

Nurses in home care and long-term institutional care, the two fastest growing sub-specialties in gerontology, have a high degree of autonomy in implementing the nursing process. In these settings, the physician's role is minimal, and nurses continually and independently assess patient needs, establish and implement care plans, and evaluate interventions. While nurses in any set-

When behavioral, rather than medical problems are the focus of interventions, the nurse's responsibilities for medication-related decisions extends even further. For example, nurses and family members in nursing home and home settings are the caregivers most likely to think about medication interventions when a dependent older person becomes agitated or disruptive or has difficulty sleeping. In non-hospital settings, the physician only occasionally

Behavioral Problems

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Treatment

Extend Nursing Responsibility

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ting are responsible for decisions about the administration of medications, nurses in home and nursing home settings have a greater degree of autonomy in these decisions, because the physicians have very little patient contact. In any setting, nurses are fully responsible for decisions regarding discretionary (PRN), medications; but in nursing home settings this responsibility is heightened by the fact that almost half of the psychotropic and analgesic medications are prescribed on a PRN basis.¹

observes the patient and relies heavily on the judgment of the nurse, who is usually the professional person with the most frequent patient contact. In these situations, the physician's role is often that of an over-the-phone consultant who prescribes a medication at the request of the direct caregivers. Nurses, therefore, must demonstrate the requisite knowledge of the aspects of assessment and interventions that are unique to the care of elderly patients with behavior problems.

Applying the Nursing Process to Behavior Problems

Behavior problems, defined as "patient responses which are considered noxious to staff, other patients, or the patient himself," are common in nursing homes.² Nursing management of behavior problems always includes psychosocial interventions and might also include medication interventions. Wandering, noncompliance, verbal abuse, disruptive behavior, physical abuse, bedtime difficulties, tantrum-like behaviors, and aberrantly low activity level, are specific behaviors identified in the Burgio study that might be managed, at least in part, with medications. This article emphasizes identi-

fication of behavioral problems, assessment of probable causes, and selection of the most appropriate nursing interventions. The nursing process provides the framework for care.

Assessment

Assessment of the older adult with a behavior problem focuses not only on the unwanted behavior, but also on the choice of interventions. Important variables to consider when assessing the patient's condition and choosing interventions include: 1) causative and contributing factors, 2) potential psychosocial interventions, 3) patient characteristics that influence medication effects, and 4) medication characteristics that influence therapeutic and adverse effects. Table 1 lists assessment considerations for these four variables.

One of the difficulties encountered by nurses in long-term care settings is assessment of the demented patient. When this patient becomes agitated, anxious, or restless, he is usually unable to verbally relate the cause of distress. He can feel sick and not know the source of the distress, and he may feel pain and not be able to name it as such. A patient with dementia will often communicate his discomfort non-verbally rather than verbally. For example, a patient may rub his abdomen rather than complain of constipation, or refuse to eat rather than complain of a toothache or denture problem. Nurses become detectives, taking vital signs and looking for signs of pain, infection, or other disorders. If it is possible that a physical illness might be the underlying

TABLE 1
ASSESSMENT OF BEHAVIOR PROBLEMS AND
APPROPRIATE INTERVENTIONS

Causative and Contributing Factors

- Are there any precipitating factors? (eg, Does the patient become agitated after family visits?)
- Is there any pattern to the behaviors? (eg, Is the patient agitated at a certain time every day?)
- Are there environmental factors that contribute to the behavior? (eg, Does the patient throw food only when the dining room is noisy and disruptive?)
- Are there any physiological influences, such as dehydration, inadequate nutrition, metabolic disturbances, or untreated infections that might influence mental functioning and behaviors?
- Are the behavior problems caused by adverse medication effects? (eg, agitation from aminophylline, depression from reserpine)
- Could the patient be experiencing pain?

