Current Medical Diagnosis & Treatment 1987

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From inability to let well alone; from too much zeal for the new and contempt for what is old; from putting knowledge before wisdom, science before art and cleverness before common sense; from treating patients as cases; and from making the cure of the disease more grievous than the endurance of the same, Good Lord, deliver us.

–Sir Robert Hutchison

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Preface

Current Medical Diagnosis & Treatment 1987 is a comprehensive general medical text designed to serve the complete physician as his or her single most reliable source of information on adult diseases. Practical information on the management of patients is emphasized, along with appropriate background information to facilitate conceptual understanding.

OUTSTANDING FEATURES

- Revised and updated annually to maintain current relevance to daily problems of medical practice.
- In addition to covering all aspects of internal medicine, also includes chapters on obstetrics and gynecology, dermatology, ophthalmology, neurology, and other subjects of concern to the office practitioner.
- Over 1000 diseases and disorders.
- Consistent readable format, permitting efficient use in multiple clinical settings.
- Drug side effects and dosage adjustment for maximal therapeutic efficacy.
- Selected references for further investigation.
- Equally useful in inpatient and outpatient setting.

INTENDED AUDIENCE

Internists, family physicians, and other specialists will find *CMDT* useful as a ready reference and refresher text.

General surgeons, surgical specialists, obstetricians, gynecologists—all physicians and dentists—will find the book useful as a basic treatise on internal medicine, particularly the chapters on metabolism, endocrinology, cardiology, nephrology, geriatrics, and infectious diseases.

Students will find the book to be a reliable, authoritative introduction to medicine, with references that introduce them to a wide body of relevant literature.

House officers will find the concise discussions of diseases and the up-to-date references useful in the immediate management of patients.

Nurses and other health practitioners will find that the concise format and broad scope of the book facilitate their understanding of diagnostic procedures and rational therapy.

ORGANIZATION

This book is organized primarily by organ system. The sections on differential diagnosis refer to other systems where appropriate.

Chapters 1–3 present general information on patient care, including special problems of the elderly patient and prevention of disease. Chapters 4–19 present diseases and disorders according to specific organ systems. Chapter 20 discusses general problems of nutrition and metabolism. Chapters 21–27 cover infectious diseases, and Chapter 28 presents the latest information about antiinfective chemotherapy. Chapters 29–33 cover special topics: physical agents, poisoning, genetics in medical practice, malignant disorders, and immunologic disorders. The appendix provides data on normal values of daily interest in medical practice, as well as sections on imaging techniques, cardiopulmonary resuscitation, and the emergency treatment of airway obstruction.

NEW TO THIS EDITION

- Latest information on AIDS.
- Current indications for MRI and CT.
- A new chapter on nutrition.
- A revised chapter on genetic disorders, including new information on oncogenes and genetic counseling.
- A substantially revised first chapter on general care, including a section on disease prevention.
- Comments on chronic Epstein-Barr virus infection.
- A new section on angiodysplasia of the bowel.
- Major revision of the chapter on immunologic disorders, with a new section on clinical organ transplantation.
- Drug information and bibliographies updated through August 1986.

ACKNOWLEDGMENTS

The widespread distribution of this book overseas, both in translation and in its English language editions, has been a source of satisfaction to all who have worked on it over the years. We wish to express our thanks to our associate authors for participating so effectively in

the annual effort of updating and to the many students and physicians who have made useful suggestions for this and previous editions.

With the appearance of the 1987 edition, MAK and LMT welcome Dr Steven A. Schroeder as a new coeditor, succeeding Dr Milton J. Chatton, who for a quarter of a century contributed so creatively and unflaggingly to the success of the book.

We continue to solicit comments and recommendations for future editions. Correspondence should be addressed to us at Lange Medical Publications, P.O. Drawer L, Los Altos, CA 94023.

