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# Problems in Family Practice

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## Incontinence in the Female Patient

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Incontinence, the distressing accompaniment of old age and the frequent annoyance of young women, should be adequately diagnosed and treated. Although the physiology of bladder function is not completely understood, and urologists and gynecologists continue to change their opinions about just which bladder deformities or what changes in pressure profiles are important, enough is known to help the patient. The woman who is afraid to leave home and has sexual inhibitions and personal difficulties because of her "leaking bladder" can be helped to a fuller life. The family physician can distinguish between stress incontinence and detrusor instability. Adequate treatment of detrusor instability and proper referral of patients with stress incontinence are within the purview of the family physician. This paper describes diagnostic procedures easily performed in the office, preventive measures from childhood through the postmenopausal periods, and the options and effectiveness of treatment.

From September 1, 1979, through August 31, 1980, women over 21 years of age made 31,352 visits to the Family Practice Center in Bangor, Maine. Only 64 of these visits included the problem of stress incontinence. If every female patient were asked, however, 50 percent would be found to leak urine at some time. By contrast, 933 had symptoms of cystitis. The 50 percent of all women who leak urine and the 933 women with cystitis would profit by preventive measures that can delay or eliminate the onset of symptomatic incontinence. Some of the symptomatic patients have been referred to consultants, but most have not and show improvement with conservative measures.

### Definitions

Incontinence is usually divided into stress incontinence and detrusor instability. Stress incontinence is the involuntary loss of urine through an intact urethra at the time of increased intravesical pressure produced by physical activity. It implies that the intravesical pressure is greater than the urethral pressure. There is no desire to void, nor are there premonitory symptoms before the loss of urine. The bladder may be full or almost empty. The patient is frequently embarrassed.

Idiopathic detrusor instability, usually referred to as urgency incontinence, results in the loss of urine by involuntary and uninhibited detrusor contractions. Usually, there is no demonstrable etiologic factor. Urine loss is greater in urgency incontinence than in stress incontinence.

There are other conditions accompanied by abnormal detrusor activity that are important to consider in the differential diagnosis of incontinence. *Pure urgency incontinence* accompanies

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inflammatory lesions of the urethra, trigone, bladder, and vagina. Urgency, frequency, and dysuria accompanied by episodes of urgency leakage are characteristic.

*Bladder neuropathies* interfere with normal reflex activity in the spinal cord. The most frequent neurological lesions are multiple sclerosis and diabetic neuritis. Whereas the incontinence is usually an overfilling phenomenon, it may come from uninhibited detrusor activity.

*Psychogenic urinary incontinence*, which is produced by voluntary efforts of the patient, is usually a habit pattern developed over a period of time, and the voluntary nature of the contractions may not be apparent to the patient or to the physician.

*Overflow incontinence* is similar to stress incontinence, although the increased intravesical pressure is caused by overfilling of the bladder. It is most commonly seen in the postoperative and postpartum patient who has had some trauma to the bladder, with a resulting lack of normal detrusor activity. Urinary tract anomalies, either congenital or posttraumatic, that cause involuntary loss of urine are not included in this discussion.

Many patients have a combination of stress incontinence and detrusor instability. The detrusor element should be treated first, and a period of time should be allowed to elapse before the results of the treatment are evaluated and the need for surgery considered. Treatment of the detrusor factor often will relieve the symptoms, obviating the need for surgery.

## Physiology and Anatomy

Normal urinary bladder retention and emptying are the result of a complicated system of muscular and neural activity. For voiding to occur, the voluntary muscles of the pelvic floor must relax. This is followed by involuntary retraction of the detrusor muscle and expulsion of the urine. Bladder wall tension, urethral pressure, and ease of opening of the internal sphincter affect urine flow rate. The detrusor muscle is also influenced by voluntary neural impulses arising in the cerebral cortex. This muscle is an end organ of the parasympathetic nervous system and can be stimulated to contract by acetylcholine. It is, therefore, affected by anticholinergic medications. Other nervous system pathways are involved, but their direct influence is not yet well understood.

