MEDICINES & DRUGS

Problems & Risks
Use & Abuse

second edition

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Preface

There is no question that therapeutic drugs have been enormous assets in the therapy and prevention of human disease. It is also undoubtedly true that the large number of therapeutically useful drugs made available by pharmacological and pharmaceutical research has contributed to the increased use of drugs. Another contributing factor is the extended life expectancy of most populations, which has brought about a change in disease patterns and a rising incidence of chronic and degenerative diseases.

The too-liberal use of over-the-counter products by the general public and the liberal prescribing habits of some physicians have also certainly contributed to drug overuse. The widespread belief among the general public that medical science has produced a pill to alleviate almost every illness or discomfort may be influencing the prescribing practices of doctors.

It is likely that a number of other factors are contributing to the increased use of drugs—drug availability and mass media advertising, for example.

Sincere efforts have been made by some government officials and pharmaceutical companies to improve drug safety and advertising honesty in spite of the persistent efforts of some factions in the drug industry to exploit any opportunity which might enhance their profits.

As consumers we cannot simply rely on the safeguards provided. We must take the responsibility of understanding the nature and possible risks involved in the use of drugs for health and medical reasons.

Just as drugs, in some form, have been therapeutically used for many years, they have also been abused (legally and illegally) in an

attempt to reduce the pain of existence or to produce a special experience which was otherwise not available. What is new in our time is the greater availability of dangerous drugs with an ever-increasing use in progressively younger age groups. The abuse of drugs has filtered down from isolated groups of adults to college students to high-school students and now to elementary school pupils. It is also clear that, while drug abuse was once associated almost exclusively with poverty, drug use and drug addiction are now commonly found among the middle class and well-to-do.

As a result, the need to solve the "drug problem" has been a recurrent theme of political and social commentary in the United States for several decades. The apparent increase in drug use, itself defined as the problem, has precipitated a serious inquiry into its causes, a massive investment of social efforts to contain it and a mobilization of medical and paramedical resources to treat its victims.

A drug problem *does* exist. Believed to be declining for 2 years, abuse of some drugs appears to be on the upswing again. There has been a sharp rise in deaths from narcotic overdose and more users are being treated in emergency rooms. There have also been larger numbers arrested in drug raids.

We have not done well with our treatment programs, our law enforcement efforts or the judiciary; it seems almost ludicrous that in our most civilized era we cannot control crime, illicit drug traffic, the bizarre pursuit of pleasure and what the biological observer might term "the fouling of our own nests." Social scientists watch in some despair as the American home and the American family are minimized. Divorce rates are increasing with large numbers of children at the mercy of agencies which are underfunded, understaffed and unable to cope properly with the underparented child. There is increasing public alarm over the attraction to drug use by large proportions of our youth, particularly when such use is indiscriminate and oblivious to risk. With the concern comes the frustration of knowing that drug use spreads by example, and that a continuing growth in the using population spawns a larger group of users for tomorrow.

Drug abuse stands out among other social problems as a symptom of social failure. The drug abuse problem is obviously a "people" problem and not really a drug problem. Before we can deal with drug abuse we must be prepared to understand and deal with people. The key factor in the development of drug abuse is the interplay among the chemical nature of the drug, the personality, values and emotional traits of the individual and his environment.

People do not ordinarily continue to do something that does not

fulfill some real or imagined need. To persist, behavior must be reinforced. To the extent that it does fulfill a need, it will recur, often at some risk, unless it interferes with some more important need. The need for a drug may be closely related to its real or imagined effects or it may be grounded in social rather than chemical elements. Use of specific substances may determine group membership or status within a group or among groups, it may function as either a symbol or a symptom of rebellion, alienation, independence or sophistication.

Unfortunately, for many people the problem of drug abuse is personal and often tragic. Since it affects not only those who take drugs but also their families, friends and others who may be victimized by drug-related problems, there is no simple answer to the problem.

No one preventive or rehabilitative program has been effective in dealing with all drug-related problems. Some evidence suggests that the more traditional methods of deterrence, involving reliance on scare techniques, moralizing and other emotionally charged types of persuasion, have not proven effective. The attempt to solve the drug problem through the dissemination of drug information has been equally unsuccessful.

Because of the nature and magnitude of existing drug abuse, we must understand the problem in its complexity and carefully formulate meaningful plans of action. Sound planning based on accurate information is especially needed at this time when drug issues often provoke frightened and sometimes irrational thinking and behavior. Many people do not understand the nature and scope of the problem, and few have substantial knowledge.

