

A Survey of Drugs Used in the Management of Assaultive Inpatients

KENNETH TARDIFF, MD

Management of violent patients in hospitals is a vital concern that has generated a broad spectrum of research and suggestions. This has ranged from those who emphasized verbal approaches¹⁻³ to the assaultive patient to those who looked at the impact of the physical environment of the ward, overcrowding of patients, understaffing, or type of staffing.⁴⁻⁷ Others described the usefulness of various control measures such as physical restraints, seclusion, and continuous observation.⁸⁻¹⁰

Last and in no way least, is the pharmacological approach to the management of the violent patient. Numerous reviews of studies evaluated the clinical effectiveness of various types of medications.¹¹⁻¹⁴ Yet despite the abundance of clinical studies of the effectiveness of these medications, there is little information about how they are used by psychiatrists to manage violent patients residing in hospitals. Recently, the opportunity to obtain this information presented itself when the state of New York conducted a survey of patients residing in state hospitals. The results of this survey in terms of the occurrence of assaultive behavior and the use of medications and other forms of control for assaultive behavior in hospitals follows.

Method

This study focused on patients residing for one month or longer in two state psychiatric hospitals on Long Island. It should be noted that patients in special alcohol or drug abuse and mental retardation facilities were excluded from this study. The assessment of these patients took place during one month in 1979. The surveyors were staff members of the hospitals, who followed similar standardized procedures described in a report of a previous inpatient survey in 1977.¹⁵ The current study instrument differed from the previous instrument in that it contained a clearer definition of assault, namely that it was assaultive behavior directed toward other persons and occurred in a specific time frame. The current survey instrument also included extensive ratings of psychopathology and behavior using an adapted NOSIE scale¹⁶ and information about the use of psychiatric medication on a daily basis.

The types of psychiatric medications were categorized on the basis of frequency of use where only one type of drug was involved. Drug combinations were infrequent and predominantly involved anticonvulsants and neuroleptics. In addition, patients were classified as receiving "high, regular, or low" daily doses of medications. If the daily dose was within the

Dr. Tardiff is Associate Professor of Psychiatry, Cornell University Medical College, 1300 York Ave., New York, NY 10021.

suggested range in the *AMA Drug Evaluations*¹⁷ it was considered to be a "regular" daily dose while those below this were classified as "low" and above as "high" daily doses. The suggested daily maintenance dose ranges for some of the more frequently used medications are listed in Table 1. In cases where there were combinations of anticonvulsants and neuroleptics with different daily doses for each drug, the dose of the neuroleptic was used for classification. There were seven cases excluded from the portion of the analysis involving daily dose because they could not be classified as low, regular, or high doses since they were receiving multiple neuroleptics or neuroleptics and antidepressants with differing dose levels for these drugs.

Table 1. Daily Maintenance Dose Ranges for Adults in AMA Drug Evaluations

Medication	Daily Dose Range (mg)
Amitriptyline	50-150
Chlorpromazine	500-800
Chlorprothixene	75-200
Diazepam	4-40
Diphenylhydantoin	300-400
Haloperidol	2-8
Imipramine	50-150
Mesoridazine	100-400
Thioridazine	150-300
Thiothixene	20-30
Trifluoperazine	4-10

Table 2. Characteristics of All Patients

	Male N=2,382 (Percent)	Female N=2,782 (Percent)
Age		
17-34 years	11	7
35-44 years	10	6
45-54 years	16	13
55-64 years	28	28
65+	35	46
Duration of Hospitalization		
1 month to 2 years	11	11
2 years to 10 years	18	15
10 years to 20 years	18	15
20 years to 30 years	16	18
30 years to 40 years	16	18
greater than 40 years	21	23
Primary Diagnosis (DSM-II)		
Paranoid schizophrenia	28	34
Other nonparanoid schizophrenia	41	33
Depressions	3	6
Psychotic organic brain syndromes	20	21
Mental retardation	5	4
Other nonpsychotic disorders	3	2
Race		
White	79	85
Nonwhite (predominantly black)	21	15

