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LOWER GENITOURINARY INFECTIONS IN WOMEN

To the Editor:

With great respect for the scholarly work and careful analysis of Drs. A. O. Berg and M. P. Soman, I read with great anticipation their clinical review, "Lower Genitourinary Infections in Women," in a recent issue of *The Journal of Family Practice (J Fam Pract 1986; 23:61-67)*. I am disappointed by their relative deemphasis of history and physical examination findings, with an emphasis on laboratory studies. I believe that this approach fails to recognize the clear, practical realities of office practice for these common conditions. For example, a woman who presents with an odorless vaginal discharge, no symptoms of pain or inflammation, and has a homogeneous discharge with clue cells on microscopic examination clearly has *Gardnerella* vaginitis (or bacterial vaginosis by more recent classification). This triad of history, physical examination, and simple laboratory microscopy would not fit their diagnostic strategy.

Of even greater concern is the lack of support for the history and physical findings in yeast vaginitis. Admittedly, their own and previous research casts some doubt on the specificity of the history and physical examination,¹ and there are many women who present with symptoms of vaginal itching and burning and have an inflamed vaginal mucosa with or without a curdlike discharge. In my opinion, most of these women have a yeast vaginitis as clearly as oral thrush can be often diagnosed by history and inspection. Many of these

women will have negative potassium hydroxide preparations, and the authors suggest holding off treatment until culture results are available.

I suggest that a practical approach to diagnosis with these common conditions should resemble the strategy of Tompkins with diagnosing streptococcal pharyngitis and the appropriate use of throat cultures.² Here there is a much more simple decision tree with early empiric treatment if the history and physical findings point to the diagnosis. I suggest that in vaginitis the history and physical findings are often more specific than for streptococcal pharyngitis.

In their discussion of urinary tract infections, the authors suggest the use of single-dose therapy as a diagnostic trial for lower genitourinary infections. Recognizing that single-dose therapy will more commonly result in recurrences than brief therapy over three to five days, many physicians are using the latter with a greater success in simple cystitis.

Certainly more research needs to be done in these areas. It is hoped that further studies will be directed toward more discrimination in history and physical examination, which expedites treatment at lower costs.

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References

1. Bergman JJ, Berg AO: How useful are symptoms in the diagnosis of *Candida* vaginitis? *J Fam Pract* 1983; 16:509-511
2. Tompkins RK: Managing pharyngitis without the throat culture. *J Fam Pract* 1979; 8:629-631

To the Editor:

In the July 1986 issue of *The Journal*, Drs. Berg and Soman reviewed the recent diagnostic and therapeutic advances in managing lower genitourinary infections in women (Berg AO, Soman MP: *Lower genitourinary infections in women. J Fam Pract* 1986; 23:61-67). They appropriately point out that the clinical syndromes of vaginitis, cystitis, urethritis, and cervicitis may overlap, that the physical findings may be nonspecific, and that the microbiological confirmation of the diagnosis may be both expensive and untimely. They conclude that women should be divided into three groups based on history: (1) high probability of vaginitis, (2) high probability of urinary tract infection, and (3) inability to separate into groups 1 or 2. For women with a high probability of an urinary tract infection, they recommend obtaining an urinalysis and culture and evaluating for sexually transmitted diseases, if appropriate. Although I have questions on several aspects of their proposed diagnostic strategy for patients with lower genitourinary symptoms, I would like to challenge their strategy on the management of a woman who is thought to have an uncomplicated lower urinary tract infection.

Several recent articles challenge the use of urine cultures both before and after treatment in women with lower urinary tract infections. Carlson and Mulley¹ performed a decision analysis for the management of uncomplicated urinary tract infections. They concluded that single-dose trimethoprim-sulfamethoxazole therapy resulted in the fewest expected symptom days (2.7) and the lowest expected cost (\$54). Furthermore, they stated that obtaining an initial urine culture in all patients reduced expected symptom days by 10 percent but increased expected cost by about 40 percent. Komaroff² stated that urine culture was of clear value only in patients with acute pyelonephritis or subclinical pyelonephritis and that he does not obtain routine cultures when he suspects the patient has a lower urinary tract bacterial infection. He further stated that "test of cure"

cultures following treatment are of little usefulness. Finally, Schultz et al³ performed a prospective randomized trial of 200 women who presented with symptoms of acute lower urinary tract infections. They demonstrated that pretreatment urinalysis, urine culture and susceptibility testing, antibody-coated bacteria testing, or routine follow-up urinalysis or urine culture did not predict treatment outcome. They concluded that empiric treatment in women with acute uncomplicated urinary tract infections seems practical, safe, and cost efficient. They stated that considerable savings could be achieved by reserving urine cultures for patients with persistent or recurrent symptoms.