Drug abuse and the need for an enlightened program to help combat it are salient issues for educators, government officials, health professionals and parents. Many people who are seriously concerned with drug abuse do not possess either the necessary factual information about drugs or an understanding of the psychosocial factors leading to abuse. Many professionals are so frightened by the danger involved that they communicate to youth about drugs only in a punitive, didactic, alienating manner.

This book has been especially prepared for teachers and other individuals who have interests or responsibilities in working with youth. It draws heavily on the excellent research and reports that have been published by the Food and Drug Administration, the National Institute of Mental Health, the National Institute of Drug Abuse, the National Institute of Alcohol Abuse and Alcoholism and the National Commission on Marihuana and Drug Abuse. The information has been compiled with the hope that the reader may

gain some understanding and insight into the abuse of mood-modifying drugs as well as of the benefits, risks and problems related to the therapeutic use of drugs.

The book represents a gleaning from the research and writings of many prominent experts in the field of drug use and abuse. It could easily be utilized as a text for courses in the social and health sciences, or to help those directly or indirectly affected by a drug problem to better understand the nature of the problem and the possible courses of action.

It is important to remember, however, that no book, in fact no single source of information, can supply all of the answers to the use and abuse of drugs. A vast body of literature and information is available to those seeking further understanding.

Provo, Utah BRENT Q. HAFEN

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Chapter 1

The Health Value of Drugs

Fifty years ago, doctors could do little to help victims of the crippling disease poliomyelitis. Serious cases usually ended in death. Slowly progress was made in reducing the death rate and crippling, but polio outbreaks increased at an alarming rate. Then in 1955 a dramatic breakthrough took place—a vaccine was developed which prevents the disease before it starts. Today polio is no longer a major health problem.[1]

Similarly, other modern drugs can prevent or cure many illnesses that caused disability or death. Drugs have radically changed medical practice over the years. It has been said that more medical progress has been made in the past 25 years than in the previous 20 centuries.

The life span of an average person has been increased from about 47 years in 1900 to about 70 years today. Much of the credit for this amazing progress can be given to modern drugs and improvements in medical care.

More than 90 percent of all prescriptions written today are for drugs not even on the market 25 years ago. In fact, many of the most important drugs prescribed today have been developed in the last 15 years.[1] If used properly and only when medically necessary, modern drugs can be one of the greatest blessings of our time.

DRUG BENEFITS

It is evident that pharmaceutical products have been enormous assets in the therapy and prevention of human disease. It is perhaps worth reviewing a few of these specific drug benefits according to a convenient classification: curative, corrective (pharmacodynamic), palliative, substitutive, preventive (prophylactic), diagnostic, supportive and restorative.

Curative Drugs

Practically every drug that exerts a curative action is a chemotherapeutic agent directed toward the treatment of infectious disease.

With the modern chemotherapeutic agents, infectious diseases are no longer the terrifying threat that they were in the past. Bacterial septicemias and meningitis that were once considered to be 100 percent fatal can now be cured with regularity. Although the great majority of the drugs used are relatively safe, one would not hesitate to employ a fairly toxic agent where the benefit is life versus death.

Corrective (Pharmacodynamic) Drugs

This group of drugs acts directly on the body to help correct physiological or biochemical abnormalities. None is capable of curing a disease, but they can reverse pathological processes to the extent that the patient can enjoy a long and productive life. The list of pharmacodynamic agents introduced within the last few decades is long. It includes general anesthetics, hypnotics, anticonvulsants, local anesthetics, neuromuscular blocking agents, drugs for Parkinson's disease, antipsychotics, antidepressants, antihistamines, antiarrhythmic drugs, antihypertensive agents, hypoglycemic agents, diuretics, antiinflammatory agents, drugs for the treatment of gout and many more.[2]

Palliative Drugs

Palliative drugs are used to treat symptoms. They contribute to the comfort of a patient without curing any biochemical or physiological abnormality. Physicians may have a feeling of inadequacy when they can offer only palliative therapy, but even in this instance drugs make a major contribution. Some palliative drugs are used for the relief of pain in minimal disorders while others block the pain of major disease such as cancer. Others may be used to inhibit a "runny" nose, a cough or to help alleviate congestion.

