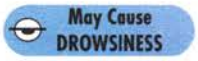


should report bleeding, bruising, jaundice, abdominal pain, pale stools, mental disturbances, fever, chills, sore throat, or mouth ulcers. The drug may also cause drowsiness. Like all the other anticonvulsants, carbamazepine has many interactions with other drugs; these are listed in Table 8.6.

Carbamazepine's side effects can be serious, the most serious being aplastic anemia, but this is rare. A rash may occur, but it does not necessarily mean the drug must be discontinued. The drug should be taken with food to offset GI disturbances. The most serious adverse reaction is fatal hepatotoxicity (toxins destroying the liver). The patient should receive hepatic and hematologic tests for the first six months.

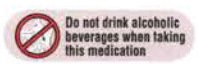
Warning

Neurontin and Noroxin could be differentiated by dose. Neurontin is usually 100 mg and Noroxin is 400 mg.

Gabapentin (Neurontin) is used as adjunctive therapy (drugs added to existing therapy) for drug-refractory (not responsive to treatment) partial and generalized seizures, secondary to the initial seizure in adults with epilepsy. It is not effective for absence seizures, however. Gabapentin was designed to mimic the neurotransmitter GABA, but studies have shown that it must have another mechanism of action. Unlike other anticonvulsant drugs, it does not modify plasma concentrations of standard anticonvulsant medication. Side effects are somnolence (sleepiness or unnatural drowsiness), dizziness, ataxia, fatigue, nystagmus (involuntary, rapid movement of the eyeball), tremors, and double vision. There are no reported significant drug interactions. Renal function should be monitored. Gabapentin is a well-accepted treatment option for patients with neuropathic pain. Other uses not as well documented include bipolar disorder, migraine prevention, hot flashes, multiple sclerosis, attention deficit, and alcohol withdrawal. Because it is generally well tolerated and easy to use, it is a very popular drug.

Gabapentin is being prescribed for neuropathic pain, a stinging and burning pain resulting from nerve damage, such as the type of pain seen in patients with diabetic neuropathy or post-herpetic neuralgia. This pain is treated first with tricyclic antidepressants. If that does not work, the next step is anticonvulsants. Gabapentin seems to work well for some patients, even those with severe and refractory pain. It is also less sedating than the other agents.

The only indication for **clonazepam (Klonopin)**, a C-IV benzodiazepine, is prophylaxis of seizures. It suppresses the spike-and-wave discharge in absence seizures by depressing nerve transmission in the motor cortex. The patient should be told to avoid alcohol and other CNS depressants and not to discontinue the drug abruptly. Physical or psychological dependence may result from its use.



Warning

Lamictal, Lamisil, and Lomotil could be easily mistaken for each other.

Lamotrigine (Lamictal) provides add-on therapy for adults with partial seizures, with or without generalized secondary seizures. The drug works by blocking sodium channels, thereby stabilizing neuronal membranes. Lamotrigine does not affect serum concentrations of phenobarbital, phenytoin, or primidone, but it may affect the pharmacokinetics or pharmacodynamics of carbamazepine and valproic acid. The drug has a boxed warning about fatal rashes in the FDA-approved product information. The pharmacist should tell patients to call the physician immediately if a rash appears, but should not tell them to discontinue the drug.

Warning

Boxed warnings are special warnings about a drug highlighted in a box in the FDA-approved product information. A black boxed warning is the most serious.

Table 8.6 **Carbamazepine Interactions**

benzodiazepines	ethosuximide	thyroid preparations
cimetidine	isoniazid	tricyclic antidepressants
corticosteroids	MAOIs	valproic acid
cyclosporine	oral contraceptives	verapamil
diltiazem	phenytoin	warfarin
doxycycline	propoxyphene	
erythromycin	theophylline	

Cyclophosphamide (Cytoxan), an alkylating agent, prevents cell division by cross-linking deoxyribonucleic acid (DNA) strands. Guidelines for preparing and disposing of chemotherapeutic agents should be followed. Administration with cold foods, such as ice cream, should improve the oral dose. Fluids should be taken liberally (3 liters per day). Cystitis is a frequently occurring side effect, even months after therapy has been discontinued. Other urinary tract effects may include urinary bladder fibrosis, hematuria, and renal tubular necrosis. Uric acid, CBCs, and renal and hepatic functions should be monitored. Alopecia (hair loss) is a side effect, as are nausea, vomiting, and bone marrow depression.

Attention-Deficit Hyperactivity Disorder (ADHD) and Attention-Deficit Disorder (ADD)

Attention-deficit hyperactivity disorder (ADHD) is assessed by three characteristics: hyperactivity, impulsivity, and distractibility. ADHD is characterized by purposeless, chronic, pervasive, driven behavior that blocks a child from participating in social, emotional, and academic learning. **Attention-deficit disorder (ADD)** has less hyperactivity than ADHD. The ADD child is more lethargic and more easily distracted than a child without this disorder. ADHD and ADD are more common in boys than girls. Although ADHD is thought of as a disease of childhood, some symptoms can persist into adult life. Several drugs are used primarily for this disorder, and they are listed in Table 8.9.

