



## Exploring the Impact of Pharmacogenomics on Gastric Cancer Chemotherapy

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### DESCRIPTION

Gastric cancer, also known as stomach cancer, is a cancer that typically starts in the innermost lining of the stomach. Chemotherapy is an important form of treatment for this type of cancer, and it involves the use of drugs to destroy or slow down the growth of cancerous cells. In the past, chemotherapy was limited by its toxicity as well as its lack of effectiveness in treating certain types of cancers. By understanding how these particular drugs are metabolized by the body, scientists can optimize dosing regimens to maximize therapeutic effects.

Pharmacogenomics is another field that has grown in importance when it comes to gastric cancer chemotherapy. This branch of pharmacology focuses on how genetic variations can affect a person's response to specific drugs. With pharmacogenomics, researchers can identify genetic markers that influence how well an individual will respond to different types of treatments for gastric cancer. By using this knowledge clinicians can adjust treatments specifically for each patient based on their unique genetic profile. It involves understanding how a drug moves throughout the body and how quickly it is absorbed, distributed, metabolized and eliminated. This knowledge plays a key role in determining proper dosage, drug interaction and efficacy.

Pharmacogenomics is a field which explores the way genes affect an individual's response to drugs. It looks at how certain genetic variations can cause a person to react differently to certain drugs than another person with different genetic makeup. Genetic factors are becoming increasingly important in determining which drugs will be more effective for certain individuals. The field of Pharmacokinetics (PK) and Pharmacogenomics (PG) is a rapidly growing area of study in the medical field that can greatly impact how we approach treatments for diseases.

Pharmacokinetics studies involve analyzing the absorption, distribution, metabolism, and excretion of drugs in the body. Pharmacogenomics studies seek to identify genetic variations that may influence an individual's response to a given

medication. The combination of PK/PG research and gastric cancer chemotherapy is a powerful tool for individualized treatment plans. It provides insight into which patients will benefit from which types of chemotherapy drugs, helping physicians adjust their treatment approach to maximize effectiveness while minimizing side effects.

Additionally, PK/PG research helps physicians understand potential drug interactions and dosage levels that will maximize safety and efficacy of treatments. This combination also allows researchers to explore which mechanisms are responsible for drug resistance in cancer patients, as well as which drugs or therapies might be most effective at balancing those mechanisms. Understanding these complex pathways can help chemotherapists make more informed decisions about doses and regimens in order to yield the best possible outcomes for their patients. Ultimately, PK/PG research has provided invaluable insight into how best to approach gastric cancer treatments through personalized care plans and improved understanding of drug resistance mechanisms. Through continued research and collaboration between scientists and healthcare professionals, we can continue to improve upon current treatments and work towards better outcomes for all those affected by gastric cancer.

The traditional approach to chemotherapy for gastric cancer has been a one-size-fits-all strategy, where a specific drug or combination of drugs is prescribed to all patients. However, this method may not be the most effective as responses among individuals can vary significantly due to differences in their genetics and metabolism. Personalized medicine, which takes into account these individual differences, is now being used to treat gastric cancer more successfully.

The use of personalized medicine has already demonstrated positive outcomes in various case studies examining gastric cancer chemotherapy treatments. One study examined the efficacy of two common treatments for gastric cancer and found that incorporating information about an individual's pharmacokinetic profile resulted in more successful treatment outcome than sticking with a one-size-fits-all approach. Another

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study compared Pharmacogenomic testing with standard chemotherapy treatment protocols for advanced gastric cancer patients and showed increased overall survival rates with those who were given targeted treatments based on their genetic profile

results. Evidence from case studies such as these indicates that using personalized medicine techniques like pharmacokinetics and pharmacogenomics can significantly improve outcomes for those undergoing chemotherapy for gastric cancer.