

Inappropriate Drug Prescribing: A Soluble Problem?

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Inappropriate drug prescribing by physicians has been recognized as a significant problem for many years. A study is reported in this issue which reminds us of this problem. Robinson and his colleagues present the results of their study of antibiotic prescribing in a university-based family medicine residency program.¹ Their findings that approximately one third of all antibiotic prescriptions were inappropriate, as judged by a peer-review panel, are similar to the findings of many previous studies of inappropriate prescribing of drugs in various fields. An especially disturbing finding in this study, however, is the markedly increased prevalence of inappropriate prescribing of antibiotics by third-year residents as compared with first-year residents and faculty members.

There is substantial literature over the last 20 years on the prescribing patterns of physicians that has documented a wide range of factors influencing the appropriateness of drug prescriptions. In a comprehensive literature review in 1975, Hemminki² identified the major factors as education, advertising, colleagues, control and regulation measures, demands from society and patients, and physicians' characteristics. The obsolescence of many drugs—the average market life of a drug from its introduction to withdrawal from the market in the United States is only five years³—means that most drugs in current use today were not available when most practicing physicians were in medical school or in graduate training. Smith⁴ has observed that pressure from patients is a common factor in overprescribing. A recent Canadian paper identified the type of practice setting as still another variable in the quality of drug prescribing. In a study of prescribing patterns of general practitioners in the Montreal area for simulated patients with tension headache, it was found that the therapy prescribed by 51 percent of physicians in

private group practice was "inadequate" as compared with 25 percent of physicians practicing in government-sponsored primary care groups.⁵ In another recent study of prescribing patterns for benzodiazepines among psychiatrists and family physicians in a US medical school, it was found that prescribing decisions were often inappropriate and seemed to depend on a complex interaction of patient's sex, employment, symptom severity and chronicity, and the physician's attitude about drug therapy.⁶ Balint et al⁷ believed that excessive use of repeat prescriptions of psychotherapeutic drugs bears commentary to the nature of the physician-patient relationship more than to characteristics of either the patient or the physician separately.

There is considerable evidence pointing to a profile of characteristics related to appropriate prescription of drugs. Becker and his colleagues⁸ found that superior prescribers tend to be younger, to have more postgraduate training, to be more skeptical of the pharmaceutical industry, and to be more concerned with psychosocial and quality dimensions of medical care. Good prescribers seek more information on contraindications of drugs, question colleagues more frequently about drug therapy, and rely most heavily on medical journals for information about drugs.⁹

Comparative studies across specialties have generally shown that family physicians perform on a par with most of the other specialties and, in some cases, better than some.¹⁰ Even if one concedes that the judgments of peer-review panels about the appropriateness of drug prescriptions may often involve some degree of subjectivity and honest difference of opinion, a substantial problem

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LIMBITROL® TABLETS Tranquillizer—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. I.V. 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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of inappropriate prescribing still remains in all specialties that have been studied.

What implications does all of this have for family practice and educational programs in family medicine? Two conclusions seem warranted:

1. The inappropriate prescription of drugs is a common problem regardless of specialty, location, or type of drug involved.

2. Heightened awareness of this problem can lead to more effective continuing education of physicians on drug therapy through a variety of approaches, including targeted emphasis on current drug therapy in continuing medical education courses, active reference to the literature (which might include subscription to *Medical Letter*), periodic audit of drug therapy practice, and more frequent questioning of colleagues and clinical pharmacists concerning advances in drug therapy.

Family practice has taken the lead in interacting more closely in recent years with clinical pharmacy. Continued efforts in this direction should help to improve prescribing patterns in terms of efficacy, safety, cost and appropriateness of drug therapy.

References

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