Our goal as physicians should be to render treatment that minimizes morbidity and mortality and that is cost effective. There is sufficient evidence in the literature to support not obtaining routine urine cultures in women with uncomplicated lower urinary tract infections. This recommendation does not apply to women with complicated urinary tract infections, including upper urinary tract infections, to pregnant women, or to children or men. Even though Drs. Berg and Soman's proposed diagnostic strategy may yield the exact etiologic agent for the women with genitourinary symptoms, it is neither practical nor cost effective. Finally, it is of interest to note that Drs. Berg and Soman recommended that physicians consider the use of empiric therapy in the management of urinary tract infections when diagnostic tests have failed to reach closure. When a diagnostic test does not alter the treatment regimen, I have to question the value of obtaining that diagnostic test.

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References

1. Carlson KJ, Mulley AG: Management of acute dysuria: A decision-analysis model

of alternative strategies. *Ann Intern Med* 1985; 102:244-249

2. Komaroff AL: Urinalysis and urine culture in women with dysuria. *Ann Intern Med* 1986; 104:212-218
3. Schultz HJ, McCaffrey LA, Keys TF, Nobrega FT: Acute cystitis: A prospective study of laboratory tests and duration of therapy. *Mayo Clin Proc* 1984; 59:391-397

The preceding letters were forwarded to Drs. Berg and Soman, who respond as follows:

Clinical experience and opinion provide the questions, not the answers. Dr. Scherger's experience that certain characteristics "clearly" lead to certain diagnoses is a testable hypothesis.

Our article summarized a substantial body of published research showing that laboratory confirmation of most diagnoses is essential, but we included historical and physical examination findings in each arm of our diagnostic strategy. Further, among laboratory tests that we discussed, microscopy, vaginal pH, and urine culture (all simple techniques) provide most of the information needed. Finally, our protocol often calls for presumptive treatment when information is incomplete, a common requirement in the practice setting.

We believe that our article fairly represents the published research. We cannot answer Dr. Scherger's criticisms because the relevant data do not exist. We fully agree with him that further research is needed to resolve these common clinical questions.

Dr. Clover is correct that several recent authors have questioned the need for routine urine culture. In our defense, two comments are appropriate. First, all three articles were published after our review was submitted, accepted, and in press. Although we were aware of these points of view, it was not possible to incorporate them into the text of our review. Second, although the three articles cited are provocative, none prove that urine cultures are not useful. All are based on clinical opinion and on cost data that may vary substantially from

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BRIEF SUMMARY

DESCRIPTION: LOZOL (indapamide) is an oral antihypertensive/diuretic.

INDICATIONS AND USAGE: LOZOL is indicated for the treatment of hypertension, alone or in combination with other antihypertensive drugs.

LOZOL is also indicated for the treatment of salt and fluid retention associated with congestive heart failure.

Usage in Pregnancy: (see PRECAUTIONS).

Contraindications: Anuria, hypersensitivity to indapamide or other sulfonamide-derived drugs.

WARNINGS: Hypokalemia occurs commonly with diuretics, and electrolyte monitoring is essential. In general, diuretics should not be given concomitantly with lithium.