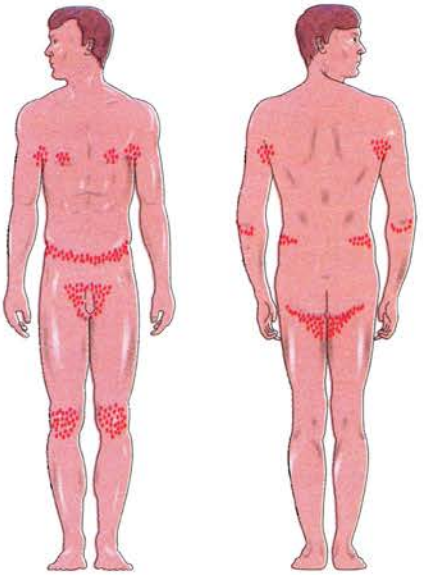
Methylphenidate (Concerta, Metadate, Ritalin, Ritalin-SR), a C-II agent, is the drug of choice to treat attention-deficit disorders and narcolepsy. It often improves concentration by increasing the levels of neurotransmitters in the brain. It should be used as an adjunct to psychosocial measures. Like amphetamine, it has a paradoxical calming effect in hyperactive children. A CBC with differential (number of types of cells) and platelet count should be monitored during long-term therapy. Intermittent drug-free periods when stress is less (such as during weekends and vacations) may help prevent the development of tolerance and permit decreased dosage when the drug is resumed. Caffeine may decrease this drug's efficacy, so the patient should avoid coffee, tea, and colas. The patient should get plenty of rest. The drug does have abuse potential.

Methylphenidate (Concerta, Ritalin-SR) has once-a-day dosing that allows it to be given only in the morning. The outer layer of Concerta dissolves to release part of the dose immediately. The rest is released slowly, so there will be a **ghost tablet**. In

Table 8.9 **Most Commonly Used Agents for Attention-Deficit Disorders**

Generic Name	Pronunciation	Dosage Form	Brand Name	Dispensing Status	Control Schedule
atomoxetine	AT-oh-mox-e-teen	capsule	Strattera	Rx	
clonidine	KLON-i-deen	tablet, transdermal system	Catapres, Catapres-TTS	Rx	
desipramine	des-IP-ra-meen	tablet	Norpramin	Rx	
dexmethylphenidate	dex-meth-il-FEN-i-date	tablet	Focalin	Rx	C-II
dextroamphetamine-amphetamine	dex-troe-am-FET-a-meen am-FET-a-meen	tablet	Adderall	Rx	C-II
imipramine	im-IP-ra-meen	capsule	Tofranil	Rx	
methylphenidate	meth-il-FEN-i-date	tablet	Concerta, Metadate, Ritalin, Ritalin-SR	Rx	C-II
nortriptyline	nor-TRIP-ti-leen	capsule, oral liquid	Aventyl, Pamelor	Rx	
pemoline	PEM-oh-leen	tablet	Cylert	Rx	C-IV

Figure 15.10
Sites of Scabies Infestation



may be due to increased activity, feeding, and excretion of the scabies. Lesions appear as very small, wavy, threadlike, slightly elevated, grayish-white burrows most often in the finger webs. Burrows usually are from 1 mm to 10 mm long. Figure 15.10 shows the common sites of scabies infestation.

Some of the products used for lice infestation are also effective for treating scabies. The common treatment consists of a 25% benzoyl benzoate cream or lotion that is spread over the entire skin from the neck down at bedtime. The application should be repeated in the morning. Repeated treatment is rarely needed. Persistent inflammation and itching may be due to scratching, contact dermatitis, or a secondary infection rather than the mite infestation. Additional applications could cause dermatitis. A 5% to 10% sulfur ointment should be used for infants under two years of age. This is preferred because of potential absorption of gamma benzene hexachloride with neurological toxicity.

ANTISEPTICS AND DISINFECTANTS

Chemicals have long been used to control **suppuration** (formation or discharge of pus), to control the spread of disease, and to preserve food. Investigators such as Koch and Pasteur showed that infection and putrefaction were due to microorganisms. Nevertheless, it was only after Lister developed techniques for antiseptic surgery and the control of postoperative sepsis that physicians began to appreciate the importance of disinfecting the skin of the patient undergoing surgery, the hands of the surgeon, the instruments, and the operating theater.

A variety of agents are used as antiseptics and disinfectants, and they have specific actions. These are listed in Table 15.8.

The most desirable property of a germicide is its ability to destroy microorganisms rapidly and completely. No single germicide is equally effective against all types of organisms, however. Furthermore, many agents that rapidly destroy organisms may be too toxic if applied to human or animal tissue cells. Esthetic factors, such as odor, taste, and staining quality, may also influence germicide selection. If a germicide is used in or around the mouth, bad odor or taste may reduce patient compliance. Patients may also object to materials that stain the oral mucosa, skin, or clothing.

Antiseptics and disinfectants have two uses. They are used to disinfect instruments and to treat accessible infections in the oral cavity and on body surfaces. The ideal

Cevimeline is available in a hard gel capsule and is indicated for the treatment of dry mouth. Dry mouth may be treated for various reasons; one is to prevent infections of the oral cavity following radiation to the salivary glands during treatment of head and neck cancers. In addition, Sjogren's syndrome is an autoimmune disorder that results in the inflammation of the salivary and lacrimal glands that progresses to dry mouth and dry eyes. The most common side effect of this drug is increased sweating. It should be taken three times a day.

OPHTHALMICS

Ophthalmics are used to treat the eyes. The internal structures of the eye, shown in Figure 15.11, are subject to various disorders including CMV retinitis, age-related macular degeneration, chronic dry eye, and conjunctivitis. Table 15.10 lists the ophthalmic agents used to treat these conditions. Agents used to treat glaucoma, another serious eye disorder, will be listed separately. Because patients and medical personnel can easily confuse ophthalmics and otics, which are used to treat ear conditions, the medications should be clearly labeled.

For the EYE

Figure 15.11

The Structures of the Eye

(a) The external eye
(b) Sagittal view of the internal eye