Psychosocial Interventions

- Are there any psychosocial interventions that have been effective in the past? (eg, If the patient is taken to his room does he usually calm down?)
- Are there psychosocial interventions that are easy to do and would be beneficial to others? (eg, Would quiet music improve the environment?)

Patient Characteristics that Influence Medications

- What is the patient's age, weight, nutritional/hydration status, and general health?
- Does the patient have any disease processes that will affect medication absorption, distribution, metabolism, or excretion? (eg, any disorder that impairs circulatory, renal, or liver functioning)
- Does the patient take any medications that are likely to cause medication-medication interactions?
- Does the patient consume caffeine, alcohol, nicotine, or other substances that are likely to cause medication-chemical interactions?

Medication Characteristics

- How likely is the medication to be influenced by age-related or disease-related conditions?
- How long is the usual half-life of the medication and is it likely to be prolonged because of age-related or disease-related conditions?
- How narrow is the therapeutic-toxic range of the medication?
- How likely is the medication to interact with other medications?
- What are the common adverse effects of the medication and how detrimental will they be for a particular patient? (eg, If postural hypotension is an adverse effect, the patient who is frail and unsteady will be at risk for falls and fractures, but the patient who never ambulates will not be affected.)

cause of untoward behavior, steps are taken to confirm this suspicion, using laboratory evidence and objective assessment data. After all available objective data are collected and examined, the administration of a PRN analgesic might be tried to relieve discomfort if direct treatment modalities are not indicated.

Interventions

After the assessment is made, nursing staff intervene in two ways: they employ psychosocial measures to calm and reassure their patients, and they make a judgment about any additional therapies, including medications, that might be effective. Medication interventions are dependent either on the existence of a PRN order or on the initiation of a new order. Nurses should base their decisions about medication interventions on the following factors: 1) their assessment of the patient's behavior and total environment, 2) the probable cause of the behavior, 3) their judgment about what results are desirable and what actions are necessary to achieve those results, 4) their knowledge about the therapeutic and adverse effects of a particular medication, and 5) their past experiences with the patient and specific interventions.³

Patients who exhibit undesirable behaviors lose energy, self-esteem, and the potential for social relationships. Additionally, they risk injury, inade-

quate nutrition and hydration, and loss of contact with reality. For these reasons, problematic behavior must be treated and prevented if possible. Sleep disorders and pain also cause energy depletion and interfere with optimal function. In nursing homes, these altered states of health frequently lead to the implementation of a PRN order or the initiation of a new medication order.

Implementation

When nurses determine that a patient needs additional therapy for agitation, depression, or insomnia, there are two courses to follow: consult the list of PRN medications and determine if any existing order is suitable for the current problem; or call the physician, describe the symptoms, and perhaps suggest a new therapy. For some medications, a constant blood level is more therapeutic than a PRN schedule. However, PRN doses are useful in ascertaining the initial effectiveness of the medication, as well as establishing the correct maintenance dose. When a patient requires frequent PRN doses, nurses can establish a medication regimen to maintain a constant blood level and to increase the medication effectiveness. In an elderly patient, doses start out small, and can be gradually increased until desired therapeutic effects are achieved. The onset of adverse effects, such as extreme somnolence or incoordination

that interfere with optimum functioning, signals the need to decrease the dose or consider a different medication. As the medication accumulates in the body, because of slower excretion, prolonged metabolism, or competition for receptor sites, it might be necessary to reduce the dose.

Evaluation

In nursing homes, nurses evaluate the effectiveness of medications on a daily basis and periodically review these interventions as members of an interdisciplinary team. A regular review by nurses, pharmacists, primary physicians, and consulting psychiatrists is essential when administering psychotropic medications, sedatives, or analgesics over a period of time. The interdisciplinary team considers factors related to the patient's condition and to the therapeutic as well as adverse effects of the medication. Table 2 summarizes questions that should be reviewed continually by nurses and periodically by the interdisciplinary team.