PRECAUTIONS: GENERAL: 1. *Hypokalemia and Other Fluid and Electrolyte Imbalances:* Periodic determinations of serum electrolytes should be performed at appropriate intervals. In addition, patients should be observed for clinical signs of fluid or electrolyte imbalance, such as hyponatremia, hypochloremic alkalosis, or hypokalemia. Electrolyte determinations are particularly important in patients who are vomiting excessively or receiving parenteral fluids, in patients subject to electrolyte imbalance (including those with heart failure, kidney disease, and cirrhosis), and in patients on a salt-restricted diet. The risk of hypokalemia secondary to diuretics and natriuretics is increased when larger doses are used, when the diuresis is brisk, when severe cirrhosis is present and during concomitant use of corticosteroids or ACTH. Interference with adequate oral intake of electrolytes will also contribute to hypokalemia. Hypokalemia can sensitize or exaggerate the response of the heart to the toxic effects of digitalis, such as increased ventricular irritability. Dilutional hyponatremia may occur in edematous patients; the appropriate treatment is restriction of water rather than administration of salt, except in rare instances when the hyponatremia is life threatening. However, in actual salt depletion, appropriate replacement is the treatment of choice. Any chloride deficit that may occur during treatment is generally mild and usually does not require specific treatment except in extraordinary circumstances as in liver or renal disease. 2. *Hyperuricemia and Gout:* Serum concentrations of uric acid increased by an average of 1.0 mg/100 ml in patients treated with indapamide, and frank gout may be precipitated in certain patients receiving indapamide (see ADVERSE REACTIONS). Serum concentrations of uric acid should therefore be monitored periodically during treatment. 3. *Renal Impairment:* Renal function tests should be performed periodically during treatment with indapamide. 4. *Impaired Hepatic Function:* Indapamide, like the 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. 5. *Glucose Tolerance:* Latent diabetes may become manifest and insulin requirements in diabetic patients may be altered during thiazide administration. Serum concentrations of glucose should be monitored routinely during treatment with indapamide. 6. *Calcium Excretion:* Calcium excretion is decreased by diuretics pharmacologically related to indapamide. Indapamide may decrease serum PBI levels without signs of thyroid disturbance. 7. *Interaction With Systemic Lupus Erythematosus:* Thiazides have exacerbated or activated systemic lupus erythematosus.

DRUG INTERACTIONS: 1. *Other Antihypertensives:* LOZOL (indapamide) may add to or potentiate the action of other antihypertensive drugs. 2. *Lithium:* See WARNINGS. 3. *Post-Sympathectomy Patient:* The antihypertensive effect of the drug may be enhanced in the post-sympathectomized patient. 4. *Norepinephrine:* Indapamide may decrease arterial responsiveness to norepinephrine, but this diminution is not sufficient to preclude effectiveness of the pressor agent for therapeutic use. **CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY:** Both mouse and rat life-time carcinogenicity studies were conducted. There was no significant difference in the incidence of tumors between the indapamide-treated animals and the control groups.

PREGNANCY/TERATOGENIC EFFECTS: PREGNANCY CATEGORY B. Diuretics are known to cross the placental barrier and appear in cord blood. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

NURSING MOTHERS: It is not known whether this drug is excreted in human milk. If use of this drug is deemed essential, the patient should stop nursing.

ADVERSE REACTIONS: Most adverse effects have been mild and transient. In long-term controlled clinical studies, equal to or greater than 5% cumulative adverse reactions are headache, dizziness, fatigue, weakness, loss of energy, lethargy, tiredness, or malaise, muscle cramps or spasm, or numbness of the extremities, nervousness, tension, anxiety, irritability, or agitation; and less than 5% cumulative adverse reactions are lightheadedness, drowsiness, vertigo, insomnia, depression, blurred vision, constipation, nausea, vomiting, diarrhea, gastric irritation, abdominal pain or cramps, anorexia, orthostatic hypotension, premature ventricular contractions, irregular heart beat, palpitations, frequency of urination, nocturia, polyuria, rash, hives, pruritus, vasculitis, impotence or reduced libido, rhinorrhea, flushing, hyperuricemia, hyperglycemia, hyponatremia, hypochloremia, increase in serum urea nitrogen (BUN) or creatinine, glycosuria, weight loss, dry mouth, tingling of extremities. Clinical hypokalemia occurred in 3% and 7% of patients given indapamide 2.5 mg and 5.0 mg, respectively.

OVERDOSAGE: Symptoms include nausea, vomiting, weakness, gastrointestinal disorders and disturbances of electrolyte balance. In severe instances, hypotension and depressed respiration may be observed. If this occurs, support of respiration and cardiac circulation should be instituted. There is no specific antidote. An evacuation of the stomach is recommended by emesis and gastric lavage after which the electrolyte and fluid balance should be evaluated carefully.

