

## On the Readmission of Psychotic Patients

—“Revolving Door Syndrome”—

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### INTRODUCTION

Psychiatric treatment has changed drastically since phenothiazine derivatives were introduced in the psychiatric treatment as psychotropic drugs. Moreover, synthetic substances like butyrophenone, and their related substances, are shown to be very effective, winning broad support from psychiatrists.

However, these drugs have to be taken continually over a long period of time, which poses difficulties in the effectiveness of the therapy.

For instance, twenty per cent of the in-patients are reported as not taking the prescribed drugs as instructed by their physicians (Villeneuve<sup>1)</sup>). Fifty per cent of the out-patients take drugs in an extremely irregular manner, or stop taking them arbitrarily, which is accountable for the symptoms flaring up again in many cases. This phenomenon is a serious problem to those engaged in psychiatric treatment.

Dubbed the drug dosage “Merry-Go-Round” (Forrest et al.<sup>2)</sup>), or the “revolving door syndrome” (Ayd<sup>3)</sup>), it is attracting a great deal of attention.

We made an investigation into the causes of patient's repeated hospital admissions and discharges, and found that interruption of drugtaking and drug deviation could be major causes<sup>4)</sup>.

Hoping that the rapidly rising rate of re-socialization, due to medication with psychotropic drugs, will not result in an increase in the number of patients readmitted, we made studies on how patients, discharged from a hospital, take their medication, and we also studied the question of readmission. The results are reported here.

### SUBJECT AND METHOD

Of a total of 1126 patients (755 males, 371 females) who had been

discharged from the Psychiatric Ward of the Kitsunan Hospital in the five years since 1972, a total of 342 (30.4%) were readmitted. Of them, 239 patients (176 males, 63 females) were readmitted for symptom aggravation believed to be the result of drug deviation. They comprise the subjects of this study.

Regrettably, we were not able to make full examinations of patients who were readmitted to other psychiatric hospitals.

In studying the possibility of drug deviation, we questioned the patients themselves, and their families.

From the staffs of the health office who visit the patients' homes to give advice or guidance on treatment and re-socialization, we gathered information, when necessary, and used it for reference.

## RESULTS

Of the 1126 discharged patients, those readmitted for possible drug deviation were found to account for 21.2 per cent, of the 342 patients readmitted, 69.9 per cent.

In Table 1 are shown the number of discharged patients, per year, the number of the readmitted attributable to drug deviation, and the period of time taken before readmission.

From the table, we can see that they are readmitted in about 75 days and that drug deviation developed before that.

The percentage of readmission was highest in patients with chronic alcoholism, followed by patients with atypical psychosis and serious mental subnormality.

Most of the diseases compiled under the heading "Miscellaneous" were senile psychosis (Table 2).

Table 3 shows the composition of the readmitted patients by age. Peaks are observed at two points; in the group of patients age 20 or less, and the group age 70 and above.

Table 1. Readmission due to drug deviation

	1972	1973	1974	1975	1976	Total
The number of patients discharged	212	262	219	223	210	1126
The number of patients readmitted due to drug deviation (%)	45 (21.2)	71 (27.1)	49 (22.4)	38 (17.0)	36 (17.0)	239 (21.2)
Average number of transpired before readmission (days)	58.0	84.6	72.9	68.5	92.8	75.4

Table 2. The number of patients readmitted due to drug deviation by disease

	Male			Female			Total		
	No. of pat. discharged	No. of pat. readmitted due to drug deviation	Readmission rate(%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation	Readmission rate(%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation	Readmission rate(%)
	Schizophrenia	582	120	20.1	267	40	15.0	849	160
MDI	48	9	18.8	35	6	17.1	83	15	18.1
Epilepsy	31	4	12.9	20	4	20.0	51	8	15.7
Chronic alcoholism	30	26	86.7				30	26	86.7
Mental deficiency	24	3	12.5	18	10	55.6	42	13	30.9
Atypical psychosis	5	2	40.0	9	2	22.2	14	4	28.6
Miscellaneous	35	12	34.3	22	1	5.0	57	13	22.8
Total	755	176	23.3	371	63	17.0	1126	239	21.2

Table 3. The number of patients readmitted due to drug deviation by age

Age	Male			Female			Total		
	No. of pat. discharged	No. of pat. readmitted due to drug deviation	Readmission rate(%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation	Readmission rate(%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation	Readmission rate(%)
	-20	112	38	33.9	42	23	54.8	154	61
-30	256	61	23.8	128	17	13.3	384	78	20.3
-40	163	38	23.3	97	9	9.3	260	47	18.1
-50	99	24	24.2	50	6	12.0	149	30	20.1
-60	79	8	10.1	43	3	7.0	122	11	9.0
70-	46	7	15.2	11	5	45.5	57	12	21.1
Total	755	176	23.3	371	63	17.0	1126	239	21.2

Table 4. Relationship between the number of drugs administered and the number of patients readmitted