In the incontinent female patient the proximal two thirds of the urethra is an intra-abdominal structure. Any increase in intra-abdominal pressure will increase pressure in the urethra and counteract pressure in the bladder. In the patient with stress incontinence the urethra has fallen, and the greater portion is no longer intra-abdominal. Bladder pressure may then rise above urethral pressure when intra-abdominal pressure is increased. Intraurethral pressure is highest in the young and slowly decreases with age. Measurements may be significant in women under 50 years of age, but after 50 years all intraurethral pressures are low, and the measurement is no longer significant. The greatest intraurethral pressure is in the midportion of the urethra. A relatively small descent of the urethra can bring the point of maximum pressure beyond the influence of the abdominal cavity. In the older patient with little prolapse of the urethra, the already low urethral pressure cannot protect against increases in intra-abdominal pressure or small contractions of the detrusor muscle. Stamey has conclusively shown that operative success with stress incontinence occurs only if the urethrovesical junction is moved forward and upward, replacing some portion of it inside the abdomen.<sup>1</sup> The urethrovesical angle is relatively unimportant, as it is impossible to diagnose continence or incontinence by measurement of this angle. Indeed, some postoperative patients who are now continent continue to have a "bad" angle. If the urethrovesical junction prolapses again, the incontinence recurs.

The urethra has two layers of muscles. The inner one is longitudinal and connects with the inner layer of the detrusor muscle. The outer layer is semicircular and consists of fibers that loop around the urethra at various degrees of obliquity, none of them surrounding the urethra. They do form a heavy muscular layer that functions as a sphincter and in the resting state produces the intraurethral pressure. This pressure is greatest at the midportion of the urethra. Cholinergic drugs that cause contraction of the detrusor muscle will also contract the urethral musculature and increase intraurethral pressure. At voiding, however, the urethral musculature relaxes, allowing voiding to take place. Voiding is a reflexogenic relationship

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**K-Lyte® DS** (Each effervescent tablet in solution supplies 50 mEq potassium as bicarbonate and citrate.)

**K-Lyte®** (Each effervescent tablet in solution supplies 25 mEq potassium as bicarbonate and citrate.)

**Description:** K-Lyte DS and K-Lyte are oral potassium supplements. Each K-Lyte DS tablet in solution provides 50 mEq potassium as supplied by 2.5 gm potassium bicarbonate and 2.7 gm potassium citrate with 2.1 gm citric acid, saccharin, artificial flavor and color. Each K-Lyte tablet in solution provides 25 mEq potassium as supplied by 2.5 gm potassium bicarbonate and 2.1 gm citric acid, saccharin, artificial flavor and color.

**Indications and Usage:** All K-Lyte® products are used for therapy or prophylaxis of potassium deficiency. They are useful when thiazide diuretics, corticosteroids, or diarrhea cause excessive potassium loss; and when dietary potassium is low. These products may also be useful when potassium therapy is indicated in digitalis intoxication.

**Contraindications:** Potassium supplements are contraindicated in patients with hyperkalemia since a further increase in serum potassium concentration in such patients can produce cardiac arrest. Hyperkalemia may complicate any of the following conditions: chronic renal impairment, metabolic acidosis such as diabetic acidosis, acute dehydration, extensive tissue breakdown as in severe burns or adrenal insufficiency. Hypokalemia should not be treated by the concomitant administration of potassium salts and a potassium-sparing diuretic (e.g., spironolactone or triamterene), since the simultaneous administration of these agents can produce severe hyperkalemia.

**Warnings:** In patients with impaired mechanisms for excreting potassium, the administration of potassium salts can produce hyperkalemia and cardiac arrest. This occurs most commonly in patients given potassium by the intravenous route but may also occur in patients given potassium orally. Potentially fatal hyperkalemia can develop rapidly and may be asymptomatic. The use of potassium salts in patients with chronic renal disease, or any other condition which impairs potassium excretion, requires particularly careful monitoring of the serum potassium concentration and appropriate dosage adjustment.

**Precautions:** *General precautions*—The diagnosis of potassium depletion is ordinarily made by demonstrating hypokalemia in a patient with a clinical history suggesting some cause for potassium depletion. When interpreting the serum potassium level, the physician should bear in mind that acute alkalosis *per se* can produce hypokalemia in the absence of a deficit in total body potassium, while acute acidosis *per se* can increase the serum potassium concentration into the normal range even in the presence of a reduced total body potassium. Therefore, the treatment of potassium depletion requires careful attention to acid-base balance and appropriate monitoring of serum electrolytes, the ECG, and the clinical status of the patient.

*Information for patients*—To minimize the possibility of gastrointestinal irritation associated with the oral ingestion of concentrated potassium salt preparations, patients should be carefully directed to dissolve each dose completely in the stated amount of water.

