Chapter 1
Psychopharmacology for Neurologists

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Clinical Vignette

In your office, a long-term patient with dementia and her daughter wish to discuss recent behavioral disturbances. She is 85 years old with a 5-year history of progressive memory loss and a recent impairment in language. Despite this, she has remained fairly functional. She is able to perform most activities of daily living and continues to walk independently, but stopped paying bills and cooking. She reluctantly stopped driving 2 years earlier at the family's request due to several near accidents and getting lost. She has been able to remain in her home, largely due to the efforts of her daughter, who pays the bills and provides the cooking and shopping. The daughter notes that hallucinations are becoming more frequent, especially at night. The patient frequently sees small children in the home. She has become increasingly agitated and has walked out of the house "looking for the police," only to be brought back by a neighbor when she couldn't find her way home. The daughter has since moved in with her mother and is frequently awakened by her vocal outbursts. The patient has been accusing her of stealing checks. This has led to her daughter's exhaustion, depression, anger, and resentment.

On examination, her performance on the St. Louis University Mental Status (SLUMS) Exam has remained stable at 14/30, demonstrating deficits in orientation, word fluency, visuospatial orientation, and short-term recall with relative preservation of language.

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Discussion

This scenario is common in the clinical practice of neurology. The patient's agitation and behavioral outbursts threaten her desire for dignity and independence in her own home. The behavior has also led to caregiver burnout in the daughter. Behavioral disturbances are a common reason for nursing home admission in patients with neurocognitive dysfunction [1, 2].

What are the reasons for the behavior? Although agitation and hallucinations are common in advancing dementia, one needs to consider a wide range of other causes. This could include poor vision and hearing loss leading to sensory-deprivation psychosis. Other considerations include urinary tract infection, sleep aid toxicity from diphenhydramine, electrolyte disturbances, and dehydration. Once these have been excluded, non-pharmacologic strategies such as better lighting to reduce shadows, new glasses, etc. may be tried. Once these options are exhausted, however, the neurologist may consider a sedative medication to control these behaviors. Atypical antipsychotics have been effective and widely prescribed for behavioral and psychiatric disturbances of dementia but have been associated with increased cardiovascular mortality [3]. Despite the risks, atypical antipsychotic use remains common both at home and in nursing homes.

Neurologists frequently encounter patients with psychiatric conditions, either primary or as a complication of neurologic disease. All neurologists see patients with mood disorders, and many are comfortable prescribing a first-line agent such as an SSRI. In fact, a majority of mood disorders are treated by non-psychiatrists [4]. Newer data shows the high prevalence of mood disorders in neurologic disease, such as Parkinson disease, stroke, and dementia. Depression occurs in a third of survivors of stroke [5] and is associated with higher mortality [6]. Depression has also been noted to increase the likelihood of later dementia [7–9].

Patients taking psychiatric medications are prone to drug interactions. Most are metabolized by P450 enzymes, the principal mechanism of drug-drug and drug-diet interactions. These medications may act as inhibitors or inducers of P450 enzymes, resulting in toxicity or reduced efficacy of other drugs. Some medications, such as codeine, may be inhibited in the inactive, prodrug state by potent inhibitors of 2D6 such as fluoxetine, leading to lack of efficacy (i.e., inability to convert to morphine).

Inhibitors and substrates of P450 enzymes are commonly coprescribed, increasing the likelihood of a clinically relevant drug interaction [10, 11].

Anticholinergic use is common among the elderly and has been linked to increased prevalence of dementia [12].

It is important that all neurologists be comfortable with these medications. Indications, side effects, diagnosis, treatment, and potential drug interactions are a principal focus of this book.

Scope of this Book

Most chapters in this book begin with a case that allows an explanation of psychopharmacology, with emphasis on six teaching points:

1. Choosing an agent, including what you need to know about the history
2. Therapeutic dose and length of time needed for efficacy
3. Switching if not effective
4. Common side effects and withdrawal symptoms
5. Neurological scenarios
6. How to monitor response

The chapters conclude with clinical pearls, summarizing the main take-home points.

It is our hope that this book will lead to greater recognition and treatment of psychiatric manifestations of neurologic disease. This book may serve as a resource regarding drug metabolism and indications, improving the prescriber's level of comfort, and provide a public service to reduce the burden of psychiatric illness in the community.

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