No. of drugs administered	Male		Female		Total	
	No. of pat. discharged	No. of pat. readmitted due to drug deviation (%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation (%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation (%)
6	6	5(83.3)	1	1(100.0)	7	6(85.7)
5	15	12(80.0)	12	8(66.7)	27	20(74.1)
4	53	36(67.9)	43	11(25.6)	96	47(48.9)
3	187	28(15.0)	210	26(12.4)	397	54(13.6)
2	331	52(15.7)	72	9(12.5)	403	61(15.1)
1	163	43(26.4)	33	8(24.2)	196	51(26.0)
Total	755	176(23.3)	371	63(17.0)	1126	239(21.2)

\*Drugs other than psychotropic drugs are included in the number of drugs administered (see Text)

Table 5. The number of divided doses a day and the number of patients readmitted

No. of divided doses a day	Male		Female		Total	
	No. of pat. discharged	No. of pat. readmitted due to drug deviation (%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation (%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation (%)
4 times or more	120	9(7.5)	73	2(2.7)	193	11(5.7)
3 "	118	57(48.3)	160	38(23.8)	278	95(14.2)
2 "	354	67(18.9)	105	15(14.3)	459	82(17.9)
1 "	163	43(26.4)	33	8(24.2)	196	51(26.0)
Total	755	176(23.3)	371	63(17.0)	1126	239(21.2)

Table 6. Relationship between chief supervisor for the patient in family and the number of patients readmitted

	Male		Female		Total	
	No. of pat. discharged	No. of pat. readmitted due to drug deviation (%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation (%)	No. of pat. discharged	No. of pat. readmitted due to drug deviation (%)
Spouse	371	70(18.9)	31	5(16.1)	402	75(18.7)
Parents	170	55(32.4)	200	31(15.5)	370	86(23.2)
Father	18	12(66.7)	20	3(15.0)	38	15(39.5)
Mother	39	10(25.6)	31	5(16.1)	70	15(21.4)
Siblings	94	11(11.7)	54	7(13.0)	148	18(12.2)
Children	43	4(9.3)	20	4(20.0)	63	8(12.7)
Bachelor	10	6(60.0)	6	4(66.7)	16	10(62.5)
Others	10	8(80.0)	9	4(44.4)	19	12(63.2)
Total	755	176(23.3)	371	63(17.0)	1126	239(21.2)

The kinds of drugs prescribed at the out-patient clinic includes hepatotonics, cardiac stimulants, anti-parkinsonism drugs and digestives.

It is shown that the more types of medication prescribed, the more likely drug deviation will occur (Table 4).

The relationship between the frequency of the daily dosage prescribed by the physician, and recurrence is shown in Table 5. Drug deviation was found more often in the three times-a-day group and in the once-a-day group.

The home environment, that is, family members taking charge of supervision and caring of the patient at home, is shown in Table 6.

## DISCUSSION

Forrest test<sup>5</sup>), urine chromatography test, computation of the number of tablets<sup>6</sup>), that is, a check up on how tablets are consumed, and questioning method<sup>7</sup>) are available for investigating how psychotropic drugs prescribed to mentally disordered persons are actually taken.

Forrest test is one which makes use of the ferric chloride color reaction in detecting drugs of the phenothiazine group and tricyclic antidepressants.

However, the test does not yield correct results if the hepatic function is impaired, and detection is difficult if the drugs are administered in small doses.

There is also an attempt to label drugs administered.

A method whereby barium phosphate is administered simultaneously with x-ray detection of the patient's feces<sup>8</sup>), or a method whereby riboflavine is added and detection is made from the patients' urine<sup>9</sup>). These methods are being adopted as trials.

Results obtained with these methods are said to be satisfactory. With the former, however, there is the question of constipation, and with the latter, riboflavine, at the enzyme level, is reported to interact with drugs of the phenothiazine group in a competitive manner<sup>10</sup>).

The questioning method is very simple to use in finding out the patient's habits in taking a drug, but its reliability is the lowest.

However, we believe that its reliability will be raised considerably by using a question that is flexible, not threatening, and requires no judgement of right or wrong at a time when the patients' psychiatric symptoms have been somewhat stabilized after admission, in combination with computation of consumption of drugs prescribed, or by having the patients' family members take charge of the drugs prescribed.

However, the results of our investigation are based mainly on statements of the patients and their families, and therefore will be lower than the actual values, which we are well aware of.

Conditions called the "Revolving Door Syndrome" (Ayd<sup>3)</sup>), or drug dosage "Merry-Go-Round" (Forrest et al.<sup>2)</sup>), involve a patient's not taking the psychotropic drugs prescribed in the dosage or manner instructed by their physician resulting in readmission. Such an irregular use of drugs can be interpreted as "drug deviation" (Blackwell<sup>11)</sup>).

This includes cases where a patient takes a drug in larger doses than instructed, and also cases where a patient takes an additional drug not prescribed by the physician.