*Laboratory tests*—Frequent clinical evaluation of the patient should include ECG and serum potassium determinations.

*Drug interactions*—The simultaneous administration of potassium supplements and a potassium-sparing diuretic can produce severe hyperkalemia (see Contraindications). Potassium supplements should be used cautiously in patients who are using salt substitutes because most of the latter contain substantial amounts of potassium. Such concomitant use could result in hyperkalemia.

*Usage in pregnancy*—Pregnancy Category C—Animal reproduction studies have not been conducted with any of the K-Lyte products. It is also not known whether these products can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. They should be given to a pregnant woman only if clearly needed.

*Nursing mothers*—Many drugs are excreted in human milk and because of the potential for serious adverse reactions in nursing infants from oral potassium supplements, a decision should be made whether to discontinue nursing or discontinue the drug, taking into account the importance of the drug to the mother.

*Usage in children*—Safety and effectiveness in children have not been established.

**Adverse Reactions:** The most common adverse reactions to oral potassium supplements are nausea, vomiting, diarrhea and abdominal discomfort. These side effects occur more frequently when the medication is not taken with food or is not diluted properly or dissolved completely.

Hyperkalemia occurs only rarely in patients with normal renal function receiving potassium supplements orally. Signs and symptoms of hyperkalemia are cardiac arrhythmias, mental confusion, unexplained anxiety, numbness or tingling in hands, feet or lips, shortness of breath or difficult breathing, unusual tiredness or weakness and weakness or heaviness of legs (see Contraindications, Warnings and Overdosage).

**Dosage and Administration:** *Adults*—One (1) K-Lyte DS tablet (50 mEq potassium) completely dissolved in 6 to 8 ounces of cold or ice water, 1 to 2 times daily, depending on the requirements of the patient. One (1) K-Lyte tablet (25 mEq potassium) completely dissolved in 3 to 4 ounces of cold or ice water, 2 to 4 times daily, depending on the requirements of the patient.

**Note:** It is suggested that all K-Lyte products be taken with meals and sipped slowly over a 5 to 10 minute period.

**How Supplied:** K-Lyte® Effervescent Tablets (orange or lime flavors) are available in cartons of 30, 100 and 250. K-Lyte® DS effervescent tablets (orange or lime flavors) are available in cartons of 30 and 100. Each tablet is individually foil wrapped.

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mediated by the "micturation center" in the spinal cord, which coordinates the actions of the detrusor muscle and the urethral musculature. Outside the urethra lie the urogenital diaphragm muscles which surround the urethra and are under voluntary control. The urogenital diaphragm is involved in urethral closure, and these muscles are exercised in perineal or Kegel exercises. In the continent patient, coughing, lifting, and sneezing cause a reflex constriction of the urogenital diaphragm. In the incontinent patient this does not occur, and the increase in intra-abdominal pressure "goes right down the urethra" instead of being thwarted by the urogenital diaphragm.<sup>1-3</sup>

### Diagnosis

True stress incontinence is corrected by surgery. Detrusor instability is not corrected by surgery and can indeed be made worse. It behooves the family physician to make the differentiation in the obvious cases, to find the 20 percent of patients with an etiologic cause for detrusor instability, and to know which patients should be referred.

### History

One should inquire about past history of congenital anomalies, trauma (including obstetrical and surgical), diabetes, enuresis, neurological disease, and abuse of medications. History of the present complaint is then developed. It is important to determine when the incontinence occurs, how much urine is lost, whether urgency is present, and whether frequency, nocturia or any dysuria does occur. It is also important to find out how long the complaint has been present and whether the disability is increasing.<sup>4</sup>

### Physical Examination

If the patient has signs of any disease, especially of the pelvic organs, a specific examination for incontinence should follow. The procedure outlined by Stamey is easy, productive, and appropriate in the family physician's office.

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Table 1. Differential Diagnosis	
Stress Incontinence	Detrusor Instability
Normal micturition	Urgency, urge incontinence
No nocturia, no frequency	Nocturia and frequency
Small spurts	Dribbles constantly or may lose large amount at once
Able to interrupt flow	Not able to interrupt flow
Occurs with increased intra-abdominal pressure	Occurs after changing position and following a short delay
No premonitory sensations	May have premonitory sensations
Tolerates bladder filling	Loses water around catheter when filling bladder
Urine loss prevented by bladder neck elevation	Urine loss occurs in spite of bladder neck elevation

1. The patient is hydrated until the bladder is full, and then she is asked to void into a pan placed beneath the toilet seat. The volume is measured.

