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Factors Related to Medication Prescribing

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April 27, 2004

The prescription of psychotropic medication is the end result of a complex process that involves the application of many kinds of knowledge and skills, which can only be accomplished by physicians. This knowledge and skill set encompasses basic and applied sciences related to the normal and pathological functioning of the human body, as well as the more intuitive healing skills involved in treating patients with mental illnesses.

At the basic science level, a physician must have an understanding of biology, biochemistry, anatomy, and physiology. Such understanding is necessary to understand basic pharmacokinetics (how the body handles a drug) and pharmacodynamics (the effects of the drug on the body). Pharmacokinetics involves the absorption, distribution, metabolism, and elimination of drugs in the body. Multiple body systems are involved here beyond the central nervous system, including the renal, gastrointestinal, and circulatory systems, and even at times, the skin. Understanding of how different types of cells deal with chemicals, as well as how organs work (e.g., the kidneys) is crucial.

Pharmacodynamics involves cellular receptor mechanisms, dose-response (the amount of drug needed for a given effect), therapeutic indices (the ratio between a therapeutic dose and a toxic dose), and potential for tolerance, dependence, and withdrawal. Again, the knowledge of multiple body systems must be integrated to fully comprehend and safely utilize these concepts when prescribing medication to patients. Knowledge of pathological processes as well as normal functioning of these systems is also required.

The pharmacokinetics and pharmacodynamics described above become even more complex when multiple drugs are administered, a common situation among psychiatric patients. Physicians must be able to evaluate not only the drugs prescribed by him- or herself but also drugs prescribed by other physicians for non-psychiatric conditions. The administration of a second medication may change the plasma level of the first medication, or may alter the intended therapeutic effects of either the first or the second medication. The use of over-the-counter, herbal, and other alternative preparations is becoming an increasingly relevant issue, as are the use of alcohol and illegal drugs.

Before a medication is prescribed, a careful evaluation must be performed, and a treatment plan developed. An accurate diagnosis is essential to identify target symptoms and provide guidance on appropriate medication choice. It is well-known that an accurate diagnosis relies on a differential diagnosis that could include other (non-psychiatric) illness. Heart disease, thyroid disease, malignancies, and epilepsy are but a



few of the more common illnesses whose symptoms mimic psychiatric symptoms. Medications can have psychiatric side effects, such as depression or mania, even if taken at prescribed doses. A careless differential diagnosis which misses consideration of these non-psychiatric causes could prove deadly to the patient.

Choice of medication depends on other factors beyond diagnosis, such as co-existing medical conditions and current medication regimen, potential adverse effects of the available medications, and the patient's prior history with psychiatric medication. Physicians must also know when it is appropriate to recommend the "off-label" use of medication to a patient, that is, a use that has not yet been FDA-approved, but has been documented as effective in the medical literature.

Medication management is a complex interplay between medication choice, determining appropriate dose and duration, assessing treatment outcomes, and understanding patients' potential preferences and resistances in taking medication. Management of side effects of medications is a particularly difficult task, requiring considerable clinical skill. While some side effects may be transient and expected, others may require the prescription of another medication (for example, an anti-Parkinsonian agent). These medications may carry their own side effects and drug interactions. Some symptoms demand skillful medical evaluation to determine whether they represent life-threatening side effects requiring immediate intervention, or more benign processes unrelated to the medication prescribed. For example, in evaluating headache in a patient taking an MAO inhibitor for depression, or a sore throat in a patient taking clozapine for schizophrenia, the physician is called upon to gather appropriate medical information in order to make a recommendation: go immediately to an Emergency Room or simply use take usual symptomatic measures.

There are further complexities in prescribing medication to special populations. For example, the use of antidepressants in children has received considerable scrutiny in the recent past. However, it is unquestionable that some depressed children will not respond to psychotherapy alone. The decision to administer an antidepressant and to manage such treatment over time must be made by a physician who is fully trained in all of the areas mentioned above, in conjunction with the child and family members, who must be well-informed by the physician before giving their consent. As another example, while some medications are known to harm the fetus in pregnant women, the effects of many medications on fetal development are unknown. Again, medical training is needed to evaluate the risks and benefits of medication use in pregnancy, and present these to the expectant mother.

Source material taken from Comprehensive Textbook of Psychiatry, 7th edition, BJ Sadock and VA Sadock, eds., Lippincott Williams and Wilkins, 2000