
Family Practice Grand Rounds

Senile Dementia

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DR. DEMETRIOS A. PAPADOPOULOS (*Clinical Assistant Professor, Department of Family Medicine*): In 1978, 22 million people, or 10.9 percent of the United States population, were 65 years of age or older. It is estimated that by the year 2030, 51 million people, or 17 to 20 percent of the population, will make up this age group. Ten percent of persons over 65 years of age and 20 to 30 percent over 80 years of age have clinically important intellectual impairment. In 1980, \$12 billion was spent to care for persons with chronic dementia, and a conservative estimate is that by the year 2030, \$30 billion will be spent yearly.

The family physician must be skillful and knowledgeable in dealing with senile dementia. He or she must be capable of identifying the problem, competent in evaluating and determining the etiology of the problem, and, most important, able to devise a rational and cost-effective treatment program that deals with both the affected patient and members of the family. As our chairman, Dr. Hiram Curry, has aptly stated, "In caring for these persons, the energy requirement for care, the reduced quality of life, and the sorrow of loved ones are all beyond estimation."

Our Grand Rounds will focus on many aspects of senile dementia. We shall begin with a patient presentation and discussion of pathological findings. Next, we shall discuss the differential diag-

nosis and workup of dementia, and finally, we shall discuss the social assessment and family counseling aspects in the treatment of dementia.

Patient Presentation

Mr. O. was a naval shipyard pipefitter who retired in his early fifties with a disability from a chronic back problem. Subsequently, he was divorced from his wife and lived what was described as "an existence isolated from his family." At 63 years of age he was admitted to the hospital for treatment of a vertebral compression fracture as a result of an automobile accident.

During the hospitalization, family members reported that over the previous five years there had been slowly evolving mental changes such as religious preoccupations and nocturnal hallucinations. Mr. O. had been responsible for four recent minor automobile accidents related to reckless driving. On several occasions he had become lost when driving in areas with which he had been familiar most of his life. There was no recent history of excessive alcohol intake. The family history was significant in that two sisters had psychiatric problems and "possible dementia" and an uncle "became senile at an early age."

Mental status examination revealed Mr. O. to be alert and jovial with a shallow affect. His speech rambled, but he was mainly organized and coherent. He could not recall the day or month and insisted it was the year 1991. He could not remember the length of the present hospitalization, nor could he recall the times of the recent automobile accidents. Remote memory was intact. Serial three's were performed well, and serial seven's were performed poorly. A suspicious atti-

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Motrin® Tablets (ibuprofen)

Contraindications: Anaphylactoid reactions have occurred in individuals hypersensitive to Motrin Tablets or with the syndrome of nasal polyps, angioedema and bronchospastic reactivity to aspirin, iodides, or other nonsteroidal anti-inflammatory agents.

Warnings: Peptic ulceration and GI bleeding, sometimes severe, have been reported. Ulceration, perforation and bleeding may end fatally. An association has not been established. Use Motrin Tablets under close supervision in patients with a history of upper gastrointestinal tract disease, after consulting ADVERSE REACTIONS. In patients with active peptic ulcer and active rheumatoid arthritis, try nonulcerogenic drugs, such as gold. If Motrin Tablets are used, observe the patient closely for signs of ulcer perforation or GI bleeding.

Chronic studies in rats and monkeys have shown mild renal toxicity with papillary edema and necrosis. Renal papillary necrosis has rarely been shown in humans treated with Motrin Tablets.

Precautions: Blurred and/or diminished vision, scotomata, and/or changes in color vision have been reported. If these develop, discontinue Motrin Tablets and the patient should have an ophthalmologic examination, including central visual fields and color vision testing.

Fluid retention and edema have been associated with Motrin Tablets; use with caution in patients with a history of cardiac decompensation or hypertension. In patients with renal impairment, reduced dosage may be necessary. Prospective studies of Motrin Tablets safety in patients with chronic renal failure have not been done.

Motrin Tablets can inhibit platelet aggregation and prolong bleeding time. Use with caution in persons with intrinsic coagulation defects and on anticoagulant therapy.

Patients should report signs or symptoms of gastrointestinal ulceration or bleeding, skin rash, weight gain, or edema.

Patients on prolonged corticosteroid therapy should have therapy tapered slowly when Motrin Tablets are added.

The antipyretic, anti-inflammatory activity of Motrin Tablets may mask inflammation and fever.

As with other nonsteroidal anti-inflammatory drugs, borderline elevations of liver tests may occur in up to 15% of patients. These abnormalities may progress, may remain essentially unchanged, or may be transient with continued therapy. Meaningful elevations of SGPT or SGOT (AST) occurred in controlled clinical trials in less than 1% of patients. Severe hepatic reactions, including jaundice and cases of fatal hepatitis, have been reported with ibuprofen as with other nonsteroidal anti-inflammatory drugs. If liver disease develops or if systemic manifestations occur (e.g. eosinophilia, rash, etc.), Motrin should be discontinued.

Drug interactions. Aspirin: used concomitantly may decrease Motrin blood levels.

Coumarin: bleeding has been reported in patients taking Motrin and coumarin.

Pregnancy and nursing mothers: Motrin should not be taken during pregnancy or by nursing mothers.

Adverse Reactions: The most frequent type of adverse reaction occurring with Motrin is gastrointestinal of which one or more occurred in 4% to 16% of the patients.

Incidence Greater than 1% (but less than 3%)—Probable Causal Relationship

Gastrointestinal: Nausea,* epigastric pain,* heartburn,* diarrhea, abdominal distress, nausea and vomiting, indigestion, constipation, abdominal cramps or pain, fullness of GI tract (bloating and flatulence); **Central Nervous System:** Dizziness,* headache, nervousness; **Dermatologic:** Rash* (including maculopapular type), pruritus; **Special Senses:** Tinnitus; **Metabolic/Endocrine:** Decreased appetite; **Cardiovascular:** Edema, fluid retention (generally responds promptly to drug discontinuation; see PRECAUTIONS).

Incidence less than 1%—Probable Causal Relationship**

Gastrointestinal: Gastric or duodenal ulcer with bleeding and/or perforation, gastrointestinal hemorrhage, melena, gastritis, hepatitis, jaundice, abnormal liver function tests; **Central Nervous System:** Depression, insomnia, confusion, emotional lability, somnolence, aseptic meningitis with fever and coma; **Dermatologic:** Vesiculobullous eruptions, urticaria, erythema multiforme, Stevens-Johnson syndrome, alopecia; **Special Senses:** Hearing loss, amblyopia (blurred and/or diminished vision, scotomata, and/or changes in color vision) (see PRECAUTIONS); **Hematologic:** Neutropenia, agranulocytosis, aplastic anemia, hemolytic anemia (sometimes Coombs positive), thrombocytopenia with or without purpura, eosinophilia, decreases in hemoglobin and hematocrit; **Cardiovascular:** Congestive heart failure in patients with marginal cardiac function, elevated blood pressure, palpitations; **Allergic:** Syndrome of abdominal pain, fever, chills, nausea and vomiting; anaphylaxis; bronchospasm (see CONTRAINDICATIONS); **Renal:** Acute renal failure in patients with pre-existing significantly impaired renal function, decreased creatinine clearance, polyuria, azotemia, cystitis, hematuria; **Miscellaneous:** Dry eyes and mouth, gingival ulcer, rhinitis.