Results

Characteristics of the Assaultive Patients Of the 5,164 patients residing in the two psychiatric hospitals, there were 186 (7.8 percent) men and 198 (7.1 percent) women who had physically assaulted other persons in the hospital at least once in the three months preceding the survey. Actually, two-thirds of these patients had assaulted someone in hospital within the month preceding the survey. As is seen in Table 2, these patients had been in hospital for long periods, usually years, and this was reflected in their age distributions. Schizophrenia other than paranoid type was the most frequent diagnostic category, followed by psychotic organic brain syndromes, paranoid schizophrenia, and mental retardation. Manic episodes were rare and included under the paranoid schizophrenia category since there is evidence that these categories are more closely related to each other than to other types of schizophrenia.¹⁸ Last, most of the patients were white.

Table 3 presents three characteristics found to be related to assaultive behavior. When assaultive patients were compared to nonassaultive patients residing in hospitals for one month or longer, the assaultive patients of

Table 3. Characteristics of Patients Residing in Hospitals by Presence of Assaultive Behavior and Sex

	Male		Female	
	Assaultive N=186 (percent)	Not Assaultive N=2,196 (percent)	Assaultive N=198 (percent)	Not Assaultive N=2,584 (percent)
Age				
17-34 years	34	9	17	5
35-44 years	16	9	15	6
45-54 years	19	16	12	13
55-64 years	17	29	29	28
65 years & older	14	37	27	48
	100	100	100	100
	$(\chi^2=121.72, df=4, p<.00005)$		$(\chi^2=62.73, df=4, p<.00005)$	
Duration of Hospitalization				
1-3 months	7	2	6	3
3 months-2 years	18	8	15	9
2 years-10 years	28	17	26	15
10 years or longer	47	73	47	73
	100	100	100	100
	$(\chi^2=84.45, df=6, p<.00005)$		$(\chi^2=56.09, df=6, p<.00005)$	
Primary Diagnosis				
Paranoid Schizophrenia	14	29	23	35
Non-paranoid Schizophrenia	46	41	38	33
Depression	1	3	5	6
Psychotic Organic Brain Syndrome	25	20	24	20
Mental Retardation	11	5	7	4
Other Non-psychotic disorders	3	2	3	2
	100	100	100	100
	$(\chi^2=31.52, df=5, p<.00005)$		$(\chi^2=17.57, df=5, p=.0035)$	

both sexes were more likely to be under 45 years of age (men: $\chi^2 = 121.72$, $df = 4$, $p < .00005$; women: $\chi^2 = 62.23$, $df = 4$, $p < .00005$) and overrepresented in the diagnostic categories of nonparanoid schizophrenia, psychotic organic brain syndromes, mental retardation, and other nonpsychotic disorders and underrepresented in the category of paranoid schizophrenia and depression (men: $\chi^2 = 31.52$, $df = 5$, $p < .00005$; women: $\chi^2 = 17.57$, $df = 5$, $p = .0035$). Assaultive patients were more likely to have been in hospital for less than ten years (men: $\chi^2 = 84.45$, $df = 6$, $p < .00005$; women: $\chi^2 = 56.09$, $df = 6$, $p < .00005$), but there was no difference between assaultive and nonassaultive patients in regard to race or sex.

Types of Routine Medications for Assaultive Patients The rest of the analysis focused on the 384 assaultive patients in terms of the type and dose of medication and the need for emergency controls. The types of medications prescribed on a daily basis for these patients are presented in Table 4. Approximately three-fourths of the patients were being given neuroleptics routinely, either alone or in combination with other drugs, usually anticonvulsants. Those neuroleptic drugs most frequently used alone were haloperidol, chlorpromazine, thioridazine, and thiothixene. The most common anticonvulsant was diphenylhydantoin either alone or in combination with sedatives or minor tranquilizers and usually in combination with neuroleptics. Few patients were on multiple neuroleptics or on tricyclic antidepressants. Two patients were on lithium carbonate with neuroleptics and were classified in the category of the neuroleptic for the rest of the analysis.

