
Family Practice Forum

Adult Polio Immunity

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A dramatically successful immunization program against polio has reduced the number of paralytic cases from 20,000 in 1952 to the current level of fewer than 20 cases annually.¹ With wild poliovirus essentially eliminated from circulation in this country, immunity depends upon an adequate immunization program. But success has generated apathy toward this devastating disease, and significant numbers of children under five years of age have not received the primary immunization series of three doses of trivalent oral polio vaccine (TOPV).² For this reason, an additional dose of TOPV has been recommended for all children before school entry.

The need for an additional TOPV booster at 11 or 12 years of age remains an unsettled issue. Although a booster probably is not necessary if the recommended primary immunization series has been administered, the initial vaccinations either

have not been done or cannot be documented. In adults, documentation of previous immunizations can be even more difficult because of frequent moving, lost records, and retired physicians. However, the history of immunizations alone can provide valuable information. When 100 nulliparous women, aged 21 to 29 years, in a suburban private practice were surveyed, five reported no previous polio immunizations. When these same 100 women were tested for immunity to the three serotypes of poliovirus, six lacked antibodies to individual serotypes.³ Although attempts to secure prior immunization records on these six were unsuccessful, two of the six were among the group that had reported no previous polio immunizations. Thus, 40 percent of the group lacking a history of prior polio immunization had polio susceptibility, while only 4 percent of the group with a history of previous polio immunization was susceptible, indicating that history alone provides a useful screen for polio immunity.

Not only are these susceptible adults at risk when exposed to the wild poliovirus, but they are also at risk for developing paralytic polio when exposed to the vaccine strain of poliovirus. This

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LIMBITROL® TABLETS (N) Tranquilizer—Antidepressant

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 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, available in trays of 4 reverse-numbered boxes of 25, and in boxes containing 10 strips of 10; Prescription Paks of 50.

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exposure can come either directly from immunization with TOPV or indirectly from contact with individuals recently fed TOPV and shedding live, attenuated poliovirus in their stools. Between 1969 and 1979, 50 cases of vaccine-associated paralytic polio were reported in contacts of vaccinated children, with many being parents aged 20 to 40 years.¹ With the increasing number of inadequately immunized children, this susceptible "parent group" will grow in future generations and sustain exposure when their own children are immunized. So, although the risk of paralytic polio from exposure to TOPV is small, it may be increasing and thus poses a very real risk, which Jonas Salk has called "the principal cause of polio in the United States."⁴

The family physician is ideally situated to intervene in several areas. Obviously, the importance of the primary immunization series for all children is essential. Equally important, however, is supplying parents with documentation of these immunizations that is separate from the medical records which may be unobtainable 20 years in the future. Routine examinations required through the school system at ages 5, 12, and 15 years provide the opportunity to re-evaluate the status of polio immunity and complete the immunization series of those inadequately protected. Past the age of 18 years there are several opportunities for evaluation, but these are often overlooked.

The pre-employment examination, college physical examination, and routine pelvic examination bring young adults into the office at a time prior to having children, when previous immunization records are possibly still available. The Advisory Committee on Immunization Practices of the Public Health Service has made recommendations for adult polio immunization.⁵ To summarize, most adults have completed the primary immunization series of three doses of TOPV or four immunizations with inactivated polio vaccine (IPV, the earlier Salk poliomyelitis vaccine) and have adequate immunity. If not, the primary series should be completed with the respective vaccine. IPV is available through the Public Health Department. If an adult is adequately immunized, but at increased risk of exposure (by traveling to areas endemic for polio, working with poliovirus, or

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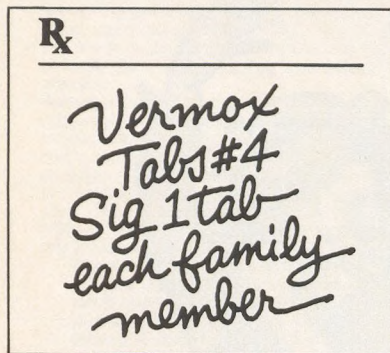


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VERMOX[®] CHEWABLE TABLETS

(mebendazole)

ADULT POLIO IMMUNITY



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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having contact with individuals possibly excreting poliovirus), a TOPV booster should be given. If an adult is unvaccinated for polio, then the primary immunization series should be administered with IPV rather than TOPV because of the risk of vaccine-associated paralytic polio. The series consists of three doses of IPV 4 to 8 weeks apart, with a fourth dose 6 to 12 months after the third.

A special effort must be made to protect the parents of children to whom TOPV is administered. A useful screening method questions parents at the initial well-baby visit, around two or three weeks of age, as to their polio immunity. If either or both are unaware of prior polio immunization there is adequate time for two doses of IPV to be administered, one month apart, prior to the first dose of TOPV for their child. The remainder of the primary IPV series can be completed as previously described.

The parents' history of polio immunization could be elicited during the prenatal period, but polio immunization is not recommended for pregnant women unless they are at increased risk of exposure as discussed above. One further precaution is to avoid TOPV administration to either immune-deficient individuals or their household contacts.

Although polio does not cause much concern at present, its future potential necessitates adequately protecting not only children but their parents and other adults as well. The family physician is well situated to implement all the present recommendations for polio immunization of both children and adults.

References

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