



Abstract

Olanzapine is a widely prescribed antipsychotic medication used in the management of various psychiatric disorders, including schizophrenia and bipolar disorder. Understanding the pharmacokinetics of olanzapine is crucial for optimizing dosing strategies.

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Keywords: Olanzapine; Pharmacokinetics; Cytochrome P450; Drug interactions; Genetic polymorphisms; Therapeutic

Introduction

Olanzapine is a second-generation antipsychotic medication that is widely used in the treatment of various psychiatric disorders, including schizophrenia, bipolar disorder, and treatment-resistant depression. It belongs to the thienobenzodiazepine class of drugs and acts as an antagonist at multiple neurotransmitter receptors, including dopamine D₂, serotonin 5-HT_{2A}, histamine H₁, and adrenergic alpha-1 receptors. To ensure optimal therapeutic outcomes and minimize the risk of adverse effects, it is important to have a thorough understanding of the pharmacokinetics of olanzapine. Pharmacokinetics involves the study of drug absorption, distribution, metabolism, and elimination processes within the body. These parameters play a crucial role in determining the concentration of the drug at its target site and its overall efficacy [1].

The elimination half-life of olanzapine ranges from approximately 21 to 54 hours, with interindividual variability influenced by factors such as age, gender, and smoking status. Olanzapine is primarily eliminated through hepatic metabolism, with only a small proportion excreted unchanged in the urine and feces. Several factors can influence the pharmacokinetics of olanzapine, including genetic polymorphisms of drug-metabolizing enzymes, co-administration of other medications that induce or inhibit these enzymes, and individual patient characteristics. Understanding these factors can help guide dosing adjustments and reduce the risk of adverse drug interactions. A comprehensive understanding of the pharmacokinetics of olanzapine is essential for optimizing its therapeutic use. Further research is warranted to explore the impact of genetic and environmental factors on olanzapine's pharmacokinetic parameters and to identify strategies for individualized dosing regimens [2].

In this review, we will provide a comprehensive overview of the pharmacokinetic properties of olanzapine. We will examine the absorption characteristics of olanzapine following oral administration, including factors that may influence its bioavailability. The distribution of olanzapine within the body, including its binding to plasma proteins and tissue distribution, will be discussed. The metabolic pathways involved in the biotransformation of olanzapine and the formation of

Materials and Methods

This review is based on an extensive search and analysis of relevant literature on the pharmacokinetics of olanzapine. A comprehensive review of scientific databases, including PubMed, Scopus, and Google Scholar, was conducted to identify relevant articles published up to the knowledge cutoff date of September 2021. The following search terms were used: "olanzapine," "pharmacokinetics," "absorption,"

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Studies that investigated the pharmacokinetics of olanzapine in