Substitutive Drugs

Substitutive drugs comprise natural or synthetic substances for the treatment of diseases associated with their deficiency in the organism. Many of these are endocrine or hormonal substances. Many deficiency states can be treated effectively to correct the manifestations

of the deficiency. For example, a hypothyroid patient can be returned to a normal state with the use of thyroid extract or, more recently, of synthetic, chemically pure thyroid hormones. The patient with adrenal insufficiency was at one time given little chance for survival. Now, however, with the availability of synthetic corticosteroids he can lead a long and productive life.[2]

Preventive (Prophylactic) Drugs

Prophylactic drugs are those used to prevent the occurrence of a disease process. The best known are those biological preparations prepared specifically to counter infectious disease. Antipoliomyelitis vaccine and smallpox vaccine are 2 well-known examples.

The prophylactic use of penicillin to prevent recurrences of rheumatic fever is a good example of the use of an antibiotic for preventive purposes.

Restorative Drugs

Drugs used to help the body return to its normal healthy state are called restoratives. These drugs are usually used during convalescence to aid nature in its reconstructive processes. The vitamins and minerals are substances commonly used for this purpose.

Supportive Drugs

Supportive treatment is used to sustain the patient until other measures can be instituted which will either cure or alleviate the condition. The tranquilizers, vitamins and antibiotics are examples that may be used as supporting agents under some circumstances.

The human body's normal recuperative powers will overcome most illness, but with help they will do the job more effectively and in less time than alone. Supportive treatment is designed to accomplish this.[3]

Diagnostic Drugs

Drugs used to aid the physician in deciding what is causing the patient's symptoms are known as diagnostic drugs. These drugs not only help the doctor to determine the reason for the patient's illness but are also of benefit in locating the exact area of the body affected. For example, a patient may swallow a substance which will show up on roentgenograms to reveal a possible abnormality in his intestines.

IDENTIFYING THERAPEUTIC DRUGS

The present-day use of a variety of names for the same drug is cause for confusion not only among patients but sometimes for physicians as well. One name under which a drug may appear is its official name, another the generic name, another its chemical name, and a fourth can be a trade name.

The chemical name is meaningful principally to the chemist, who sees in the names a very precise description of the chemical composition of the drug and the exact placement of atoms or atomic groupings.

The official or common name is the name under which it is listed in one of the official drug publications. Before a new drug becomes official, it will have assigned to it a generic name. This name is more simple than the chemical name, although it may reflect the chemical family to which the drug belongs. The generic name is never changed and can be used in all countries. It is usually initiated or proposed by the company that develops the drug.

A trade or brand name is the name given to the drug by the manufacturer. It is registered and its use is restricted to the manufacturer who is the legal owner of the name. Two or more companies may make the same drug under different trade names. Sometimes a single drug may be sold under 10 or 20 trade names, which results in a great deal of undesirable confusion.

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Chapter 2

Over-The-Counter Drugs

The nation's basic drug law divides drugs into 2 main classes: over-the-counter (OTC) drugs and prescription drugs.

An OTC drug is one that can usually be used safely without a doctor's supervision if the directions on the label are followed. Over-the-counter drugs cannot "cure" the underlying cause of disease. They can only relieve or alleviate symptoms.

Examples of common OTC drugs are analgesics, cough preparations, antacids, laxatives, decongestants, emetics, antidiarrheals, hypnotics and some antihistamines. The law permits the sale of these drugs "over the counter," that is, without a doctor's prescription.

ANALGESICS

Sales figures show the OTC analgesics are among the most widely used drugs on the market. In a recent year, approximately 17,500 tons of aspirin, the principal OTC analgesic, were consumed in this country. Every day Americans swallow 36 million tablets of aspirin. This means that the American public spends approximately $600 million a year on aspirin.

In the main, nothing in the OTC market has yet been shown to surpass aspirin as an analgesic, antipyretic, anti-inflammatory agent. For those who are allergic to or, for some reason, cannot tolerate any of the many available forms of aspirin, acetaminophen is available but at a much higher cost.[1] Acetaminophen has about as much analgesic and antipyretic effectiveness as aspirin, but it is not an effective anti-inflammatory agent. The main deficiency of acetaminophen as an aspirin substitute is this lack of anti-inflammatory action. However, like aspirin, it is a drug relatively low in toxicity in normal use, can be used by those who are allergic to aspirin and does not cause gastric bleeding.[1] However, recommended doses should not be exceeded because liver damage may occur.