Incidence less than 1%—Causal Relationship Unknown**

Gastrointestinal: Pancreatitis; **Central Nervous System:** Paresthesias, hallucinations, dream abnormalities, pseudotumor cerebri; **Dermatologic:** Toxic epidermal necrolysis, photoallergic skin reactions; **Special Senses:** Conjunctivitis, diplopia, optic neuritis; **Hematologic:** Bleeding episodes (e.g., epistaxis, menorrhagia); **Metabolic/Endocrine:** Gynecomastia, hypoglycemic reaction; **Cardiovascular:** Arrhythmias (sinus tachycardia, sinus bradycardia); **Allergic:** Serum sickness, lupus erythematosus syndrome, Henoch-Schönlein vasculitis; **Renal:** Renal papillary necrosis.

*Reactions occurring in 3% to 9% of patients treated with Motrin. (Those reactions occurring in less than 3% of the patients are unmarked.)

**Reactions are classified under "Probable Causal Relationship (PCR)" if there has been one positive rechallenge or if three or more cases occur which might be causally related. Reactions are classified under "Causal Relationship Unknown" if seven or more events have been reported but the criteria for PCR have not been met.

Overdosage: In cases of acute overdosage, the stomach should be emptied. The drug is acidic and excreted in the urine so alkaline diuresis may be beneficial.

Dosage and Administration: Rheumatoid arthritis and osteoarthritis. Suggested dosage is 300, 400, or 600 mg t.i.d. or q.i.d. Do not exceed 2400 mg per day. Mild to moderate pain: 400 mg every 4 to 6 hours as necessary.

Caution: Federal law prohibits dispensing without prescription.

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tude was noted. Laboratory evaluations revealed a normal hemoglobin level, urinalysis, and electroencephalogram. Computerized tomography of the brain was normal except for "fullness of the ventricles." Consulting neurological and psychiatric evaluations revealed the impression of mild dementia, but he was declared competent to care for himself at home. After a reasonable recovery from the compression fracture, he was discharged from the hospital.

Two weeks after discharge, Mr. O. was readmitted to another hospital for diagnosis and treatment of "progressively worsening confusion, agitation, and violent behavior." Mental status examination at that time revealed disorientation to time, severely impaired recent memory, and impaired cognitive function. Agitation, paranoia, and hallucinations were noted. Laboratory evaluations during the admission, including complete blood count, SMA-22, serum B₁₂ and folic acid levels, and thyroid function tests, were normal. He was treated with various psychotropic medications at different times including haloperidol, thioridazine, and loxapine succinate. After a 17-day hospitalization he was transferred to a local nursing home for continued care. The discharge diagnosis was senile dementia with a severe delusional syndrome.

On admission to the nursing home, Mr. O. was pleasant and cooperative. He was oriented to person, city, and year, but he did not know he was in a nursing home or why he was there. Short-term memory was impaired and stream of thought revealed some loose associations. Medications at that time included 90 mg per day of loxapine succinate in divided dosages, 1 mg of benztropine (Cogentin) twice a day, daily multiple vitamin, daily stool softener, and 500 mg of chloral hydrate at bedtime for sleeplessness. Observations by nursing home staff included periodic confusion, frequent drooling, limited social interaction, and occasional need for restraint to prevent wandering.

After 82 days in the nursing home, Mr. O. developed an acutely swollen and tender left leg. Phlebography revealed evidence of deep venous obstruction, and he was admitted to the local hospital for anticoagulant therapy. During this hospitalization he developed acute, bilateral, patchy pneumonia, which responded very slowly to penicillin and tobramycin. His mental status

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VERMOX[®] CHEWABLE TABLETS

(mebendazole)

SENILE DEMENTIA

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declined markedly with this insult, and motor rigidity became significantly pronounced, despite discontinuation of his psychotropic medications.

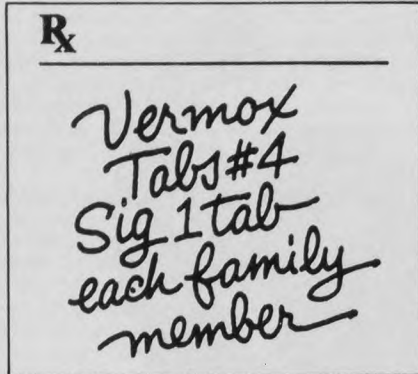
Twenty-six days after admission his pneumonia and mental status improved, but he remained significantly more demented than on admission. Plans were then made for transfer back to the nursing home, but he subsequently sustained a large aspiration pneumonia, which led to a respiratory arrest and ventricular fibrillation. Although he was successfully resuscitated, he remained comatose and responsive only to deep pain. On the 48th hospital day he died from a respiratory arrest without further attempts at resuscitation. An autopsy was performed at the family's request. Dr. Powers will now present the pathological findings of the autopsy.

DR. JAMES POWERS (*Professor, Department of Pathology*): The major findings at autopsy were largely restricted to the central nervous system. In both the gross and the microscopic examination of the brain, we noted the classic changes of Alzheimer's disease. In this disease one finds diffuse atrophy of the cerebral hemispheres, most prominently in the frontal lobes and in the medial portions of the temporal lobes. Microscopically, with silver staining, we recognized the two classical histopathologic changes, senile plaques and neurofibrillary degeneration.

The cause of Alzheimer's disease is still unknown, but possibilities have included aluminum toxicity, a slow viral illness, or an immunologic disorder. Studies during the last ten years have revealed a reduced concentration of the neuronal enzyme choline acetyltransferase. These have raised the treatment possibility of effectively increasing acetylcholine at the synapse, but clinical trials have not been promising. Five to 10 percent of patients with Alzheimer's disease have a positive family history for it.

Differential Diagnosis of Dementia

DR. PAPADOPOULOS: In discussing the differential diagnosis of dementia, it is useful to think in terms of the acute vs chronic nature of the illness. Acute dementias are referred to as acute confusional states or acute organic brain syndromes (Table 1). The characteristic feature is sudden onset, frequently associated with clouding



DESCRIPTION VERMOX (mebendazole) is methyl 5-benzoylbenzimidazole-2-carbamate.

ACTIONS VERMOX exerts its anthelmintic effect by blocking glucose uptake by the susceptible helminths, thereby depleting the energy level until it becomes inadequate for survival. In man, approximately 2% of administered mebendazole is excreted in urine as unchanged drug or a primary metabolite. Following administration of 100 mg of mebendazole twice daily for three consecutive days, plasma levels of mebendazole and its primary metabolite, the 2-amine, never exceeded 0.03 µg/ml and 0.09 µg/ml, respectively.