Specific Behavior Problems

Agitation

Barnes and Raskind describe agitation as "excessive motor activity, often nonpurposeful in nature, and commonly associated with feelings of internal tension, irritability, hostility, and

TABLE 2
EVALUATION OF MEDICATION THERAPIES FOR BEHAVIOR PROBLEMS

Questions about the Therapeutic Effectiveness

- Is the medication effective in managing the behavior for which it was initiated?
- Is the patient more amenable to psychosocial interventions?
- Has the patient's situation improved enough that psychosocial interventions alone might now be effective?

Questions about the Dose

- Is the smallest effective dose being administered?
- If the medication is ordered PRN, is it being administered frequently enough to warrant consideration of regular doses?
- If the medication is being given on a regular dose, might it be decreased to PRN doses to evaluate the ongoing need?

Questions about Adverse Effects

- If the patient's condition has changed since the initiation of the medication, is the change related to adverse medication effects?
- If there have been any changes in the patient's medical condition or medication regimen, do they increase the likelihood of adverse effects of the psychotropic medication?
- Are mental changes occurring as adverse effects and being overlooked because they are superimposed on pre-existing mental dysfunctions?

belligerency.”⁴ Manifestations of extreme agitation are called excess disabilities because they prevent a patient from functioning in a purposeful way.⁵ Any heightened state of psychological discomfort interferes with one’s ability to respond to psychosocial measures such as a calm voice, redirection, and reassuring touch.⁶ Therefore, a degree of psychological comfort must be restored before psychosocial interventions can be effective. When psychological comfort is maintained through regular medication administration, the patient is spared excess disabilities and experiences a higher continual level of function.⁷

A 15-bed dementia unit in a Teaching Nursing Home⁸ follows the principle of providing for the patient’s optimum function by preventing and treating excess disabilities. The nursing philosophy for this dementia unit is to use many psychosocial interventions along with small doses of neuroleptics when medications are determined to be necessary. Medication type and dose is based on each patient’s weight, behavior, diagnosis, and other sched-

uled medications. The lowest effective dose of a psychotropic medication is established by starting with a small dose and gradually increasing it until therapeutic effectiveness is achieved. Table 3 summarizes medication data for patients on the dementia unit of Facility A. It should be noted that the effective doses for these patients are at or below the lower end of the range recommended by pharmaceutical companies.

If adverse effects occur, their seriousness and potential for harm are assessed, and the medication is reduced or changed to another type within the same category. Medications are given on a regular schedule that is individualized according to patient behaviors. After the optimum dose is determined, however, nurses continue to evaluate the medication effects, which can be altered at any point by age-related changes, disease processes, or chemical interactions. The regimen is in concurrence with the latest literature about medicinal support for agitation.^{8,10}

Depression

Manifestations of depression include cognitive impairments; reduced or agi-

tated behavior; feelings of sadness, dejection, hopelessness, self-blame, and unworthiness; and somatic disturbances such as fatigue, anorexia, sleep disturbances, and general malaise. In an aged patient, depression is often misdiagnosed as dementia, especially when cognitive abilities are impaired. Additionally, depression and dementia can exist concurrently in an older individual, complicating both the assessment and the interventions. Especially in the early stages of dementia, a patient might feel he is “losing his mind” and become anxious or depressed because of his awareness of the disease process. The judicious use of antidepressants can be helpful both in determining the degree of depression present, and in alleviating those symptoms that are due to depression. In addition to being used in the diagnosis and treatment of depression-dementia combinations, antidepressants are often used in treating reactive depressions that occur when elders are faced with losses.

