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# Enhancing Gastric Cancer Treatment through a Multi-Modality Therapeutic Approach

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#### DESCRIPTION

Gastric cancer, also known as stomach cancer, is a common malignancy that affects the digestive system. It is the fifth most common cancer worldwide and the third leading cause of cancer-related deaths globally. Despite advances in treatment, the prognosis for patients with advanced gastric cancer remains poor. In recent years, immunotherapy has emerged as a promising new approach for the treatment of cancer, including gastric cancer. However, it is becoming increasingly clear that combining immunotherapy with chemotherapy may offer even greater benefits in the treatment of gastric cancer.

Immunotherapy is a type of cancer treatment that works by harnessing the power of the immune system to recognize and destroy cancer cells. It involves the use of drugs that either stimulate the immune system or block the signals that cancer cells use to evade detection by the immune system. One of the most promising types of immunotherapy for the treatment of gastric cancer is immune checkpoint inhibitors (ICIs). These drugs work by blocking the signals that cancer cells use to evade detection by the immune system. By doing so, they allow the immune system to recognize and attack cancer cells.

Chemotherapy is a type of cancer treatment that involves the use of drugs to kill rapidly dividing cells, including cancer cells. It is a standard treatment for many types of cancer, including gastric cancer. However, chemotherapy can also damage healthy cells, leading to side effects such as nausea, vomiting, and hair loss.

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The combination of immunotherapy with chemotherapy has the potential to offer several benefits in the treatment of gastric cancer. First, chemotherapy can enhance the response to immunotherapy by increasing the number of cancer cells that are susceptible to immune attack. Second, immunotherapy can enhance the response to chemotherapy by sensitizing cancer cells to the effects of chemotherapy. Third, the combination of immunotherapy and chemotherapy may reduce the risk of resistance to either treatment alone, as they have different mechanisms of action.

Several clinical trials have investigated the combination of immunotherapy with chemotherapy for the treatment of gastric cancer. One of the most promising studies was the KEYNOTE-062 trial, which evaluated the use of the immune checkpoint inhibitor pembrolizumab in combination with chemotherapy for the first-line treatment of advanced gastric or gastroesophageal junction cancer. The study found that the combination of pembrolizumab and chemotherapy was associated with improved overall survival and progression-free survival compared to chemotherapy alone. Another study, the ATTRACTION-4 trial, evaluated the use of the immune checkpoint inhibitor nivolumab in combination with chemotherapy for the second-line treatment of advanced gastric cancer. The study found that the combination of nivolumab and chemotherapy was associated with improved overall survival compared to chemotherapy alone.

Despite these promising results, the combination of immunotherapy and chemotherapy is not without its challenges. One of the main challenges is identifying the optimal sequence of treatment. Another challenge is identifying which patients are most likely to benefit from the combination of immunotherapy and chemotherapy. Not all patients with gastric cancer are likely to respond to immunotherapy, and identifying those who are most likely to benefit is an active area of research. Biomarkers such as PD-L1 expression and microsatellite instability have been identified as potential predictors of response to immunotherapy in gastric cancer.

In addition, the combination of immunotherapy and chemotherapy can lead to increased toxicity compared to either treatment alone. The most common side effects of immunotherapy are immune-related adverse events, which can affect any organ system in the body. These side effects can range from mild to severe and can sometimes be life-threatening. Chemotherapy can also lead to a range of side effects, including nausea, vomiting, hair loss, and increased risk of infection. To minimize the risk of toxicity, it is important to carefully monitor patients who are receiving the combination of immunotherapy and chemotherapy. This includes regular blood tests to monitor for changes in organ function, as well as close monitoring of any symptoms that may indicate an immune-related adverse event.

Another challenge in the combination of immunotherapy and chemotherapy is determining the optimal dose and schedule of treatment. There is currently no consensus on the best approach, and further research is needed to determine the optimal dose and schedule for different patient populations. Despite these challenges, the combination of immunotherapy and chemotherapy holds great promise for the treatment of gastric cancer. Ongoing research is exploring new approaches to enhance the effectiveness of this combination, including the use of novel immunotherapeutic agents and the identification of additional biomarkers to predict response to treatment.

In conclusion, the combination of immunotherapy and chemotherapy represents a promising new approach for the treatment of gastric cancer. While there are still many challenges to be addressed, including identifying the optimal sequence of treatment and minimizing toxicity, ongoing research is providing new insights into the potential benefits of this approach. With continued progress in this field, it is hoped that the combination of immunotherapy and chemotherapy will become a standard of care for the treatment of gastric cancer, ultimately leading to improved outcomes for patients with this challenging disease.