INDICATIONS VERMOX is indicated for the treatment of *Trichuris trichiura* (whipworm), *Enterobius vermicularis* (pinworm), *Ascaris lumbricoides* (common roundworm), *Ancylostoma duodenale* (common hookworm), *Necator americanus* (American hookworm) in single or mixed infections. Efficacy varies as a function of such factors as pre-existing diarrhea and gastrointestinal transit time, degree of infection and helminth strains. Efficacy rates derived from various studies are shown in the table below:

	Whipworm	Common Roundworm	Hookworm	Pinworm
cure rates				
mean	68%	98%	96%	95%
(range)	(61-75%)	(91-100%)	—	(90-100%)
egg reduction				
mean	93%	99.7%	99.9%	—
(range)	(70-99%)	(99.5%-100%)	—	—

CONTRAINDICATIONS VERMOX is contraindicated in pregnant women (see Pregnancy Precautions) and in persons who have shown hypersensitivity to the drug.

PRECAUTIONS PREGNANCY: VERMOX has shown embryotoxic and teratogenic activity in pregnant rats at single oral doses as low as 10 mg/kg. Since VERMOX may have a risk of producing fetal damage if administered during pregnancy, it is contraindicated in pregnant women.

PEDIATRIC USE: The drug has not been extensively studied in children under two years; therefore, in the treatment of children under two years the relative benefit/risk should be considered.

ADVERSE REACTIONS Transient symptoms of abdominal pain and diarrhea have occurred in cases of massive infection and expulsion of worms.

DOSAGE AND ADMINISTRATION The same dosage schedule applies to children and adults. The tablet may be chewed, swallowed or crushed and mixed with food. For the control of pinworm (enterobiasis), a single tablet is administered orally, one time. For the control of common roundworm (ascariasis), whipworm (trichuriasis), and hookworm infection, one tablet of VERMOX is administered, orally, morning and evening, on three consecutive days. If the patient is not cured three weeks after treatment, a second course of treatment is advised. No special procedures, such as fasting or purging, are required.

HOW SUPPLIED VERMOX is available as chewable tablets, each containing 100 mg of mebendazole, and is supplied in boxes of twelve tablets. VERMOX (mebendazole) is an original product of Janssen Pharmaceutica, Belgium.

US Patent 3,657,267
December 1979

Committed to research...
because so much remains to be done.

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Table 1. Causes of Acute Confusional States¹

Cause	Examples
Infection	Pneumonia Urinary tract Central nervous system Others
Circulatory	Congestive heart failure Dysrhythmia
Psychiatric	Depression Sensory deprivation
Neoplasia	Primary Metastatic
Drugs	Alcohol Psychotropics Cardiac
Vascular accidents	Myocardial infarction Stroke Pulmonary embolus Gangrene
Metabolic	Hypoglycemia, hypothyroidism Hepatic failure Uremia
Trauma	Subdural Concussion Intracerebral hemorrhage
Homeostatic failure	Dehydration Electrolyte disturbance Fecal impaction Postural hypotension
Anemia	B ₁₂ deficiency Folate deficiency Hemorrhage
Collagen-vascular	Giant cell arteritis Periarteritis

Table 2. Causes of Chronic Brain Failure

Alcoholism
Alzheimer's dementia
B ₁₂ or folate deficiency
Cerebral tumor
Depression
Drug toxicity
Giant cell arteritis
Huntington's chorea
Hypercalcemia
Hypoglycemia
Hypothyroidism
Infection
Jakob-Creutzfeldt disease
Malnutrition
Multi-infarct dementia
Normal pressure hydrocephalus
Pick's disease
Trauma

of consciousness, muddled thinking, and perceptual abnormalities. Approximately 25 percent of patients with acute dementias will die, and another 25 percent will go on to have a chronic dementing illness.

The five most common causes of acute confusional states are pneumonia, urinary tract infection, congestive heart failure, neoplasia, and depression. Drugs are a common cause, and one must think of both prescribed and nonprescribed medications. Some examples include major and

minor tranquilizers, hypnotics, digitalis, diuretics, anti-inflammatory agents, oral hypoglycemic agents, and alcohol. Under the vascular accident category, it should be noted that in the elderly a myocardial infarction or stroke may present only as an acute confusional state.

The aging brain is very sensitive to its internal environment. Metabolic problems, such as hypoglycemia and thyroid, liver, or kidney diseases, can cause acute confusional states. Falls are very common in the elderly, and often trauma is not reported to the physician. Intracranial problems from trauma include subdural hematomas, concussions, and intracerebral hemorrhages. Impaired homeostasis commonly occurs with aging and may result in dehydration, electrolyte disturbances, postural hypotension, and fecal impaction from chronic constipation. The classical vitamin deficiency anemias, B₁₂ and folate deficiency, are easily diagnosed and easily treated. Finally, collagen-vascular diseases should also be considered in the differential diagnosis.

Fifty to 60 percent of the chronic dementias fall in the category of senile dementia of the Alzheimer's type (Table 2). Approximately 10 percent are vascular or "multi-infarct" dementias. Unfortunately, only 10 to 20 percent of the dementias are reversible. One can see from the table that many of the disease states that cause chronic brain

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Brief Summary

Enduronyl[®] Methyclothiazide and Deserpidine

Oral thiazide-rauwolfia therapy for hypertension.

Warning: This fixed combination drug is not indicated for initial therapy of hypertension. Hypertension requires therapy titrated to the individual patient. If the fixed combination represents the dosage so determined, its use may be more convenient in patient management. The treatment of hypertension is not static, but must be reevaluated as conditions in each patient warrant.

Indications: ENDURONYL (methyclothiazide and deserpidine) is indicated in the treatment of mild to moderately severe hypertension (see boxed warning). In many cases ENDURONYL alone produces an adequate reduction of blood pressure. In resistant or unusually severe cases ENDURONYL also may be supplemented by more potent antihypertensive agents. When administered with ENDURONYL, more potent agents can be given at reduced dosage to minimize undesirable side effects.

Contraindications: Methyclothiazide is contraindicated in patients with renal decompensation and in those who are hypersensitive to this or other sulfonamide-derived drugs.

Deserpidine is contraindicated in patients with known hypersensitivity, mental depression especially with suicidal tendencies, active peptic ulcer, and ulcerative colitis. It is also contraindicated in patients receiving electroconvulsive therapy.

Warnings: METHYLCLOTHIAZIDE — Methyclothiazide shares with other thiazides the propensity to deplete potassium reserves to an unpredictable degree.

Thiazides should be used with caution in patients with renal disease or significant impairment of renal function, since azotemia may be precipitated and cumulative drug effects may occur.

Thiazides should be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma.