As with other behavioral manifestations, medications are used not as a

**TABLE 3
MEDICATION REGIMENS FOR PATIENTS
ON DEMENTIA UNIT (March 1988)**

Pt. Weight (lbs.)	Diagnosis	Medication Regimen (Total/24 hours)
92.25	SDAT*	Mellaril® 10 mg. BID (20 mg.) Xanax® 40 mg. BID (80 mg.)
110	Dementia**	Navane® 2 mg. BID (4 mg.)
86	Dementia	Haldol® .5 mg. BID (1 mg.) Benadryl® 25 mg. once or twice at night (25-50 mg.)
170	SDAT	Haldol® .5 mg. AM, 2 mg. HS (2.5 mg.)
132	SDAT	Haldol® 1 mg. BID (2 mg.)
156	SDAT	Haldol® .5 mg AM, .25 mg. 2 PM (.75 mg.)
142	SDAT	Haldol® 1 mg. 8 PM (1 mg.)
145.5	Dementia	Haldol® .5 mg. TID, 2 mg. HS (3.5 mg.)
98.5	SDAT	Haldol® .5 mg. HS (.5 mg.)
131	Dementia	Haldol® 1 mg. HS (1 mg.)
149	Dementia	Desyrel® 150 mg. HS (150 mg.)
138	Dementia	Haldol® 1 mg. BID (2 mg.)
142	SDAT	Haldol® 3 mg. AM, 2 mg. PM & HS (7 mg.) Phenobarbital 15 mg. TID (45 mg.) (given for seizure disorder, necessitates higher dose of Haldol®)

* SDAT = Senile Dementia of the Alzheimer’s Type
** Dementia = Non-specific chronic dementia
(2 residents not on any medications)

single intervention, but as a mechanism for improving the patient's ability to respond to psychosocial interventions. When depression compromises the functional abilities of an older patient, medications might successfully improve the level of functioning and quality of life. The type, dose, and duration of antidepressant medication are based on an on-going assessment of therapeutic as well as adverse effects, and on the patient's changing responses to non-medication interventions.

Sleep Disorders

"Sundowner's syndrome," a well-known phenomenon with caregivers of patients with dementia, is characterized by increased restlessness and agitation beginning in the late afternoon and early evening. Disruptive behaviors interfere with the sleep of the demented person and anyone else in the immediate environment. In home settings, this causes serious problems for family caregivers, especially when they can

not get enough sleep to fulfill responsibilities to themselves and the dependent person. In nursing home settings, disruptive behavior of one resident can have far-reaching negative effects on other patients, visitors, and staff. Causative factors include inactivity, daytime napping, urinary urgency, adverse medication effects, and a decreased ability to perceive stimuli at night.

One proposed intervention is the establishment of a bedtime routine that "decreases cortical vigilance."¹¹ This intervention is appropriate, however, only if the older person is cortically stimulated during a normal day. When a resident cannot sleep, or has a short attention span, he is not amenable to requests to rest in bed. When restraints are employed, a resident often becomes even more restless as he finds a way to get out of bed, create disturbances, and risk the possibility of falling.

While sleep disorders are often asso-

ciated with dementia, they are also associated with pain, anxiety, depression, apnea syndromes, medical illnesses, restless leg syndrome, adverse medication effects, age-related changes, and caffeine and alcohol consumption. Sleep disturbances that accompany depression include easy arousal and early morning waking. Adverse medication effects that interfere with sleep include restlessness, anxiety, agitation, akathisia, nocturia, vivid dreams, daytime somnolence, and rebound insomnia from hypnotic withdrawal.

Before medication therapy is considered for sleep disorders, the causative factors are carefully assessed and addressed. Initial interventions include measures to treat or eliminate any contributing factors, such as pain, discomfort, and alcohol or caffeine intake. Psychosocial interventions include daytime cognitive stimulation, early evening relaxation, and bedtime back

**TABLE 4
HALF-LIFE OF BENZODIAZEPINES**

Medication	Half-life in average adults (in hours)	Half-life in older adult (in hours)
Chlordiazepoxide (Librium®)	5-20	15-30
Diazepam (Valium®)	20-50	36-98
Flurazepam (Dalmane®)	60-100	120-160
Lorazepam (Ativan®)	10-18	10-18
Oxazepam (Serax®)	3-21	3-21
Temazepam (Restoril®)	8-20	8-20
Triazolam (Halcion®)	2-4	2-4