Marcus A. Krupp
Lawrence M. Tierney, Jr.
Steven A. Schroeder

February, 1987

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General Care—Symptoms & Disease Prevention

1

Steven A. Schroeder, MD, & Milton J. Chatton, MD

PAIN

Approach to the Patient

Pain is the most common symptom causing patients to seek medical attention. Acute pain is often a manifestation of tissue injury and can provide the clinician with important diagnostic information. One should elicit and record information about the timing, nature, location, and radiation of pain and should note any aggravating or alleviating factors. Pain is a highly subjective phenomenon, and the patient's description may be difficult to interpret without careful questioning and amplification.

Many emotional and cultural factors influence the perception of pain. It is essential to try to establish the primary cause (eg, trauma, infection), pathogenesis (eg, inflammation, ischemia), and contributory factors (eg, recent changes in life situation, symbolic attributes of pain).

The management of pain must be individualized, depending on its severity, chronicity, and probable cause. Administration of a systemic analgesic is the usual method of management, but many other forms of pain control are available and should be used in appropriate circumstances.

Chronic Severe Pain

Awareness of the many pain control resources available is of special importance in managing the intractable pain of terminal cancer. Selection of drugs and dosages is critical in managing chronic severe pain, especially in difficult cases requiring a team effort. Examples of methods available for pain control are graded physical activity, simple reassurance, support groups, biofeedback training, and transcutaneous electrical nerve stimulation.

ANALGESIC AGENTS

1. DRUGS FOR SEVERE PAIN

The addicting analgesics—narcotics, opioids—are indicated for severe pain that cannot be relieved with less effective agents and threatens to cause systemic shock. Examples are the pain of severe trauma, myocardial infarction, and ureteral stone and the pain that occurs postsurgery. Table 1–1 lists the addicting analgesics with some of their characteristics.

These drugs have pharmacologic similarities to opium. They are employed principally for the control of severe pain, but they also act to suppress severe cough and diarrhea. All can produce **physical dependence** ("addiction"), but to varying degrees and after varying periods of use. The risk of addiction or habituation should not prevent their appropriate use, especially in the management of terminal illness.

A common error in management of pain from cancer is to prescribe insufficient doses "as necessary" rather than adequate doses around-the-clock at stated intervals. In such cases, the major goal of management should be patient comfort.

The "Brompton cocktail," a mixture of heroin or morphine, cocaine, a phenothiazine, alcohol, and chloroform water for oral administration, was widely publicized as an effective analgesic in British hospices. Subsequent studies have shown that morphine alone is just as effective. Whether heroin—currently unavailable for prescription use in the USA—is superior to morphine is still controversial.

The effects of narcotics are reversed by naloxone and similar antagonists.

Tolerance

Continued use of narcotics produces tolerance—ie, increasing doses are needed to produce the same analgesic effect.

Contraindications

The narcotic drugs are contraindicated in some acute illnesses. In suspected acute abdomen, for example, the pattern of pain provides important diagnostic clues; and in acute head injuries these drugs interfere with clinical interpretation of neurologic changes.

Adverse Effects

The drugs in this category have the adverse effects listed below, though not to the same degree in all cases. Patients with hypothyroidism, adrenal insufficiency, hypopituitarism, reduced blood volume, and severe debility are particularly apt to suffer adverse effects from the addicting analgesics.

(1) Opioid narcotics should not be given to pa-

Table 1–1. Useful narcotic analgesics.*

	Approximate Equivalent Dose (mg)	Oral:Parenteral Potency Ratio	Duration of Analgesia (hours)	Maximum Efficacy	Addiction/Abuse Liability
Morphine	10	Low	4–5	High	High
Hydromorphone (Dilaudid)	1.5	Low	4–5	High	High
Oxymorphone (Numorphan)	1.5	Low	3–4	High	High
Methadone (Dolophine)	10	High	4–6	High	High
Meperidine (Demerol)	60–100	Low	2–4	High	High
Codeine	30–60†	High	3–4	Low	Medium
Oxycodone‡ (Percodan)	4.5†	Medium	3–4	Moderate	Medium
Dihydrocodeine (Drocode)	16	Medium	3–4	Moderate	Medium
Propoxyphene (Darvon)	60–120†	Oral use only	4–5	Very low	Low/medium
Pentazocine (Talwin)	30–50†	Medium	3–4	Moderate	Low/medium

*Modified and reproduced, with permission, from Katzung BG (editor): *Basic & Clinical Pharmacology*, 3rd ed. Appleton-Lange, 1987.