Thiazides may be additive or potentiative of the action of other antihypertensive drugs. Potentiation occurs with ganglionic or peripheral adrenergic blocking drugs.

Sensitivity reactions may occur in patients with a history of allergy or bronchial asthma.

The possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

DESERPIDINE — Extreme caution should be exercised in treating patients with a history of mental depression. Discontinue the drug at the first sign of despondency, early morning insomnia, loss of appetite, impotence, or self-deprecation. Drug-induced depression may persist for several months after drug withdrawal and may be severe enough to result in suicide.

Usage in Pregnancy and Lactation: METHYLCLOTHIAZIDE — Thiazides cross the placental barrier and appear in cord blood. The use of thiazides in pregnant women requires that the anticipated benefit be weighed against possible hazards to the fetus. These hazards include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions that have occurred in the adult.

Thiazides appear in breast milk. If use of the drug is deemed essential, the patient should stop nursing.

DESERPIDINE — The safety of deserpidine for use during pregnancy or lactation has not been established; therefore, it should be used in pregnant women or in women of childbearing potential only when the judgment of the physician its use is deemed essential to the welfare of the patient. Increased respiratory secretions, nasal congestion, cyanosis, and anorexia may occur in infants born to rauwolfia alkaloid-treated mothers, since these preparations are known to cross the placental barrier to enter the fetal circulation and appear in cord blood. They also are secreted by nursing mothers into breast milk.

Reproductive and teratology studies in rats reduced the mating index and neonatal survival indices; the no-effect dosage has not been established.

Precautions: Periodic determinations of serum electrolytes should be performed at appropriate intervals for the purpose of detecting possible electrolyte imbalances such as hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when a patient is vomiting excessively or receiving parenteral fluids. All patients should be observed for other clinical signs of electrolyte imbalances such as dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances such as nausea and vomiting.

Hypokalemia may develop with thiazides as with any other potent diuretic, especially when brisk diuresis occurs, severe cirrhosis is present, or when corticosteroids or ACTH are given concomitantly. Interference with the adequate oral intake of electrolytes will also contribute to the possible development of hypokalemia. Potassium depletion, even of a mild degree, resulting from thiazide use, may sensitize a patient to the effects of cardiac glycosides such as digitalis.

Any chloride deficit is generally mild and usually does not require specific treatment except under extraordinary circumstances (as in liver disease or renal disease). Dilutional hyponatremia may occur in edematous patients in hot weather; appropriate therapy is water restriction rather than administration of salt, except in rare instances when the hyponatremia is life threatening.

In actual salt depletion, appropriate replacement is the therapy of choice.

Hyperuricemia may occur or frank gout may be precipitated in certain patients receiving thiazide therapy.

Insulin requirements in diabetic patients may be increased, decreased, or unchanged. Latent diabetes mellitus may become manifest during thiazide administration.

Thiazides may increase the responsiveness to tubocurarine.

The antihypertensive effects of the drug may be enhanced in the postsympathetic patient.

Thiazides may decrease arterial responsiveness to norepinephrine. This diminution is not sufficient to preclude effectiveness of the pressor agent for therapeutic use.

If progressive renal impairment becomes evident as indicated by a rising nonprotein nitrogen or blood urea nitrogen, a careful reappraisal of therapy is necessary with consideration given to withholding or discontinuing diuretic therapy.

Thiazides may decrease serum PBI levels without signs of thyroid disturbance.

Thiazides have been reported, on rare occasions, to have elevated serum calcium to hypercalcemic levels. The serum calcium levels have returned to normal when the medication has been stopped. This phenomenon may be related to the ability of the thiazide diuretics to lower the amount of calcium excreted in the urine.

Because rauwolfia preparations increase gastrointestinal motility and secretion, this drug should be used cautiously in patients with a history of peptic ulcer, ulcerative colitis, or gallstones, where biliary colic may be precipitated.

Caution should be exercised when treating hypertensive patients with renal insufficiency since they adjust poorly to lowered blood pressure levels.

Use deserpidine cautiously with digitalis and quinidine since cardiac arrhythmias have occurred with rauwolfia preparations.

Preoperative withdrawal of deserpidine does not assure that circulatory instability will not occur. It is important that the anesthesiologist be aware of the patient's drug intake and consider this in the overall management, since hypotension has occurred in patients receiving rauwolfia preparations. Anticholinergic and/or adrenergic drugs (metaraminol, norepinephrine) have been employed to treat adverse vagocirculatory effects.

Adverse Reactions: METHYLCLOTHIAZIDE — **GASTROINTESTINAL SYSTEM REACTIONS:** Anorexia, gastric irritation, nausea, vomiting, cramping, diarrhea, constipation, jaundice (intrahepatic cholestatic jaundice), pancreatitis.

CENTRAL NERVOUS SYSTEM REACTIONS: Dizziness, vertigo, paresthesias, headache, xanthopsia.

HEMATOLOGIC REACTIONS: Leukopenia, agranulocytosis, thrombocytopenia, aplastic anemia.

CARDIOVASCULAR — HYPERSENSITIVITY REACTIONS: Purpura, photosensitivity, rash, urticaria, necrotizing angitis (vasculitis) (cutaneous vasculitis).

CARDIOVASCULAR REACTION: Orthostatic hypotension may occur and may be aggravated by alcohol, barbiturates, or narcotics.

OTHER: Hyperglycemia, glycosuria, hypercalcemia, hyperuricemia, muscle spasm, weakness, restlessness.

There have been isolated reports that certain nonedematous individuals developed severe fluid and electrolyte derangements after only brief exposure to normal doses of thiazide and non-thiazide diuretics. The condition is usually manifested as severe dilutional hyponatremia, hypokalemia, and hypochloremia. It has been reported to be due to inappropriately increased ADH secretion and appears to be idiosyncratic. Potassium replacement is apparently the most important therapy in the treatment of this syndrome along with removal of the offending drug.

Whenever adverse reactions are severe, treatment should be discontinued.

DESERPIDINE — The following adverse reactions have been reported with rauwolfia preparations. These reactions are usually reversible and disappear when the drug is discontinued.

GASTROINTESTINAL: Including hypersecretion, anorexia, diarrhea, nausea, and vomiting.

CARDIOVASCULAR: Including angina-like symptoms, arrhythmias (particularly when used concurrently with digitalis or quinidine), and bradycardia.

CENTRAL NERVOUS SYSTEM: Including drowsiness, depression, nervousness, paradoxical anxiety, nightmares, extrapyramidal tract symptoms, CNS sensitization manifested by dull sensorium, and deafness.

DERMATOLOGIC — HYPERSENSITIVITY: Including pruritus, rash, and asthma in asthmatic patients.

OPHTHALMOLOGIC: Including glaucoma, uveitis, optic atrophy, and conjunctival injection.

HEMATOLOGIC: Thrombocytopenic purpura.

MISCELLANEOUS: Nasal congestion, weight gain, impotence or decreased libido, dysuria, dyspnea, muscular aches, dryness of mouth, dizziness, and headache.