HOW SUPPLIED: White, round film-coated tablets of 2.5 mg in bottles of 100, 1,000, 2,500, and in unit-dose blister packs, boxes of 100 (10 x 10 strips).

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LETTERS TO THE EDITOR

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practice to practice. Specifically, the conclusions of Drs. Carlson and Mulley would be reversed using the costs generated from our medical center. Prospective studies of the actual performance of different management strategies are clearly in order. We are in the process of designing just such a study in a collaborative research network of practicing family physicians. We will be delighted if Dr. Clover's suspicions about urine culture prove justified.

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PATIENT EXPECTATIONS OF FAMILY PHYSICIAN

To the Editor:

The distinction made by Frowick et al¹ between what patients expect and what they want from their family physicians in the way of behavioral sciences services is an important one. Their findings and analysis place into better context the earlier report of Schwenk et al² that suggested a low level of interest among many patients in physician attention to psychosocial issues. Part of the analysis presented by Frowick et al, however, is inappropriate for their data. Their questionnaire provided four response options that they treated in the analysis as an interval level scale. It is not at all clear that the options for level of physician involvement—(1) no help, (2) referral, (3) compassion, concern, and minor advice, (4) expert therapeutic help—constitute a discrete continuous variable. These options, I think, encompass at least two distinct dimensions of physician behavior: referral, and direct provision of services. Options 2, 3, and 4 are not mutually exclusive; rather, the second option (referral) is very compatible with options 3 and 4. Options 1, 3, and 4 can be considered to comprise

an ordinal level scale that assesses the extent of direct physician involvement with psychosocial problems. Option 2, however, probes a disparate behavior and introduces heterogeneity into the scale, thus confusing the analysis and the interpretation.

Even if one accepts the dubious notion that this scale is unidimensional, it is so far from an interval level scale that the calculation of means is inappropriate and leads to untenable conclusions. For example, the authors interpret psychosocial situations having mean scores between 1.6 and 2.5 as falling into the referral category (option 2). By this method divorce qualifies in the referral group. However, for divorce, 44 percent of respondents want no involvement by their physician compared with 30 percent who want referral. Similarly, while the item "family moving problems" is included in the referral category based on mean score, twice as many respondents wanted no involvement (52 percent) in this situation as wanted referral (26 percent). There are many other examples of such discordance between information provided by means and information provided by the frequency distributions. As an extreme possibility, in a situation where one half of the respondents wanted no involvement (level 1) and the other half wanted some involvement (level 3), the use of the mean score would erroneously identify referral as the consensus or composite option, despite the fact that no one chose that option. Such is the danger when a parametric statistic is used inappropriately. I realize that this part of the analysis replicates the analysis of Schwenk et al, but there is little to be gained by repeating the mistakes of others.

Determining what our patients want and expect from us is an important endeavor. This study makes a valuable contribution to this effort and serves as a useful counterpoint to the earlier findings of Schwenk and colleagues. The major message is contained in the frequency distributions and comparisons presented in Table 1. The information presented

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in Tables 2 through 5 is unnecessary and misleading.

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2. Schwenk TL, Clark CH, Jones GR, et al: Defining a behavioral science curriculum for family physicians: What do patients think? *J Fam Pract* 1982; 15:339-345

PREVALENCE OF HYPERTENSION

To the Editor:

I read with interest the article, "Visit Frequency for Controlled Essential Hypertension: General Practitioners' Opinions," by M. J. Lichtenstein, P. M. Sweetnam, and P. C. Elwood (*J Fam Pract* 1986; 23:331-336). I took particular notice of their estimated prevalence of hypertension of 5 percent of a practicing physician's patients.