Two characteristics of the assaultive patients were related to the type of medication used. First, younger patients, especially in the 17-34 year group (90 percent) were more likely to be on neuroleptic drugs, while those 65 years or older (26 percent) were more likely than patients in other age groups to be receiving no psychiatric medication ($\chi^2 = 52.74$, $df = 32$, $p = .0119$).

Second, diagnosis was related to the type of medication prescribed. As expected, schizophrenics were more likely treated with neuroleptics, how-

Table 4. Frequency of Various Types of Medication Prescribed Daily for Assaultive Patients

Medication	Number of Patients	Percentage
1. No psychoactive medication	53	13.8
2. Chlorpromazine alone	52	13.5
3. Thioridazine alone	51	13.3
4. Haloperidol alone	57	14.8
5. Other neuroleptics alone*	76	19.8
6. Minor tranquilizers or sedatives alone	13	3.4
7. Anticonvulsants	49	12.8
8. Multiple neuroleptics	15	3.9
9. Tricyclic antidepressants†	18	4.7
Total	384	100.0

*Predominantly thiothixene, mesoridazine, or chlorprothixene.

†Most patients were on concurrent neuroleptics.

ever patients with diagnoses of mental retardation and other nonpsychotic disorders also were more likely than patients in the other diagnostic categories to be treated on a daily basis with neuroleptics. Even though patients with psychotic organic brain syndromes were overrepresented in the no routine medication category, nevertheless 65 percent of these patients were on neuroleptics, either alone or with other medications ($\chi^2 = 95.67$, $df = 40$, $p < .00005$). Length of stay in the hospital, sex, and race were not associated with the type of medication given.

Next the need for emergency control measures was analyzed in relation to the types of medications patients were receiving routinely. Overall, 40 percent of assaultive patients needed emergency psychiatric medication, 17 percent needed physical restraints or seclusion, and 27 percent needed one-to-one supervision at least once in the 30 days preceding the survey for the control of dangerous behavior. As to the types of medications, it was apparent that the use of all categories of neuroleptics, except chlorpromazine, was associated with an increased need for emergency medication ($\chi^2 = 26.59$, $df = 8$, $p = .0008$), physical restraint or seclusion ($\chi^2 = 18.95$, $df = 8$, $p = .0151$) and one-to-one supervision ($\chi^2 = 22.52$, $df = 8$, $p = .0040$).

There were no differences in terms of the type of medication prescribed on a daily basis and NOSIE ratings, stratified by those diagnostic groups with adequate number of patients for analysis, namely paranoid schizophrenia, nonparanoid schizophrenia, and psychotic organic brain syndrome. This suggests the neuroleptics did not differ in terms of their effect on ward behavior and psychopathology or in producing side effects such as sedation or decreased psychomotor activity. This finding in conjunction with the finding that routine use of chlorpromazine alone was associated with decreased need for emergency control measures suggests chlorpromazine may be more effective than other neuroleptics in controlling violence as well as the primary psychiatric disorder without producing more side effects.

Daily Doses of Routine Medications for Assaultive Patients Of the assaultive patients on medication, 64 percent were on daily doses within the ranges suggested by the *AMA Drug Evaluations*, while 20 percent were on doses higher, and 16 percent were on doses lower than the suggested ranges. However, there were differences in type of medication and daily dose in that chlorpromazine and thioridazine were more likely to be given in the low-dose ranges and haloperidol and the use of multiple neuroleptics in the high-dose ranges ($\chi^2 = 85.43$, $df = 16$, $p < .00005$). Reassuring in regard to the accuracy of the information recorded by the staff and my classification of daily doses, the expected trends were found in relation to age and sex. Younger patients were on higher doses while those 65 years and older were on lower doses ($\chi^2 = 48.20$, $df = 8$, $p < .00005$), and men were on higher doses than women ($\chi^2 = 6.45$, $df = 2$, $p = .0397$). In terms of diagnosis, nonparanoid schizophrenics were on high doses, while patients with psychotic organic brain syndromes or depression were on low daily doses ($\chi^2 = 23.32$, $df = 10$, $p = .0096$). There were associated seizure disorders for

