: The presentation of psychiatric illness to the dermatologist. *Acta Dermatovener (Stockholm)* 59: Suppl. 85, 177, 1979.
18. Wilson, J. W.: Delusion of parasitosis (acarophobia). Further observations in clinical practice. *Arch Dermatol* 66: 577, 1952.
19. Zaidens, S. H.: Self-inflicted Dermatoses and their psychodynamics. *J Nerv Ment Dis* 113: 395, 1951.

Received May 4, 1981

Knud Hamann, M.D.
Department of Dermatology
Gentofte Hospital
DK-2900 Hellerup
Denmark