†Analgesic efficacy at this dose not equivalent to 10 mg of morphine. See text for explanation.

‡Available only in tablets containing aspirin (Percodan) or acetaminophen (Percocet).

tients with pulmonary insufficiency, because of dose-dependent respiratory depression.

(2) Central nervous system effects include sedation, euphoria, nausea, and vomiting. Antidepressants, antihistamines, phenothiazines, and hypnotics can potentiate these effects.

(3) Cardiovascular effects of particular importance are hypotension and circulatory collapse.

(4) Gastrointestinal effects are chiefly decrease in bowel motility and consequent severe constipation.

(5) Genitourinary effects include bladder spasm and urinary retention.

(6) Hepatic and biliary effects include enhanced sensitivity to the drugs, in patients with hepatic insufficiency; and biliary spasm, resulting in severe biliary colic.

(7) Allergic manifestations also occur.

Frequently Used Addictive Analgesics

A. Morphine Sulfate, 8–15 mg subcutaneously or intramuscularly, is the most effective drug for control of severe pain. The effects last 4–5 hours. In acute myocardial infarction or acute pulmonary edema in left ventricular failure, 2–6 mg may be injected slowly intravenously in 5 mL of saline solution.

Morphine produces significant respiratory depression, raises intracranial pressure, and may induce vomiting, which means that patients must be monitored during the period of the drug's effect.

B. Morphine Congeners give effects equivalent to 10 mg of morphine sulfate but have no specific advantages. Give either hydromorphone or oxymorphone, 2–4 mg orally every 4 hours or 1–3 mg subcutaneously every 4 hours.

C. Meperidine (Demerol), 50–150 mg orally or intramuscularly every 3–4 hours, provides analgesia similar to that achieved with morphine. Its indications and side effects are similar to those of morphine.

D. Methadone, 10 mg orally, is most often used for serious addiction and for treatment of chronic pain, as may be necessary in management of a patient with metastatic cancer. Its side effects are similar to those of morphine, but tolerance and physical dependence are slower to develop.

E. Codeine (sulfate or phosphate), 15–65 mg orally or subcutaneously every 4–6 hours, is somewhat less effective than morphine but also less habit-forming. It is often given together with aspirin or acetaminophen for enhanced analgesic effect. Codeine is a powerful cough suppressant in a dose of 15–30 mg orally every 4 hours but is constipating.

F. Dihydrocodeine is similar to codeine but more potent. Smaller doses are used (16 mg every 4–6 hours).

G. Oxycodone is for oral use and is always prescribed with another analgesic. The dosage is 5 mg every 4–6 hours in tablets that contain aspirin (Percodan) or acetaminophen (Percocet).

H. Propoxyphene (Darvon), 75 mg orally every 4–6 hours, has an analgesic effect little better than that of aspirin, but the side effects are minimal. When the drug is combined with aspirin or acetaminophen, the analgesic action is enhanced but is still similar to optimal doses of aspirin. Compared with other drugs in this category, it has a low potential for addiction.

I. Pentazocine (Talwin), 50 mg orally or 30 mg intramuscularly every 3–4 hours, is one of a group of agonist-antagonist opioids—ie, it can induce with-

drawal symptoms in addicts while also having a morphinelike action. It has moderate analgesic action. These drugs—others are nalbuphine (Nubain) and butorphanol (Stadol)—offer little advantage, can cause addiction, and are less effective analgesics than morphine. They should ordinarily not be used.