Overdosage: Symptoms of thiazide overdosage include electrolyte imbalance and signs of potassium deficiency such as confusion, dizziness, muscular weakness, and gastrointestinal disturbances. General supportive measures including replacement of fluids and electrolytes may be indicated in treatment of overdosage.

An overdosage of deserpidine is characterized by flushing of the skin, conjunctival injection and pupillary constriction. Sedation ranging from drowsiness to coma may occur. Hypotension, hypothermia, central respiratory depression and bradycardia may develop in cases of severe overdosage. Treatment consists of the careful evacuation of stomach contents followed by the usual procedures for the symptomatic management of CNS depressant overdosage. If severe hypotension occurs it should be treated with a direct acting vasopressor such as norepinephrine bitartrate injection.

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failure can also cause acute confusional states.^{2,3}

DR. POWERS: In the pathologic differential diagnosis for our patient presentation, we should consider Pick's disease, which is a rare neurodegenerative disease. We probably see Pick's disease once for every 100 times we see Alzheimer's disease. In comparison with Alzheimer's disease, a much more extensive atrophy of the gyri and widening of sulci are seen in Pick's disease, reflecting a tremendous amount of neuronal and astrocytic loss in the brain. The nerve cells in Pick's disease also accumulate within their cytoplasm material that is argyrophilic, or silver positive, in staining, but the material is completely different from that seen in Alzheimer's disease.

Another diagnostic possibility in our patient would be Jakob-Creutzfeldt disease. For 40 or more years this disease was considered a "neurodegenerative" disease until pioneering studies from the National Institutes of Health showed that it was transmissible. Brain tissue from an affected patient can be implanted into monkeys, and within a certain period of time, similar clinical and identical histopathologic findings can be induced in the animals. In this disease the cortical grey matter does sometimes show a thinning, but not so much of a loss compared with Alzheimer's or Pick's disease. The most noteworthy pathologic feature of the Jakob-Creutzfeldt disease patient is spongiform degeneration of neurons and astrocytes, which is felt to be dilatation of the cellular processes at the ultrastructural level. A certain degree of spongiform degeneration was noted in the patient presented today, and specimens of his brain have been sent to the National Institutes of Health laboratory for inoculation into laboratory animals.

In multi-infarct dementia, clinically one should have historical and neurologic findings consistent with the name implies. Pathologically one notes subcortical degeneration of the white matter, which may manifest as patchy areas of myelin loss or may actually progress to evidence of frank infarction. Arteriosclerosis and arteriolosclerosis are also noted.

In the patient with normal-pressure hydrocephalus, there is marked dilatation of all ventricles with normal or nearly normal pressure of the cerebrospinal fluid. The problem is felt to be in the subarachnoid space where the cerebrospinal fluid is absorbed at the pacchionian granulations. There

seems to be an inability to absorb a sufficient amount of fluid; therefore, large accumulations are found within the ventricles or in the subarachnoid space. A surgical shunting procedure may reverse the clinical findings of dementia, ataxia, and incontinence.

Workup of Dementia

DR. PAPADOPOULOS: The diagnosis and cause of dementia are obtained from a complete history, the physical examination, and appropriate laboratory investigations. Because of the nature of the disease, the history is often not available from the patient and is usually obtained, therefore, from family members or friends and past medical records. One should differentiate an acute process from that which is chronic or of insidious onset. Alcohol and other drug information should be noted. History of trauma, previous psychiatric disease, pertinent medical problems, and a complete review of systems are also very important. The findings should be well documented on the medical record to compare with future changes.

The laboratory workup of dementia must be thorough. Routine laboratory tests should include a complete blood count; blood urea nitrogen; serum electrolytes, including calcium and phosphorus; and blood glucose. Liver function tests, chest x-ray examination, and electrocardiogram should also be routine. Specific tests that may pinpoint the cause include the folate level, vitamin B₁₂ level, thyroid function tests, serologic tests for syphilis, serum drug levels, and screening for toxins. Finally, the physician is always faced with whether computerized tomography of the brain, an electroencephalogram, or a lumbar puncture should be performed. Many physicians believe that these should be done early in the workup of all persons with dementia. Others, however, prefer the simpler and less costly laboratory tests to establish the cause first. Certainly computerized tomography of the brain is very useful in pinpointing focal intracranial neurologic disease, but it should be noted that it is not useful in confirming the diagnosis of Alzheimer's disease.⁴

Social Assessment

DR. VINCENT BUCHINSKY (*Third-year resident in family practice*): It is very important for

the primary physician to undertake a social assessment of the patient with senile dementia. The first area to be assessed is the home environment. We need to determine whether the patient is able to ambulate well at home. For example, stairs may prevent patients from getting about, and small hallways or door openings may interfere with the use of a wheelchair. The toilet and bath facilities should be accessible and should have support bars for those who are unsteady. Adequate cooking facilities and good lighting are necessary. Furthermore, it should be determined whether there are accident hazards present in the home, such as loose rugs or open flames.

The assessment of domestic arrangements should include information about who does the cleaning, cooking, and shopping. The transportation assessment should determine whether the patient is able to drive or use public transportation. Assessment in self-care includes determining the abilities to feed, dress, and groom oneself without aid. Problems with bowel or bladder function are very common and should be carefully evaluated. The financial status assessment involves determining the sources and amount of income, as well as monthly bills and the degree of indebtedness. Most patients with senile dementia qualify for Medicare, and many qualify for Medicaid and other financial or medical assistance programs available in the community.

The final aspect of social assessment concerns the family, which includes three areas of consideration. First, one should identify the significant family members and where they live and determine who has primary responsibility for the patient. Second, family patterns of relating and coping should be assessed by observing interactions among various family members and determining how they are dealing with current problems. Finally, one should have knowledge of the family resources, including an understanding of how much time family members are willing to make available for the patient, how much financial support is available, and how much emotional support can be offered.

Counseling

It is ultimately desirable to maintain these patients in familiar surroundings, preferably in their

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Before prescribing, please consult complete product information, a summary of which follows:

Indications: Relief of moderate to severe depression associated with moderate to severe anxiety

Contraindications: Known hypersensitivity to benzodiazepines or tricyclic antidepressants. Do not use with monoamine oxidase (MAO) inhibitors or within 14 days following discontinuation of MAO inhibitors since hyperpyretic crises, severe convulsions and deaths have occurred with concomitant use, then initiate cautiously, gradually increasing dosage until optimal response is achieved. Contraindicated during acute recovery phase following myocardial infarction.

Warnings: Use with great care in patients with history of urinary retention or angle-closure glaucoma. Severe constipation may occur in patients taking tricyclic antidepressants and anticholinergic-type drugs. Closely supervise cardiovascular patients (Arrhythmias, sinus tachycardia and prolongation of conduction time reported with use of tricyclic antidepressants, especially high doses. Myocardial infarction and stroke reported with use of this class of drugs.) Caution patients about possible combined effects with alcohol and other CNS depressants and against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving).