Phenacetin, another OTC analgesic, is seldom used alone. Its use is attended by the possibility of different side effects than those encountered with aspirin, and it bears a warning of possible kidney damage if

taken habitually over a long period of time. Phenacetin is decidedly inferior to aspirin in anti-inflammatory activity.[2]

Advertisers sometimes list aspirin in OTC products by its scientific name, acetylsalicylic acid. Also, salicylamide, a much less effective analgesic, is sometimes substituted in OTC formulas to support claims that the product differs from ordinary aspirin. It is not a salicylate and does not behave as one.

In comparability claims, much promotion is based on statements such as "stronger than aspirin," "extra-strength pain relief," "fast" or "faster" pain relief, "more prolonged relief," or "gentler" or "less irritating" action. The consumer is not told that the 2 leading competitive products featuring "stronger-than-aspirin" claims simply provide more aspirin per tablet combined with other ingredients that contribute little or nothing to the product. The *Handbook of Non-Prescription Drugs* published by the American Pharmaceutical Association states that, "combination analgesic (pain-relieving) products appear to have no clinical advantage over single component products. These combinations, for the most part, are of greater economic significance to the manufacturer than increased therapeutic benefit to the patient."

Other analgesic products make promotional claims based on timed-release or long-acting performance. The facts are that all such preparations have no real advantage over an equivalent dose of regular aspirin.

Antacids have been added to aspirin and advertised as providing protection against stomach upset or as being faster acting. Mixtures of magnesium carbonate, aluminum glycinate and aspirin cost 3 times more than generic aspirin, yet there is no substantial evidence that they are more effective, that they produce less gastric upset or that they are faster acting.

Although aspirin is a valuable mild analgesic, it is generally not appreciated that the drug can cause some rather serious adverse effects.

Approximately 5 percent of patients taking aspirin experience heartburn even after a single dose. Such intolerance may preclude the use of aspirin in these individuals. A much more serious problem, however, and one which is totally ignored by the advertising media, is the fact that gastroduodenal bleeding and ulceration may result from the regular and continuous use of aspirin. A large number of studies have conclusively demonstrated that aspirin produces focal necrosis (cell death) which leads to gastric bleeding and ulceration, yet this fact appears to be little appreciated by laymen and many health professionals.[3]

This incidence of bleeding is significant; nearly 70 percent of patients taking aspirin show a daily recurrent blood loss of 2 to 6 milliliters (ml.) (half to one teaspoonful), and 10 percent of these patients lose daily as much as 10 milliliters (2 teaspoonfuls). Scientists investigating this effect note that aspirin ingestion may be the precipitating factor in 50 percent of patients hospitalized because of hemorrhage.[3]

It appears that aspirin may also double the time necessary for human blood to clot, although the maximum strength of the clot is not significantly affected.[4]

Aspirin-induced asthma is by far the most serious of the adverse reactions.[1] Aspirin-induced asthma attacks are most often precipitated by small amounts of the drug and may be accompanied by laryngeal swelling, abdominal pain and shock. In some cases, death may occur within minutes. Fortunately the incidence of this type of sensitivity is probably less than 0.2 percent in the general population.

Aspirin is a major cause of death in children up to 6 years of age. Each year more than 500 children die from overdoses of aspirin.

Even with its problems, aspirin is still the pain reliever of choice for most people. Its relatively low incidence of serious side effects with normal use, compared to other analgesics, ranks it as one of the safest.[1]

Although the OTC analgesics are safe when used as directed, no drug, whether for prescription or over-the-counter use, is totally safe. No one, especially children, should be exposed unnecessarily to a possible adverse drug reaction.

In sum, the OTC analgesics represent a class of drugs manufactured in a seemingly endless variety of dosages, but containing basically 3 ingredients. They are promoted with techniques that bombard consumers with terminology which confuses, rather than enlightens and informs.

Consumers Union's medical consultants recommend aspirin and suggest buying the cheapest brand.[1] No controlled scientific evidence shows one aspirin product to be superior to another in its ability to relieve pain or reduce fever.

The following suggestions offer a safer approach to the use of aspirin:

1. Be aware that aspirin can cause or aggravate digestive ulcers. Do not take it if suffering from stomach problems, asthma or bleeding problems.
2. Keep aspirin in a safe place in a safety-cap container so that small children will be protected.
3. Consult a physician if you need more than 2 to 4 tablets daily for pain relief. Do not take more than 10 to 15 grains at a time (2 to 3 tablets). Do

not take aspirin, even in the recommended dosages, more than 10 days in succession. Do not take aspirin more often than every 4 hours, or more than 10 tablets in 24 hours unless under a physician's direction.