2. The patient is immediately catheterized to determine the residual volume. Using an open syringe attached to the catheter, the bladder is re-filled with sterile water. At the first sign of fullness, the catheter is removed.

3. The patient is asked to cough. If there is no leakage, the patient is elevated to the 45° angle and asked to cough again while the physician observes the meatus. If there is still no leakage, the patient is asked to stand, a kidney basin is placed between her legs, and she is asked to cough again.

4. The patient who leaks in the supine or 45° position is then tested for leakage after elevation of the bladder neck. A long, curved forceps or one finger is inserted into the vagina, being careful not to make pressure at any point along the urethra. Pressure is made at the level of the bladder neck, while lateral to it, pushing the urethrovesical junction upward and forward. In stress incontinence this will prevent the loss of urine when coughing.<sup>1</sup>

After the history and physical examination are completed and the results of the urinalysis are received, a presumptive diagnosis can be made and a plan of treatment formulated.

Table 1 shows the differences between stress incontinence and detrusor dysfunction. The patient with stress incontinence typically loses a few drops of urine in small spurts when coughing or

increasing the intra-abdominal pressure. She has voluntary control except when the spurts occur, does not have nocturia or urge to urinate frequently, and has no premonition that leaking will occur. The patient with detrusor instability loses large amounts of urine at a time, cannot stop the urine flow in midstream, and is often incontinent while she is changing her position. She has nocturia, a frequent urge to urinate, and urgency, and fluid may escape around the catheter when the bladder is being filled.

In the differential diagnosis, the following conditions should be considered and ruled out: residual urine, urinary tract infection of any kind (if the patient has a history of urinary tract infection, a culture should be done), other pelvic infections, any abnormal pelvic masses (eg, ovarian cysts and leiomyomata uteri may cause incontinence), diabetes, neurological disease, previous surgery that may have caused scarring, atrophy of the vaginal tissues that may respond to estrogen cream, and reactions to drugs (eg, diuretics, sympathomimetic and parasympathomimetic drugs, progesterone therapy).

Having ruled out other causes, the physician must then distinguish between stress incontinence and detrusor instability. The occasional patient who does not leak when the above tests are done but who otherwise fits the picture of stress in-

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**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 "ORTHO 1000" imprinted on one segment and "IMODIUM" on the other segment. IMODIUM capsules are supplied in bottles of 100 and 500.

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

\*Trademark

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tinence will have minimal disability and can be treated conservatively.

### Treatment

#### Stress Incontinence

Stress incontinence can be further divided into grades. Grade 1 incontinence involves loss of urine with sudden increases in intra-abdominal pressure, but never at night. Grade 2 involves urine loss when walking, standing from a sitting position, or sitting up in bed. Grade 3 involves almost constant urine loss. It is associated with operative failures, pelvic fractures, and similar injuries. Grade 1 incontinence can usually be treated conservatively. Grades 2 and 3 incontinence should be referred.<sup>1,3</sup>

The treatment of stress incontinence begins with the elimination of any bladder or urinary tract infection and correction of any other predisposing causes. The patient is then given a modified Kegel routine (Table 2). Demonstration of urethrovaginal junction elevation at the time of explanation of the exercises should be done. The patient who cannot selectively contract the urogenital diaphragm and elevate the junction should be told to practice stopping the stream while voiding. When proficient, she can go on to the exercise list. All patients given the exercises should be rechecked in two to three weeks to make sure they are doing the exercises correctly. An attempt is made to have the patient learn to contract the urogenital diaphragm, and perhaps the levator ani muscles, without moving the abdominal muscles or the buttocks. When the patient does this well, she is encouraged to practice contracting the muscles while coughing, lifting, and sneezing. If contraction during sneezing is impossible, she is asked to cross her legs to prevent unusual pressure at this time. Results depend considerably on the physician's enthusiasm and attention. The results are well worth the effort and will be carried over into the prevention program.