21 percent of the assaultive patients, however daily dose of medication was not related to the presence of a seizure disorder, thus indicating that neuroleptics given with anticonvulsants were not lowered for these patients despite evidence that they can lower the seizure threshold.¹⁹⁻²¹

Last, being on high doses of medication was associated with greater need for emergency medication ($\chi^2 = 30.79$, $df = 2$, $p < .00005$), seclusion or physical restraint ($\chi^2 = 14.53$, $df = 2$, $p = .0007$) and one-to-one supervision ($\chi^2 = 18.58$, $df = 2$, $p = .0001$) in the preceding month.

Comment

First, considering the fact that these are chronic inpatients, the rate of recent assaultive behavior toward others in hospitals may be surprising. This supports the concerns of staff about their safety and emphasizes the need for educating them in terms of managing violence on the wards. Unexpectedly paranoid schizophrenia was not the diagnostic group at higher risk of assault in hospitals. This does not agree with my previous study of assault just prior to or at the time of admission to hospital,²² where paranoid schizophrenics were more likely assaultive. This suggests that treatment in the acute phase for paranoid schizophrenia may be more effective, at least in terms of controlling assaultive behavior and that the chronic inpatients more likely to pose problems with assault tend to be the nonparanoid schizophrenics. Certainly this appeared to be true in terms of medication, where nonparanoid schizophrenic assaultive patients received higher daily doses of medication and were more likely to need controls such as emergency medication, seclusion, physical restraints, or one-to-one supervision.

Approximately 80 percent of the assaultive patients were on routine daily doses of neuroleptics. Although patterns of medication for nonassaultive patients were not assessed, there is no doubt that neuroleptic use was more widespread for the assaultive patients in this survey, given the diagnostic profiles of the two patient populations. In terms of diagnostic categories one would expect to be associated with daily use of neuroleptics, there was an increased proportion of nonparanoid schizophrenics among the assaultive patients, but a decreased proportion of paranoid schizophrenics in the assaultive patient population. The proportion of schizophrenics of all types was greater in the nonassaultive patient population. For psychotic patients, the use of neuroleptics probably was justified, especially in light of more younger patients in the assaultive population, with presumably more dangerous assaultive behavior.

Most distressing is the daily use of neuroleptics for patients with mental retardation and other nonpsychotic disorders. This raises questions of whether neuroleptics were being used as an alternative to seclusion and restraint for these patients and whether the risk of long-term side effects of neuroleptics should be weighed against infringement of patient rights in the form of seclusion and restraint. Certainly, the prudent and safe use of

Survey of Drugs

seclusion and restraint should be considered for nonpsychotic assaultive patients and one should pay attention to other parameters of treatment, including verbal and environmental ones.

Reflecting on the positive side of practice in these state hospitals, avoidance of multiple neuroleptic use is in keeping with sound practice, and the neuroleptics used alone were found to be effective.^{12,23} The infrequent routine use of minor tranquilizers and sedatives is also encouraging. Furthermore, of the assaultive patients on medication, 80 percent were on daily doses within or lower than the ranges suggested by the *AMA Drug Evaluations*.

There were several indications that chlorpromazine may be the preferred drug for assaultive patients, in that patients on chlorpromazine were in the lower-dose ranges, did not have increased need for various emergency control measures, and yet did not differ from patients on other neuroleptics in terms of general psychopathology, functioning, or side effects. These trends deserve further controlled drug studies.