About half of the drugs the patients take additionally, on their own, hold the possibility of causing danger in one form or another.

Generally, error due to negligence, intentional error, mistakes in dosage and mistakes in drug-taking time are many<sup>12)</sup>.

Even where out-patients at the Department of Psychiatry take drugs as instructed, the possibility of symptoms flaring up again is, by no means low<sup>13)</sup>, but the readmission rate for patients on pharmacotherapy appears to be distinctively low.

Factors that are concerned with drug deviation, are most often encountered when a patient reduces the dosage, or discontinues taking the drug arbitrarily due to side-effects caused by the psychotropic drugs.

Particularly, drugs of the butyrophenone group, if taken in small doses, produce reversible extrapyramidal signs, which should be taken note of.

In the medical treatment currently practiced at departments of psychiatry in Japan, several kinds of psychotropic drugs are simultaneously, and a drug has to be taken in more separate doses than necessary. It should be pointed out that such a situation is liable to cause drug deviation.

In our investigation, no study was made on whether drug deviation is a primary cause, or whether an other factor, for instance, a social factor which causes a deviation, was involved. At any rate, all cases counted are those in which drug deviation is a direct cause for readmission.

Particularly, schizophrenics often have no insight of the fact that they themselves are sick, and there are several cases in which, feeling cured of the disease, they cease taking the drugs.

With schizophrenia which requires long-term treatment, the pos-

sibility of drug deviation being accelerated is high.

For a drug to be taken as directed by the physician, the presence of a person or spouse living with the patient who exercises supervision, gives instructions, and helps over the drug administration in the home plays an important role<sup>4),14)</sup>. It is a fact that the incidence of drug deviation is three times higher in the group with no supervisor than in the group with such help<sup>15)</sup>.

According to our investigation, the recurrence rate is lowest in cases where siblings of the patient act as a supervisor. However, the possibility is high that a patient's spouse or his siblings refuse to live together with the patient, and consequently, that the patient runs away from home, or seeks a job in a big city, where symptoms recur.

With the social welfare system rapidly improving, patients eligible for free medical care are increasing in number. Drug deviation is liable to occur in such a group of patients, and psychiatrists also appear to administer a variety of psychotropic drugs in a seemingly casual manner<sup>16)</sup>.

There is reportedly a patient who visits two mental hospital and receives almost the same prescription at each hospital on the same day. Another patient gets a prescription from one hospital and receives psychotherapy from a psychiatrist of another hospital. This problem will be a major issue in the future. Many patients, not following the physicians' instructions, tend to refuse receiving the out-patient treatment after their discharge.

However, there are some patients who do not follow the physicians' instructions, but attend the out-patient clinic.

We have also often encountered patients who firmly believe drugs to be poisonous substances.

In schizophrenics, this may be due to delusion of being poisoned, but in other cases, it might have something to do with the campaign of the mass communication media of the present-day Japan purporting that drugs are deleterious.

According to our results, the time taken before readmission due to drug deviation is about 75 days. This is the figure when chronic alcoholics are included.

If they are excluded, it comes to about 90 days. This is generally consistent with results already reported<sup>4)</sup>.

In order to prevent or keep drug deviation at a minimum, psychiatrists should give a full explanation to the patients as to the objectives

of medication and the possible side-effects. Furthermore, an explanation must also be given on the results a patient could possibly have if they do not take the drug.

In medication, a physician should try to give as few kinds of drugs as possible, and at the same time reduce the number of separate daily doses taken.

With a one-drug-once-a-day formula, however, the incidence of symptoms flaring up again could be very high, once drug deviation occurs, to which attention should be paid.

Even where patients have formed the habit of taking drugs with regularity during admission, they gradually come to take them irregularly from two to three months after their discharge, except for chronic alcoholics.

### SUMMARY

An investigation into various factors was made for a total of 239 patients out of 1126 who had been discharged from the Psychiatric Ward of the Kitsunan Hospital in five years. The patients studied were readmitted due to drug deviation and the subsequent recurrence of symptoms being treated.

Inclusive of chronic alcoholics readmitted (a total of 26), the time required from discharge to readmission averaged 75 days.

For patients with schizophrenia, affective disorder and atypical psychosis, exclusive of chronic alcoholics, the figure is about 90 days. From this, we can surmise that drug deviation occurs a little earlier than that period.

The possibility of readmission was the highest with chronic alcoholism (86.7%), followed by mental weakness (30.9%), and atypical psychosis (28.6%). Schizophrenia and affective disorder showed a readmission rate of about 18 percent.

The younger the age, the higher the possibility of readmission, and the possibility of readmission is higher in male patients (23.3%) than in females (17.0%).

The more kinds of drugs administered, and the greater the number of daily doses, the more irregularly the patients tended to take the drug. It was made clear that the presence of adequate family members protecting and supervising a patient in the home could serve as a major factor in preventing drug deviation.



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