#### Detrusor Instability

Abnormal function of the detrusor muscle in the absence of any contributing factors is not so easily treated. If the dysfunction is of recent onset and

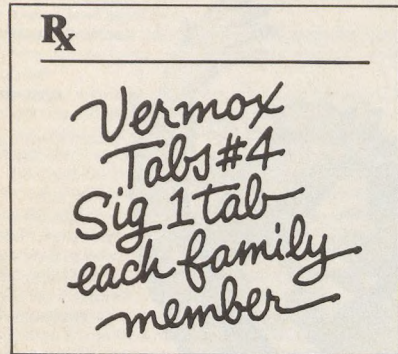
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# VERMOX<sup>®</sup> CHEWABLE TABLETS

(mebendazole)



**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
<b>cure rates</b>				
mean	68%	98%	96%	95%
(range)	(61-75%)	(91-100%)	—	(90-100%)
<b>egg reduction</b>				
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.

Tableted by Janssen Pharmaceutica, Beerse, Belgium for



**JANSSEN  
PHARMACEUTICA**

New Brunswick, New Jersey 08903

JPI-282

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moderately annoying to the patient, cystoscopy should be done to rule out bladder tumor, interstitial cystitis, and other urological disease. The patient with frequency, no infection, and little actual incontinence may have the "urethral syndrome." This syndrome usually responds to urethral dilatation.

This leaves the patients with idiopathic detrusor instability. Treatment in these patients is not always satisfactory. Surgery is contraindicated for mild degrees of prolapse or cystocele; the leakage may become worse. The physician should be sure that there is no element of bladder infection. Treatment then revolves around drug therapy, re-education of bladder control, elimination of anxiety, and mechanical measures to help control the problem.<sup>4</sup> In the older age group the proportion of the patients with incontinence resulting from detrusor instability may approach 50 percent. Even in younger patients it may be present and should not be overlooked.

Drug therapy includes anticholinergic and antidepressant drugs. One longtime favorite has been propantheline (Pro-Banthine), often combined with phenobarbital. Tincture of belladonna is also popular. Recent studies have indicated that imipramine (Tofranil) or indomethacin (Indocin) may be superior. Flavoxate hydrochloric acid (Urispas) and hyoscyamine tablets (Cystospaz-M) have been used effectively. Whatever drug is used, it should be given in divided doses and increased until the patient is having dry mouth. Chewing gum may help with this side effect. Later, the dosage may be reduced, but the drug has to be continued for a long time, as symptoms will usually recur when it is stopped unless other factors have changed. Diazepam has been used, but it is more likely to be habit-forming than some of the other drugs.<sup>5,6</sup>

Behavioral modification is also helpful and can be done at the same time as the drug therapy. Formal biofeedback training may be possible, but many communities do not offer such treatment. Lacking such facilities, the patient is asked how often she now has leakage. She is instructed to void somewhat sooner than that and then to prolong consciously the time interval in small steps. She is also asked to measure her urine and make an attempt to hold a gradually larger amount in the bladder before voiding.

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**Table 2. Exercises for Vaginal Relaxation**

1. When bladder is full, start to void, stop, and then finish. Practice until this can be done easily.
2. Pull in rectum, hold it for three seconds, repeat after relaxing. Do this 50 times daily. It can be done in any position, sitting, standing, lying. Do not do it all at once. Pick several times a day to remember to do it. Check progress by putting a finger in the vagina and pulling in around the finger. Progress should be made each week.
3. Practice pulling in and lifting, coughing, and sneezing. Sneezing is the hardest and legs may have to be crossed or buttocks pulled tight together to keep from leaking while sneezing.
4. Particularly when lifting, remember to pull in at the same time. Otherwise all of the pressure from lifting goes against the bladder and vagina.

**Table 3. Early Postpartum Exercise Program**

First Postpartum Day (or same day, depending on time of delivery)

Ankle circles

Quadriceps and gluteal setting

Costal and diaphragmatic breathing (cesarean section)

Second Postpartum Day

Pelvic tilt

Pelvic floor exercises: supine, legs extended, crossed at ankles

Squeeze buttocks together and hold; press thighs together and hold;

pull lower abdomen in and hold; pull anal floor in and hold—  
relax after each contraction and repeat five times each.

Single and double knee to chest with pelvic tilt

Partial sit up and pelvic tilt

Home: Written instructions

Source: Prepared by the Physiotherapy Department, Waldo County General Hospital, Belfast, Maine

All patients with detrusor problems will also benefit from perineal exercises and should be instructed to do them. The best effect will occur when they finally learn to stop their urinary out-flow in midstream and then complete the emptying of the bladder.