It is difficult to derive meaningful general figures for the prevalence of hypertension, because such summary statements depend upon the age, sex, race, and type of the population in question, as well as the definition of hypertension employed, how vigorously and by what method the diagnosis is sought, and whether individuals are already being treated for hypertension. The authors refer to a Canadian practice study by Rudnick et al¹ as one of the possible sources of their 5 percent figure. A review of the data of Rudnick et al, however, seems to yield an overall practice prevalence of 7.2 percent. A major US community-based study,² which screened 158,906 men and women 30 to 69 years of age who were living in 14 communities, found hypertension prevalences of about 25 percent in blacks (37 percent, if those controlled with antihypertensive medication are included) and 11 percent in whites (18 percent, if those controlled with an-

tihypertensive medication are included) after one screening determination. After two screening determinations, the overall prevalence for uncontrolled hypertension was 6.6 percent. A third study of an English general practitioner's practice over 20 years yielded a prevalence of 6.2 percent in adults aged 30 years and older.³ These represent a selected sampling of recent prevalence figures.

I therefore question how Lichtenstein and his co-authors arrived at their estimated prevalence.

James L. Fletcher, Jr., MD
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Augusta

References

1. Rudnick KV, Sackett DL, Hirst S, Holmes C: Hypertension in a family practice. *Can Med Assoc J* 1977; 117:492-497
2. Hypertension Detection and Follow-up Program Cooperative Group: Blood pressure studies in 14 communities: A two-stage screen for hypertension. *JAMA* 1977; 237:2390
3. Fry J: Natural history of hypertension: A case for selective non-treatment. *Lancet* 1974; 2:432

The preceding letter was referred to Dr. Lichtenstein, who responds as follows:

Dr. Fletcher is correct when he points out that the prevalence of high blood pressure in a given practice setting depends on the age, race, and sex distributions and the definition of hypertension employed. After reviewing the literature, we chose the figure of 5 percent as the lower bound estimate for the prevalence of hypertension likely to be encountered in general practice. Should the prevalence in fact be higher (as pointed out by Dr. Fletcher's letter), then the number of persons potentially affected by the differences in physician opinion noted in our paper is greater than the estimates presented.

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Indications and Usage: For the symptomatic relief of irritating, nonproductive cough associated with respiratory tract conditions such as chronic bronchitis, bronchial asthma, tracheobronchitis, and the common cold; also for the symptomatic relief of cough accompanying other respiratory tract conditions such as laryngitis, pharyngitis, croup, pertussis and emphysema. Appropriate therapy should be provided for the primary disease.

Contraindications: History of marked sensitivity to inorganic iodides; hypersensitivity to any of the ingredients or related compounds; pregnancy; newborns; and nursing mothers.

Warnings: Discontinue use if rash or other evidence of hypersensitivity appears. Use with caution or avoid use in patients with history or evidence of thyroid disease.

Precautions: General—Iodides have been reported to cause a flare-up of adolescent acne. Children with cystic fibrosis appear to have an exaggerated susceptibility to the goitrogenic effects of iodides.

Dermatitis and other reversible manifestations of iodism have been reported with chronic use of inorganic iodides. Keep these in mind in patients receiving these preparations for prolonged periods.

Drug Interactions: Iodides may potentiate the hypothyroid effect of lithium and other antithyroid drugs.

Carcinogenesis, Mutagenesis, Impairment of Fertility:—No long-term animal studies have been performed.

Pregnancy—Teratogenic effects: Pregnancy Category X (see CONTRAINDICATIONS).

Nursing Mothers:—Do not administer to a nursing woman.

Adverse Reactions: Side effects have been rare, including those which may occur with the individual ingredients and which may be modified as a result of their combination. *Organidin*—Gastrointestinal irritation, rash, hypersensitivity, thyroid gland enlargement, and acute parotitis. *Codeine*—(Tussi-Organidin only): Nausea, vomiting, constipation, drowsiness, dizziness, and miosis. *Dextromethorphan*—(Tussi-Organidin DM only): Drowsiness or gastrointestinal disturbances.

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SCREENING FOR COLORECTAL CANCER

To the Editor:

With regard to the article by Dr. Paul S. Frame, "A Critical Review of Adult Health Maintenance. Part 3: Prevention of Cancer" (*J Fam Pract* 1986; 22:511-520), I have several comments. In the section on colorectal cancer his recommendations differ from the American Cancer Society guidelines in that sigmoidoscopy and digital rectal examinations are not recommended. I would take issue with the deletion of sigmoidoscopy and challenge reliance on stool occult blood testing as the sole screening criteria.