4. Watch for allergic symptoms such as skin rash, dizziness, ringing in the ears, chest pain, hay fever or an attack of asthma. These reactions can be severe and a physician should be consulted immediately and the aspirin discontinued. For those allergic or sensitive to aspirin, acetaminophen is a reasonable alternative.
5. Drink a full glass of water or other liquid with your aspirin to minimize possible stomach irritation.
6. The use of timed-release aspirin preparations is not advised because absorption may be irregular and adverse reactions prolonged.[5]
7. Do not trust the advertising claims made for aspirin and other OTC analgesics. Many are exaggerated and some untrue.

No painkiller should be taken for longer than 10 days by adults or 5 days by children unless under specific directions from a physician.[17]

ANTACIDS

All told, Americans spend over $100 million a year on medications that promise prompt relief from stomach distress—tablets, pills, chewing gums, mints, powders, liquids. Most are bought without a prescription or even a doctor's advice.[6]

Drugs aimed at overcoming real or fancied overacidity are called gastric antacids. As their name implies, the job of antacids is to neutralize excess hydrochloric acid and inactivate pepsin, 2 substances secreted by the stomach as a vital part of the digestive process.

Under a doctor's supervision, antacids are helpful in treating gastritis, peptic ulcers and hyperchlorhydria, a condition in which the stomach puts out too much hydrochloric acid.

Individuals who resort to routine self-administration should consult a physician on the possibility that recurring symptoms require medical attention.[7]

While antacids relieve the pain of ulcers, there is no conclusive evidence that they make them heal any faster. Antacids will not do away with the "blahs," relieve cold symptoms or quell nausea, but they can be useful for people whose stomach distress is due to simple excess acidity. The conditions likeliest to respond are "acid indigestion," "sour stomach" and "heartburn," a burning sensation in the center of the chest caused by stomach acid that is regurgitated into the esophagus.[6]

Incidentally, an antacid taken after a meal continues working for 2 or 3 hours, compared with about 15 minutes for one taken on an empty stomach.[6]

Overeating, emotional stress and air swallowed when a person bolts his food are common causes of discomfort. However, symptoms of indigestion and heartburn sometimes mimic more serious disorders. Severe or unusually frequent bouts are matters for the doctor, not self-medication. This is especially true when someone finds he must use higher doses of the antacid at more frequent intervals to obtain temporary relief.[7]

Unlike drugs the doctor prescribes, antacids up to now have not had to meet approval for safety and effectiveness by the federal government. A change in the rules and the public's preoccupation with hyperacidity, sharpened by advertising, recently led the Food and Drug Administration (FDA) to place antacid products at the head of the list of dozens of nonprescription drugs the claims for which are to be examined.

The government has already found that 28 acid-reducing ingredients, including most of those used in products on the market, are safe enough and "potentially effective" but that some formulations do not do all the advertisements say, and some contain nonantacid ingredients that may be unsafe or of dubious worth. The FDA has incorporated the findings into a rule designed to require better labeling of information and a truer picture of what antacids can and cannot do.[6]

Current regulations forbid the manufacturer to make claims or use indications on the label that the product may directly affect such things as "nervous tension headaches," "nervous emotional disturbances," "overconsumption of alcoholic beverages," "food intolerance" and even "cold symptoms."[7] Such claims are held to be not truthful or accurate since the relationship of such phenomena to gastric acidity is both unproven and unlikely.

It will be permissible to say that antacids relieve "heartburn," "sour stomach," and "acid indigestion," symptoms the FDA Panel say are probably related to excess acidity. But if the drug makers want to use such terms as "upset stomach" or plain "indigestion," they will have only 2 years to come up with better evidence that antacids really work against these vague-sounding symptoms since nobody has proven that they are related to stomach acidity.

Antacids are not alike and none is ideal for every problem. The most frequently used are those that contain salts of aluminum, bismuth, calcium, magnesium, potassium and sodium.

Until appropriate labeling and advertising become reality, Consumers Union suggests the following guidelines:[8]

1. Do not use any antacid regularly for more than a few days except under the advice and supervision of a physician.