Usage in Pregnancy: Use of minor tranquilizers during the first trimester should almost always be avoided because of increased risk of congenital malformations as suggested in several studies. Consider possibility of pregnancy when instituting therapy; advise patients to discuss therapy if they intend to or do become pregnant.

Since physical and psychological dependence to chlordiazepoxide have been reported rarely, use caution in administering Limbitrol to addiction-prone individuals or those who might increase dosage, withdrawal symptoms following discontinuation of either component alone have been reported (nausea, headache and malaise for amitriptyline; symptoms [including convulsions] similar to those of barbiturate withdrawal for chlordiazepoxide).

Precautions: Use with caution in patients with a history of seizures, in hyperthyroid patients or those on thyroid medication, and in patients with impaired renal or hepatic function. Because of the possibility of suicide in depressed patients, do not permit easy access to large quantities in these patients. Periodic liver function tests and blood counts are recommended during prolonged treatment. Amitriptyline component may block action of guanethidine or similar antihypertensives. Concomitant use with other psychotropic drugs has not been evaluated; sedative effects may be additive. Discontinue several days before surgery. Limit concomitant administration of ECT to essential treatment. See Warnings for precautions about pregnancy. Limbitrol should not be taken during the nursing period. Not recommended in children under 12. In the elderly and debilitated, limit to smallest effective dosage to preclude ataxia, oversedation, confusion or anticholinergic effects.

Adverse Reactions: Most frequently reported are those associated with either component alone: drowsiness, dry mouth, constipation, blurred vision, dizziness and bloating. Less frequently occurring reactions include vivid dreams, impotence, tremor, confusion and nasal congestion. Many depressive symptoms including anorexia, fatigue, weakness, restlessness and lethargy have been reported as side effects of both Limbitrol and amitriptyline. Granulocytopenia, jaundice and hepatic dysfunction have been observed rarely.

The following list includes adverse reactions not reported with Limbitrol but requiring consideration because they have been reported with one or both components or closely related drugs:

Cardiovascular: Hypotension, hypertension, tachycardia, palpitations, myocardial infarction, arrhythmias, heart block, stroke

Psychiatric: Euphoria, apprehension, poor concentration, delusions, hallucinations, hypomania and increased or decreased libido

Neurologic: Incoordination, ataxia, numbness, tingling and paresthesias of the extremities, extrapyramidal symptoms, syncope, changes in EEG patterns

Anticholinergic: Disturbance of accommodation, paralytic ileus, urinary retention, dilatation of urinary tract

Allergic: Skin rash, urticaria, photosensitization, edema of face and tongue, pruritus

Hematologic: Bone marrow depression including agranulocytosis, eosinophilia, purpura, thrombocytopenia

Gastrointestinal: Nausea, epigastric distress, vomiting, anorexia, stomatitis, peculiar taste, diarrhea, black tongue

Endocrine: Testicular swelling and gynecomastia in the male, breast enlargement, galactorrhea and minor menstrual irregularities in the female and elevation and lowering of blood sugar levels

Other: Headache, weight gain or loss, increased perspiration, urinary frequency, mydriasis, jaundice, alopecia, parotid swelling

Overdosage: Immediately hospitalize patient suspected of having taken an overdose. Treatment is symptomatic and supportive. IV administration of 1 to 3 mg physostigmine salicylate has been reported to reverse the symptoms of amitriptyline poisoning. See complete product information for manifestation and treatment.

Dosage: Individualize according to symptom severity and patient response. Reduce to smallest effective dosage when satisfactory response is obtained. Larger portion of daily dose may be taken at bedtime. Single *h.s.* dose may suffice for some patients. Lower dosages are recommended for the elderly.

Limbitrol 10-25, initial dosage of three to four tablets daily in divided doses, increased up to six tablets or decreased to two tablets daily as required. Limbitrol 5-12.5, initial dosage of three to four tablets daily in divided doses, for patients who do not tolerate higher doses.

How Supplied: White, film-coated tablets, each containing 10 mg chlordiazepoxide and 25 mg amitriptyline (as the hydrochloride salt) and blue, film-coated tablets, each containing 5 mg chlordiazepoxide and 12.5 mg amitriptyline (as the hydrochloride salt)—bottles of 100 and 500, Tel-E-Dose® packages of 100, Prescription Paks of 50

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own homes, for as long as possible. As the patient develops progressive deterioration of memory, intellect, and self-care, he or she will increasingly need the supportive care of relatives and other care providers. The physician can play an important role as counselor.^{5,6}

Information Giving

Physicians need to provide information to relatives about the progressive nature of Alzheimer's disease as well as the character changes, intellectual limitations, and behavioral problems caused by it. The response of family members can range from expecting too much to being overly protective of the patient. For example, the caregiver may expect the affected person to perform functions that he is no longer capable of doing, such as paying the bills. The opposite problem occurs when relatives wrongly assume that the patient's functioning must be restricted in all areas because he is no longer competent in a few areas.

Relatives can find it difficult to relate such character changes as emotional instability, impulsiveness, irritability, and lack of initiative to the disease process. Also, caretakers with inadequate information about the effects of the disease on intellectual function can become angry and hostile when the patient is seen as consciously choosing to have his symptoms. For example, they may angrily insist that the patient could remember better if he tried harder, or that she could stop asking the same question if she wanted to.

Behavior Management

The second area of counseling involves helping family members deal with disturbing types of behavior. Examples include potentially harmful behavior to self or others, poor self-care, restlessness, paranoid reactions, and sleep disturbances. Reactions of family members vary from feeling personally responsible for and inappropriately guilty about the behavioral problems to experiencing anger, resentment, and frustration.

Caregivers will often express concern about potentially dangerous behavior. Activities such as driving a car or wandering off will in fact need to be limited if the patient is at risk to himself and others. Unnecessary restriction of the individual,



however, will increase dependence and take away areas of competent functioning. Thus, it is wise to encourage the family to tolerate, when possible, harmless incompetencies or inefficiencies such as somewhat sloppy dressing or poor housekeeping.

Unfortunately, the presence of paranoid delusions is relatively common in patients with Alzheimer's disease. Patients can be quarrelsome with and suspicious of their relatives, and may complain of being mistreated. Because it is often futile to reason or argue with these patients, the family needs to be counseled to respond to what the patient may be feeling when the accusation is made. For example, instead of explaining that an object had not been stolen, but only misplaced, the family could respond by saying that it must be confusing or distressing to have had the belonging disappear. Often, it is necessary to use major tranquilizers such as haloperidol or thioridazine in the management of paranoid reactions.