**TABLE 5
SPECIAL PRECAUTIONS IN PSYCHOTROPIC USE WITH ELDERS**

Medication category	Common adverse effects	Dangerous medication interactions
Benzodiazepines	Drowsiness	Alcohol, central nervous system medications
Tricyclic antidepressants	Central or peripheral anticholinergic effects, postural hypotension, cardiac arrhythmias, drowsiness	Antihypertensives, diuretics, antiarrhythmia medications, neuroleptics
Phenothiazines and butyrophenones	Central or peripheral anticholinergic effects, extrapyramidal syndromes, tardive dyskinesia	Central nervous system medications, anticholinergics



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rubs. Physical interventions include daytime exercise, a regular sleeping schedule, and a quiet environment. When these interventions are not successful, or when dementia interferes with the person's ability to respond to these interventions, medication therapy can be considered.

Hypnotic medications have many characteristics that limit their long-term use, even for younger individuals. Some of these limitations are: 1) tolerance usually develops within several days, necessitating increased doses, 2) adverse effects commonly occur because of central nervous system depression, 3) many hypnotic medications, particularly those that have been in use for many years, tend to have a very long half-life, and 4) some hypnotics, particularly barbiturates, have a very narrow range between therapeutic

and toxic or fatal doses. In an older adult, these effects are potentiated by age-related changes and by pathological processes that are likely to be present. For example, age-related changes that affect medication metabolism can increase a medication's half-life or decrease its clearance rate. If a medication's half-life is increased or its clearance rate is decreased, there will be a greater possibility of adverse effects and the therapeutic effects will be potentiated and prolonged. When a medication, such as flurazepam (Dalmane®), normally has a long half-life, these effects will be particularly detrimental. Current data about normal half-life and age-related half-life prolongations for commonly used benzodiazepines are summarized in Table 4.