2. DRUGS FOR MODERATE PAIN

What constitutes "moderate pain" is a difficult semantic and clinical distinction perhaps best defined in terms something like this: If a responsible patient has enough pain to cause him to seek medical consultation but not enough pain to elicit a prescription for morphine from a responsible physician, the pain is moderate. Most people can manage their minor aches and pains with OTC analgesics available at the drug store or food store. Drugs such as codeine, oxycodone, and pentazocine, listed above as "addictive narcotics," are sometimes used for moderate pain, but salicylates or acetaminophen in higher doses or the highly visible class of NSAIDs are often better for this purpose. (See Table 1–2.)

The activity—both anti-inflammatory and analgesic—of aspirin, acetaminophen, and the NSAIDs is mediated through inhibition of the biosynthesis of prostaglandins. All of these drugs to varying degrees inhibit prothrombin synthesis and platelet aggregation, may cause gastric irritation and kidney damage, and may give rise to allergic reaction. All NSAIDs are analgesic, antipyretic, and anti-inflammatory in dose-dependent fashion. For example, ibuprofen has analgesic actions at 200 mg and analgesic plus anti-inflammatory actions at 400 mg. Their principal uses are in the control of moderate pain of arthritis (rheumatoid, degenerative, etc), other musculoskeletal disorders, menstrual cramps, and other—mainly self-limited—conditions, including moderate postoperative discomfort.

Table 1–2 lists the most commonly used NSAIDs along with dosages and pertinent comments.

3. DRUGS FOR MILD PAIN

The ability to tolerate minor degrees of discomfort varies greatly in different individuals. Most people prefer to relieve rather than endure pain, using analgesics by the millions of tons each year for the treatment of headaches, the discomfort of minor respiratory infections, muscle aches, etc. The most widely used agents for these purposes are aspirin and acetaminophen.

Aspirin is the drug of first choice for management of mild to moderate pain and is an effective antipyretic and anti-inflammatory agent. It is available in many forms for oral administration in a single 325-mg unit dose, as well as smaller (eg, 60 mg) and larger (eg, 500 mg) doses. The usual dose is 2 tablets (650 mg) every 4 hours as needed, taken with fluid. Gastrointestinal irritation can be reduced by ingestion with milk or other food or with an antacid. Enteric-coated aspirin (Ecotrin; many others) can be used to avoid gastric irritation, but absorption is delayed.

The main untoward effect of aspirin—especially in large doses or when taken chronically—is gastric irritation and microscopic blood loss from the gut. Rarely, there may be massive gastrointestinal hemorrhage, most commonly in heavy drinkers, or patients being given corticosteroids, or patients with a history of peptic ulcer disease.

Table 1–2. Useful nonsteroidal anti-inflammatory drugs.

Generic Name	Proprietary Name	Dosage Range	Comments*
Fenoprofen	Nalfon	300–600 mg 3–4 times daily	
Ibuprofen	Advil (OTC), Motrin, etc	200–600 mg 3–4 times daily	Now available without prescription; relatively well tolerated.
Indomethacin	Indameth, Indocin, etc	25–50 mg 2–4 times daily	Prototype untoward effects: headache, tinnitus, dizziness, confusion, rashes, anorexia, nausea, vomiting, gastrointestinal bleeding, diarrhea, nephrotoxicity, visual disturbances, etc.
Meclofenamate sodium	Meclomen	100 mg 2–4 times daily	Diarrhea relatively more common.
Naproxen	Anaprox, Naprosyn	250–500 mg twice daily	Useful for menstrual cramps.
Piroxicam	Feldene	20 mg daily	Single dosage convenient; relatively expensive; may have higher rate of gastrointestinal bleeding.
Sulindac	Clinoril	150–200 mg twice daily	Adverse effects similar to those of indomethacin; relatively expensive.
Tolmetin	Tolectin	200–600 mg 4 times daily	

*The adverse effects listed for indomethacin and others can occur with any of the drugs that have been available for shorter periods. Tolerance and efficacy are subject to great individual variations among patients.