Improving Functioning

The third area of physician counseling deals with improving the functioning and abilities of the demented patient. Simple organizational strategies such as keeping a calendar of appointments and activities or using notepads to write down reminders can sometimes help compensate for memory loss. Because these patients often do not cope well with unfamiliar surroundings, it is advisable to avoid unnecessary moves. Safe and effective functioning in the home can be enhanced by good lighting, support bars in the bathroom, the lack of stairs or narrow doors for the wheelchair bound, and elimination of accident hazards. Also, it is necessary to deal with specific problems such as urinary incontinence, for which a bedside commode and adult diapers can be useful.

Families can be counseled about making the most of the abilities of and interactions with relatives with Alzheimer's disease. Because the behavior of these patients can fluctuate from day to day, the family can be advised to take advantage of good periods of functioning to engage in activities with them. Also, because some areas of functioning, but not others, are affected, the family can be encouraged to make a list of mutually pleasant or satisfying activities in which the patient is able to participate.

The functioning of patients with Alzheimer's disease can be aided by enhancing sensory input. Sensory deprivation secondary to poor vision or partial deafness is common, can aggravate existing confusion and disorientation, and can result in paranoia, delusions, and hallucinations. Appropriate eyeglasses and hearing aids, if necessary, should be provided to these patients. Light should be bright for daytime functioning, and a light in the patient's room should be left on at night. It is also helpful to look directly at a partially deaf person and speak clearly and slowly in a moderately loud voice.

Community Resources

The fourth area of physician counseling involves the effective use of community resources. With such help it is often possible to maintain the impaired individual in the home and thus prevent institutionalization. Although the patient with senile dementia will often receive help from friends or relatives, the burden of providing care may eventually become too great for these caregivers to manage alone. The physician can help by determining the patient's needs and then assist in finding appropriate community services.

A wide variety of community resources can provide needed services to the impaired elderly person. Home health agencies provide such services as skilled nursing care, physical therapy, and medical supplies. Home-delivered meal programs can play an important role in helping maintain good nutrition. Transportation services can allow the individual to do his or her shopping or keep medical appointments. Day-care centers can be valuable when the relative with whom the patient lives works during the day but is still able to provide care at night and on weekends. Homemaker services can provide help in housework, shopping, meal preparation, and personal care.

Counseling of Relatives

The fifth area in which the physician can play a significant role is in counseling the families of patients. Families are often severely stressed by the demands of caring for their demented relatives at home and may report feelings of depression, isola-

tion, and hostility. The great amount of time required for this care curtails their own independent activities and social contacts and further stresses those who already have major responsibilities to their family or job. Also, caregivers are often further isolated socially because of embarrassment about the patient's labile behavior and because of fear that if they should leave home, the patient may wander or become injured. Another source of stress and conflict results from changes in family dynamics such as role reversals and reactivation of unresolved parent-child conflicts.

In addition to empathic counseling, the physician can aid these stressed caretakers by encouraging some form of intermittent respite. Arranging for a friend or homemaker to stay with the patient for even a half-day a week can be very beneficial for the homemaker who is then freed to leave the house. There may be times when an intermittent temporary admission to a nursing home or hospital is warranted. Providing respite to caretakers allows them to maintain social contacts and personal activities. Thus, institutionalization may often be prevented or delayed because they are then able to better handle the burden of caring for the patient at home.

A valuable means by which families of patients with Alzheimer's disease can obtain support and information is through their involvement in support groups with other caregivers.⁷ In these groups, members develop a better understanding of the disease and thus develop more appropriate expectations and fewer feelings of guilt, anger, and frustration. Through their participation, group members are able to share difficult feelings such as hostility and depression, and are then provided with a sense of support and acceptance by others who experience similar feelings. The group also functions as a practical reservoir of personal experiences and knowledge to help members deal with the diverse behavioral, self-care, social, and financial problems with which they are faced. For many members, the group serves as a social outlet to alleviate some of their isolation and loneliness and to encourage more attention to their own personal needs and interests.

Medical Management

The final area I would like to discuss briefly is

the role of the physician in enhancing the physical health and functioning of demented patients by treatment of physical disorders and by rational use of medications. The functioning of patients can be impaired by many physical disorders, ranging from congestive heart failure to urinary tract infections. The aggressive treatment of both chronic diseases and acute illnesses, therefore, can result in marked improvement of the patient's mental status. Because the elderly have an increased pharmacodynamic sensitivity to a wide variety of medications, it is important to review the patient's current medications and to monitor carefully the effects of any new medications that are introduced. This monitoring is particularly important for the tranquilizers and hypnotics that are sometimes necessary to help control the behavioral problems of restlessness, aggressive or paranoid behavior, and sleep disturbances.

Both vasodilators and drugs that improve cerebral metabolism have been used in the treatment of senile dementia. Despite more than 100 clinical trials of cerebral vasodilators in the treatment of dementias of old age over the past 25 years, there is no clearly proven effectiveness of this class of drugs. In another group of drugs being investigated are those that improve cerebral metabolism, of which ergoloid mesylate (Hydergine), a mixture of three ergot derivatives, is the most extensively studied. This drug and other similar drugs are said to improve neuronal cell metabolism and oxygen uptake. Although some of the double-blind control studies of Hydergine have shown variable improvement of some indices of mental function, significant defects in the design of many of these studies prevent us from drawing any firm conclusions. Most authors do not recommend using this medication routinely. However, a two-month therapeutic trial may be warranted in those patients with early dementia in whom small changes in cerebral metabolism may possibly result in significant functional improvement.

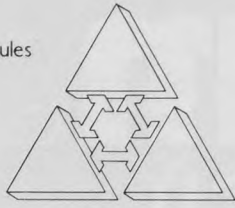
FAMILY PRACTICE RESIDENT: Many of these elderly people totally give up—they quit eating, and the family will demand that something be done for the patient. Do you ever use megadoses of vitamin B₁₂ to stimulate the appetite, and, if so, do you get any response?

DR. PAPADOPOULOS: I personally do not use vitamin B₁₂ shots, unless the vitamin defi-

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Imodium[®] Capsules

(loperamide HCl)



In diarrhea: Fast direct action Relieves cramping Reduces stool frequency

BRIEF SUMMARY

Before prescribing, please consult complete prescribing information, a summary of which follows:

INDICATIONS

IMODIUM is indicated for the control and symptomatic relief of acute nonspecific diarrhea and of chronic diarrhea associated with inflammatory bowel disease. IMODIUM is also indicated for reducing the volume of discharge from ileostomies.

CONTRAINDICATIONS

IMODIUM is contraindicated in patients with known hypersensitivity to the drug and in those in whom constipation must be avoided.

WARNINGS

Antiperistaltic agents should not be used in acute diarrhea associated with organisms that penetrate the intestinal mucosa, e.g., enteroinvasive *E. coli*, *Salmonella*, *Shigella*, and in pseudomembranous colitis associated with broad-spectrum antibiotics.