In addition to considering the half-life of hypnotics, nurses need to con-

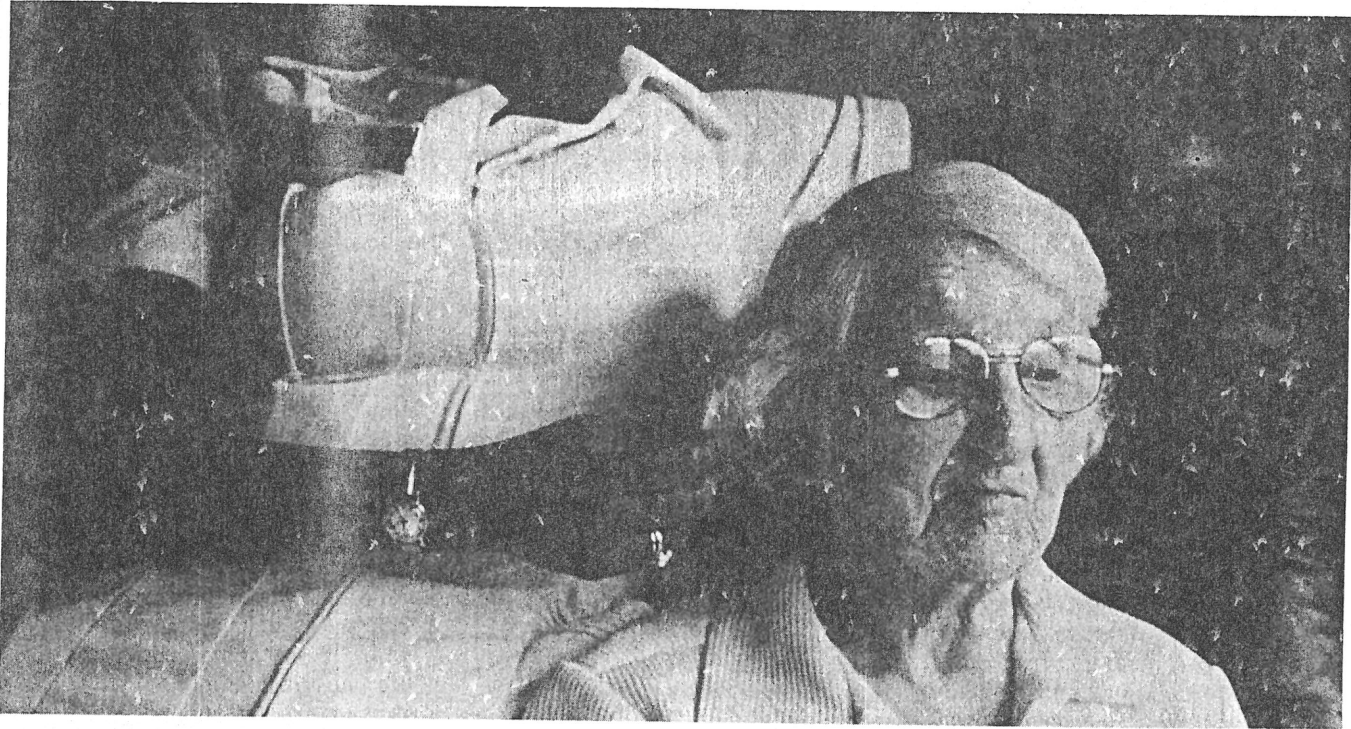
sider adverse effects that create special problems for older patients. For example, because of their action on the central nervous system, hypnotics may cause or contribute to mental changes. Age-related neurochemical changes and increased receptor site sensitivity increase the vulnerability of an older adult to these adverse effects. An already existing dementia will increase the person's vulnerability to further mental changes, and any changes that occur are less likely to be recognized as adverse medication effects. If the patient is taking other medications, especially ones that act on the central or autonomic nervous systems, the likelihood of additional mental changes and other adverse effects is magnified. Table 5 summarizes precautions for psychotropic medication use in older patients.

In Facility A, when a decision is made to use medications as an intervention for sleep disturbances, medications with a short half-life and with the least harmful adverse effects are preferred. Nurses continually assess the effectiveness of the medication and try to eliminate the medication after the patient's sleep/activity schedule is returned to a more normal routine. As the dementing illness progresses, psychotropics are often no longer needed for medicinal support of the patient.

Conclusion

Gerontological nursing practice relies heavily on nurses to prevent and treat the excess disabilities of agitation, depression, and sleep disorders. When the assessment of a patient exhibiting these behaviors is complicated by a dementing illness, nurses intuit a cause of the behavior, take steps to confirm their nursing diagnoses, and intervene accordingly. Sometimes, psychosocial and environmental interventions are supplemented with psychotropic medications that support the patient's optimal function.

When nurses obtain a physician's order for psychotropic medication, many considerations must be made. These are outlined in the tables and discussed more thoroughly in this article. Among the most important considerations are the patient's age, weight,



other medications, and mental and medical status. An interdisciplinary team continually evaluates the patient's status in order to assure that the dose provides optimal therapeutic effects and minimal risk of adverse effects. The nursing process provides the framework for this practice.

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Geropharmacology

KEY POINTS

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1. Assessment of older adults with behavior problems considers factors contributing to the behavior; potential psychosocial interventions; patient characteristics influencing medication action; and medication characteristics influencing therapeutic and adverse effects.
2. Anxiety, agitation, and other behavioral problems in demented patients might arise from their inability to verbally express complaints such as pain and discomfort.

3. Although constant blood levels of medication are most effective for ongoing management of behavior problems, as needed doses can be used to establish the optimal dosing schedule.

4. Medications in low doses can be used to improve the patient's response to psychosocial interventions for behaviors such as anxiety, agitation, depression, and sleep disorders; but they should not be used as the only intervention.