In his paper Frame states, "Flexible sigmoidoscopy has not been tested in any large-scale screening program of asymptomatic patients." Previous work has been done in the area. Lipshutz et al¹ compared 60-cm flexible sigmoidoscopy with Hemoccult as a screening procedure for neoplasia of the colon. In 200 asymptomatic patients older than 40 years of age, sigmoidoscopy identified polyps in 19.5 percent. Of patients with polyps 16.7 percent had a positive Hemoccult.

Bang et al² have recently reported the results of 60-cm flexible sigmoidoscopy and fecal occult blood testing in 1,473 white male pattern makers aged more than 20 years. Twelve colorectal cancers were discovered. Of the 12 only three had positive Hemoccults (25 percent). Of the 12 cancers, 11 were discovered on sigmoidoscopy (92 percent). Of the 220 patients with polyps, only 11 (5 percent) had positive Hemoccult. Of the 1,473 men screened, 15.5 percent were found to have polyps or cancer by flexible sigmoidoscopy. Hemoccult testing was negative in 75 percent of patients with cancers and 95 percent of those with polyps.

With this more recent information it would seem appropriate to question reliance on Hemoccult testing of the stool to the exclusion of flexible sigmoidoscopy. In our experience most patients when presented with this

kind of information would choose the more thorough screening when deciding about their own health maintenance.

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References

1. Lipshutz GR, Katon RM, McCool MF, et al: Flexible sigmoidoscopy as a screening procedure for neoplasia of the colon. *Surg Gynecol Obstet* 1979; 148:19-22
2. Bang KM, Tillett S, Hoar SK, et al: Sensitivity of fecal Hemoccult testing and flexible sigmoidoscopy for colorectal cancer screening. *J Occup Med* 1986; 28:709-713

The preceding letter was forwarded to Dr. Frame, who responds as follows:

Dr. Dervin's letter raises an important point with regard to screening for colorectal cancer by flexible sigmoidoscopy. I fully agree that flexible sigmoidoscopy will detect many occult and early cancers. This has been demonstrated by a number of authors including the articles by Lipshutz et al¹ and Bang et al,² which he cites.

The real issue is whether flexible sigmoidoscopy fulfills criterion number 5: "the test must be acceptable to patients and available at reasonable cost"? To this should be added that the test must be feasible for physicians as well. No study has been done showing that flexible sigmoidoscopy is acceptable to a large proportion of an unselected asymptomatic population.

Lipshutz screened 200 asymptomatic veterans over a six-month period. The denominator of this population is not known. Thus one does not know how many patients refused the test for each one who accepted it.

A typical family physician with 1,000 patients aged over 50 years in his practice would initially have to screen 500 patients in six months (4 to 5 every working day). This is twice as many patients as Lipshutz screened. The cost and time commitment would be enormous.

The study needed to prove that the feasibility of flexible sigmoidoscopy is very simple. A primary care physician would have to offer the test to every patient aged over 50 years who entered the office during a two- or three-month period. Compliance, cost, and time-required data would be collected and a valuable piece of research produced in a very short time. If the test is so easy and acceptable, why has this study not been done?

Before any author recommends widespread implementation of a screening test, evidence should be provided that their recommendation is feasible as well as efficacious. Not doing this puts the practicing physician in an unfair legal as well as medical dilemma.

Paul S. Frame, MD
Cohocton, NY

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1. Lipshutz GR, Katon RM, McCool MF, et al: Flexible sigmoidoscopy as a screening procedure for neoplasia of the colon. *Surg Gynecol Obstet* 1979; 148:19-22
2. Bang KM, Tillett S, Hoar SK, et al: Sensitivity of fecal Hemoccult testing and flexible sigmoidoscopy for colorectal cancer screening. *J Occup Med* 1986; 28:709-713

PREVALENCE OF PANIC ATTACKS

To the Editor:

I enjoyed reading the article by Dr. Katon and his colleagues concerning panic disorder (*Katon W, Vitaliano PP, Russo J, et al: Panic disorder: Epidemiology in primary care. J Fam Pract* 1986; 23:233-239). They found a prevalence of 13 percent for panic disorder and an additional 8.7 percent for panic attacks without panic disorder. This study was performed in a family health center in Seattle.