### *General Measures*

Any patient who says she leaks urine must be taken seriously. Immediate treatment may prevent

a worse problem later. If the patient has an asymptomatic vaginal relaxation in which the cystocele or cervix does not protrude from the vagina, she can be treated adequately in the family physician's office. This care may be more helpful than an operation; and the patient can always be referred to a surgeon when the need is proven. Patients should be seen frequently enough to maintain their enthusiasm and to follow their progress.

Many adjunctive remedies are available. The patient with gross incontinence who is waiting



for an operation or who has contraindications to operation can attend a wedding, graduation, or 60-year anniversary by wearing incontinence pants. Many patients are rendered continent temporarily by using super tampons in the vagina during the day and removing them at night. Estrogen vaginal cream for patients with vaginal atrophy is helpful. It may correct some problems.

Many of these patients are old and some will exhaust a physician's patience. Allow enough time for an unhurried visit and be amply rewarded by a grateful patient.

### Prevention

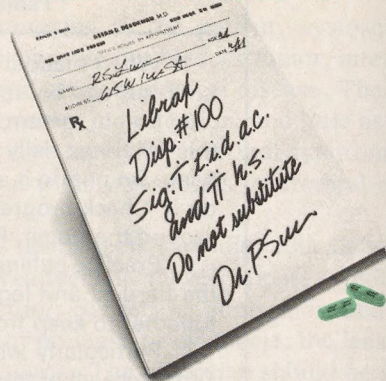
Prolapse of the urethrovesical junction begins early in life. Obstetrical delivery is often the precipitating factor. Every postpartum patient should be investigated for relaxation of the junction and instructed in proper exercise for the urogenital diaphragm (Tables 2 and 3). This should be a life-long exercise, repeated at intervals throughout each day. Many women at the menopause cannot contract these muscles at all. Lack of exercise causes atrophy here as in any striated muscle.

All women should be watched for signs of anterior vaginal wall prolapse and instructed as above. Urinary tract infections should be assiduously treated, followed, and prevented. The patient with more than one episode of cystitis should be treated long enough to prevent another recurrence. Sometimes this requires treatment for two months; sometimes it may involve prophylactic treatment for two years. Children from birth on should be watched for urinary tract infections and treated. The patient who does not respond to these measures should be referred for cystometric examination and cystoscopy.

### References

1. Stamey TA: Urinary incontinence in the female. In Gittes RF, Perlmutter AD, Stamey TA, Walsh PC (eds): *Campbell's Urology*, ed 4. Philadelphia, WB Saunders, 1979, pp 2272-2278
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5. Bates CP: The unstable bladder. *Clin Obstet Gynecol* 5:109, 1978
6. Green TH Jr: Urinary stress incontinence. In Sciarro JJ (ed): *Gynecology and Obstetrics*. Hagerstown, Md, Harper & Row, 1980, vol 1, chap 79, p 1

Specify  
**Librax**<sup>®</sup>



Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

Please consult complete prescribing information, a summary of which follows:

**Indications:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indications as follows:

"Possibly" effective: as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.  
Final classification of the less-than-effective indications requires further investigation.

**Contraindications:** Glaucoma; prostatic hypertrophy, benign bladder neck obstruction; hypersensitivity to chlordiazepoxide HCl and/or clidinium bromide.

**Warnings:** 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). Physical and psychological dependence rarely reported on recommended doses, but use caution in administering Librium<sup>®</sup> (chlordiazepoxide HCl/Roche) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions) reported following discontinuation of the drug.

**Usage in Pregnancy:** Use of minor tranquilizers during first trimester should 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.

As with all anticholinergics, inhibition of lactation may occur.

**Precautions:** In elderly and debilitated, limit dosage to smallest effective amount to preclude ataxia, oversedation, confusion (no more than 2 capsules/day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider pharmacology of agents, particularly potentiating drugs such as MAO inhibitors, phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions reported in psychiatric patients. Employ usual precautions in treating anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship not established.

**Adverse Reactions:** No side effects or manifestations not seen with either compound alone reported with Librax. When chlordiazepoxide HCl is used alone, drowsiness, ataxia, confusion may occur, especially in elderly and debilitated; avoidable in most cases by proper dosage adjustment, but also occasionally observed at lower dosage ranges. Syncope reported in a few instances. Also encountered: isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent, generally controlled with dosage reduction; changes in EEG patterns may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice, hepatic dysfunction reported occasionally with chlordiazepoxide HCl, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax typical of anticholinergic agents, i.e., dryness of mouth, blurring of vision, urinary hesitancy, constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.



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