Fluid and electrolyte depletion may occur in patients who have diarrhea. The use of IMODIUM does not preclude the administration of appropriate fluid and electrolyte therapy. In some patients with acute ulcerative colitis, agents which inhibit intestinal motility or delay intestinal transit time have been reported to induce toxic megacolon. IMODIUM therapy should be discontinued promptly if abdominal distention occurs or if other untoward symptoms develop in patients with acute ulcerative colitis.

PRECAUTIONS

In acute diarrhea, if clinical improvement is not observed in 48 hours, the administration of IMODIUM should be discontinued.

Abuse and Dependence: Physical dependence to IMODIUM in humans has not been observed. However, studies in monkeys demonstrated that loperamide hydrochloride at high doses produced symptoms of physical dependence of the morphine type.

Carcinogenesis: In an 18-month rat study with doses up to 133 times the maximum human dose (on a mg/kg basis) there was no evidence of carcinogenesis.

Pregnancy: Safe use of IMODIUM during pregnancy has not been established. Reproduction studies performed in rats and rabbits with dosage levels up to 30 times the human therapeutic dose did not demonstrate evidence of impaired fertility or harm to the offspring due to IMODIUM. Higher doses impaired maternal and neonate survival, but no dose level up to 30 times the human dose demonstrated teratogenicity. Such experience cannot exclude the possibility of damage to the fetus. IMODIUM should be used in pregnant women only when clearly needed.

Nursing Mothers: It is not known whether IMODIUM is excreted in human milk. As a general rule, nursing should not be undertaken while a patient is on a drug since many drugs are excreted in human milk.

Pediatric Use: Safety and effectiveness in children have not been established. Therefore, use of IMODIUM is not recommended in the pediatric age group (under the age of 12). In case of accidental ingestion of IMODIUM by children, see Overdosage Section for suggested treatment.

ADVERSE REACTIONS

The adverse effects reported during clinical investigations of IMODIUM are difficult to distinguish from symptoms associated with the diarrheal syndrome. Adverse experiences recorded during clinical studies with IMODIUM were generally of a minor and self-limiting nature. They were more commonly observed during the treatment of chronic diarrhea.

The following patient complaints have been reported: Abdominal pain, distention or discomfort; Constipation; Drowsiness or dizziness; Dry mouth; Nausea and vomiting; Tiredness.

Hypersensitivity reactions (including skin rash), however, have been reported with IMODIUM use.

OVERDOSAGE

Animal pharmacological and toxicological data indicate that overdosage in man may result in constipation, CNS depression, and gastrointestinal irritation. Clinical trials have demonstrated that a slurry of activated charcoal administered promptly after ingestion of loperamide hydrochloride can reduce the amount of drug which is absorbed into the systemic circulation by as much as ninefold. If vomiting occurs spontaneously upon ingestion, a slurry of 100 gms of activated charcoal should be administered orally as soon as fluids can be retained.

If vomiting has not occurred, gastric lavage should be performed followed by administration of 100 gms of the activated charcoal slurry through the gastric tube. In the event of overdosage, patients should be monitored for signs of CNS depression for at least 24 hours. If CNS depression is observed, naloxone may be administered. If responsive to naloxone, vital signs must be monitored carefully for recurrence of symptoms of drug overdose for at least 24 hours after the last dose of naloxone.

In view of the prolonged action of loperamide and the short duration (one to three hours) of naloxone, the patient must be monitored closely and treated repeatedly with naloxone as indicated. Based on the fact that relatively little drug is excreted in urine, forced diuresis is not expected to be effective for IMODIUM overdosage.

In clinical trials an adult who took three 20 mg doses within a 24-hour period was nauseated after the second dose and vomited after the third dose. In studies designed to examine the potential for side effects, intentional ingestion of up to 60 mg of loperamide hydrochloride in a single dose to healthy subjects resulted in no significant adverse effects.

HOW SUPPLIED

IMODIUM is available as 2 mg capsules of loperamide hydrochloride. The capsules have a light green body and a dark green cap, with "JANSSEN" imprinted on one segment and "IMODIUM" on the other segment. IMODIUM capsules are supplied in bottles of 100 and 500 and in blister packs of 10 x 10 capsules.

IMODIUM (loperamide hydrochloride) is an original product of Janssen Pharmaceutica, Belgium and is manufactured by Ortho Pharmaceutical Corporation, Raritan, New Jersey, December 1982. U.S. Patent 3,714,159.

world leader in anti-diarrheal research



JANSSEN
PHARMAEUTICA

Piscataway, New Jersey 08854

SENILE DEMENTIA

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ciency is present. I have not seen any evidence in the literature that vitamin B₁₂ works any better than a placebo in the setting that you are referring to.⁸ For me the issue of using Hydergine is the more common difficulty. I attempt to explain to the family that there is some literature that shows improvement with the drug.⁹ I inform them of the high cost of the medication, and I then let them decide whether it will be used. Personally, I have not had much success using it. Has anyone in the audience had success with Hydergine?

FAMILY PHYSICIAN: I've tried Hydergine with geriatric patients in the nursing home, and I was disappointed with it. The family, again, was pressuring me to do something for the patient. If they did not object, I gave the patient small doses of wine. These patients became more active and happier. I have found it was a lot better than Hydergine.

FAMILY PRACTICE RESIDENT: What are the side effects of drugs like thioridazine (Mellaril) and haloperidol (Haldol)?

DR. PAPADOPOULOS: Although the toxicity of antipsychotic drugs is believed to be low, there are many neuropsychological adverse reactions that can occur, including sedation, paradoxical excitement, seizures, withdrawal reactions, dysphoric reactions, extrapyramidal effects, and tardive dyskinesia. Most of these, except tardive dyskinesia, can be controlled by reducing the dosage. It is important to emphasize that elderly patients require lower dosages than younger persons for a given desired therapeutic effect.¹⁰

References

1. Cape R: Aging: Its Complex Management. New York, Harper & Row, 1978
2. Task Force of the National Institute on Aging: Senility reconsidered: Treatment possibilities for mental impairment in the elderly. JAMA 244: 259, 1980
3. Wells CE: Diagnosis of dementia. Psychosomatics 20:517, 1979
4. Ford CV: Winter J: Computerized axial tomograms and dementia in elderly patients. J Gerontol 36:164, 1981
5. Zarit SH: The organic brain syndromes and family relationships. In Ragan PK (ed): Aging Parents. Los Angeles, University of Southern California Press, 1979
6. Kennie DC, Moore JT: Management of senile dementia. Am Fam Physician 22:105, 1980
7. Barnes RF, Saskind MA, Scott M, Murphy C: Problems of families caring for Alzheimer patients: Use of a support group. J Am Geriatr Soc 29:80, 1981
8. McCurdy PR: B₁₂ shots. JAMA 229:703, 1974
9. Gaitz CM, Varner RV, Overall JE: Pharmacotherapy for organic brain syndrome in late life. Arch Gen Psychiatry 34:839, 1977
10. Inoue F: Adverse reactions of antipsychotic drugs. Drug Intell Clin Pharm 13:198, 1979