Interestingly, in a survey we conducted of the general population in Columbus, Ohio, using a different instrument, we found prevalences of 4.7 percent and 12.5 percent, respectively, for panic disorder and panic attacks without panic disorder.¹ These

figures are very similar to those of 3.3 percent and 14.1 percent found by Marron and colleagues² using a telephone survey in Onondaga County, New York.

The overall rates of panic attacks—with or without panic disorder—are 21.7 percent, 17.2 percent, and 17.4 percent for these three studies. However, the Epidemiologic Catchment Area Program found the overall rate of panic attacks in three cities to be only 3 percent.³ Such discrepancy must be resolved because, if 20 percent of primary care patients do indeed suffer with panic attacks, then this represents a major mental health issue to primary care physicians.

David A. Katerndahl, MD
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 at San Antonio, Texas

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1. Gabel LL, Katerndahl DA, Monk JS: Prevalence of panic attacks, depression, and agoraphobia. Presented at the 12th Annual Meeting of the North American Primary Care Research Group, Orlando, Florida, May 2-5, 1984
2. Marron JT, Iskander TN, Konen JC: Community-based survey to determine the prevalence of panic attacks. Presented at the 14th Annual Meeting of the North American Primary Care Research Group, Baltimore, April 13-16, 1986
3. Von Korff MR, Eaton WW, Keyl PM: Epidemiology of panic attacks and panic disorder. *Am J Epidemiol* 1985; 122:970-981

COCAINE AND RHABDOMYOLYSIS

To the Editor:

Cocaine, or crack, is probably the most publicized drug of abuse in the

literature today. We are seeing it with increased frequency in our county hospital. Cocaine is well known for its vasoconstrictive effect. We have encountered an interesting phenomenon in our hospital related to a cocaine overdose.

A 24-year-old, previously healthy white man was brought to the emergency room after being found on the floor of his apartment at approximately 12 noon semicomatose, groaning, and "seizing." He had last been seen in his usual state of health at 9:30 PM the night before. There was no improvement in his mental status with naxolone (Narcan) administration. On arrival to the emergency room, the patient was unresponsive. He had a systolic blood pressure of 60 mmHg and a diastolic pressure that was palpable, temperature 100 °F, heart rate 80 beats per minute, and labored respirations. Bruises overlying soft tissue swellings were present on the right maxilla, arm, and hip (points of contact with the floor). Radiographic studies revealed cerebral and pulmonary edema.

Laboratory findings on admission included drug screening results positive for cocaine and opiates, creatine phosphokinase (CPK) was 154,600 U/L, serum glutamic-oxaloacetic transaminase 419 U/L, serum glutamic-pyruvic transaminase 239 U/L, and amylase 1,260 U/L. Results from the alcohol screening test were negative. Thyroid function test results and CPK-MB fraction were within normal range. The white blood cell count was elevated at $17.7 \times 10^3/\mu\text{L}$ with a left shift. Lactic acid was 7.4 mmol/L. CPK reached a peak of 306,300 U/L on hospital day 2, declining slowly to 10,830 U/L on hos-

pital day 8. Liver enzymes remained elevated, reaching a peak on hospital day 2 and then slowly declining.

Clinical assessment included coma secondary to hypoxia, pulmonary edema, and acute rhabdomyolysis. Acute pancreatitis and increased liver function tests were presumed secondary to hypotension. Muscle biopsies were performed on the right forearm and right anterior leg on hospital day 9, revealing rhabdomyolysis with phagocytosis and regeneration.

CPK levels of this magnitude are not explained by pressure necrosis (including rhabdomyolysis), as the patient could not have been lying on his side for more than 14 to 15 hours. We propose that the vasoconstrictive effect of the cocaine contributed to the severe muscle destruction resulting in the markedly elevated levels of CPK. Creatine kinase is elevated with skeletal muscle damage in some patients with myxedema, in malignant hyperthermia syndrome, and in muscular dystrophy. Marked increases occur with rhabdomyolysis. We have never encountered a level this elevated in our laboratory.¹ We would like to alert physicians of this phenomenon, as we are sure there will be an increase of these patients in the future.

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Reference

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