References

1. Guirguis EF: Management of disturbed patients: An alternative to the use of mechanical restraints. *J Clin Psychiatry* 39:295-303, 1978
2. Frost M: Violence in psychiatric patients. *Nursing Times*, 68:748-49, 1972
3. Cornfield RB and Fielding SD: Impact of the threatening patient on ward communications. *Am J Psychiatry* 137:616-19, 1980
4. Brailsford DS and Stevenson J: Factors related to violent and unpredictable behavior in psychiatric hospitals. *Nursing Times* Vol. 69 (Suppl), 1973
5. Whitehead JA: Violence in institutions. *Int J Offender Therapy and Comparative Criminology*, 19:87-89, 1975
6. Armstrong B: Handling the violent patient in the hospital. *Hosp and Community Psychiatry* 29:463-67, 1978
7. Levy P and Hartocollis P: Nursing aids and patient violence. *Amer J Psychiatry* 133:429-36, 1976
8. Rosen H and DiGiacomo JN: The role of physical restraint in the treatment of psychiatric illness. *J Clin Psychiatry* 39:228-32, 1978
9. Schwab PJ and Lakmeyer CB: The uses of seclusion on a general hospital psychiatric unit. *J Clin Psychiatry*, 40:228-31, 1979
10. Philips M et al: Continuous observation: who needs it? *Can J Psychiatry* 22:25-28, 1977
11. Lion JR: Conceptual issues in the use of drugs for the treatment of aggression in man. *J Nerv Ment Dis* 160:76-82, 1975
12. Itil TM and Mukhopadhyay S: Pharmacological management of human violence, in *Psychopharmacology of Aggression, Modern Problems in Pharmacopsychiatry*, Vol. 13. Valzelli L, ed. Basel/New York, Karger, 1978, pp. 139-58.
13. Kellner R: Drug treatment of personality disorders and delinquents, in *The Psychopath: A Comprehensive Study of Antisocial Disorders and Behaviors*. Reid WH, ed. New York, Brunner Mazel Publishers, 1978, pp. 301-29
14. Madden DJ and Lion JR: Treating the violent offender, in *Violence: Perspectives on Murder and Aggression*. Kutash SB and Schlesinger LB, ed. San Francisco, Jossey-Boss Publishers, 1978, pp. 404-12
15. Tardiff K and Deane K: The psychological and physical status of chronic psychiatric inpatients. *Comp Psychiatry* 37:164-69, 1980
16. Honigfeld G, Gillis RD and Klett JC: NOSIE-30: A treatment-sensitive ward behavior scale. *Psychol Rep* 19:180-182, 1966
17. American Medical Association Department of Drugs, *AMA Drug Evaluations*, 4th Ed. Chicago, American Medical Association, 1980
18. Taylor M and Abrams R: Manic-depressive illness and paranoid schizophrenia: A phenomenological, family and treatment-response study. *Arch Gen Psychiatry* 31:640-42, 1974
19. Hankoff LD et al: Convulsions complicating ataractic therapy, their incidence and theoretical implications. *NY State J Med* 57:2967-74, 1957

20. Jonas AD: Ictal and Subictal Neurosis, Diagnosis and Treatment, Springfield, IL, Thomas Publisher, 1965
21. Itil TM: Convulsive and anticonvulsive properties of neuropsychopharmaca in Epilepsy, Modern Problems in Pharmacopsychiatry, Vol. 4. Niedermeyer E, ed. Basel/New York, Karger, 1970, pp. 270-305
22. Tardiff K and Sweillam A: Assault, suicide and mental illness. Arch Gen Psychiatry 37:164-69, 1980
23. Itil TM and Wadud A: Treatment of human aggression with major tranquilizers, antidepressants and newer psychotropic drugs. J Nerv Ment Dis 160:83-99, 1975 □