

Study shows that administering calcium and magnesium effectively reduces neurological sensitivity

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Researchers in the North Central Cancer Treatment Group (NCCTG) have shown that patients who receive intravenous calcium and magnesium before and after the chemotherapy drug oxaliplatin for the treatment of advanced colon cancer experience a significantly reduced incidence and severity of neurological side effects (neurotoxicity). This reduction increases the likelihood that patients are able to complete a full course of treatment. The findings were released May 15 as part of the 44th annual meeting of the American Society of Clinical Oncology.

“There have been limited studies and anecdotal stories about the effectiveness of calcium plus magnesium in reducing neurotoxicity caused by oxaliplatin,” says Daniel Nikcevich, M.D., Ph.D., an oncologist at St. Mary’s Duluth Clinic in Duluth, Minn., a member of NCCTG and study co-chair.

“We designed a double-blind, placebo-controlled study that confirmed the effectiveness of calcium plus magnesium in reducing debilitating neurological sensitivity associated with oxaliplatin, such as pain in the hands, fingers, feet and toes. In the past, these side effects have caused patients to stop treatment and, therefore, not receive critical therapy.”

Each year in the United States, 150,000 patients are diagnosed with colon cancer, and approximately 50 percent of those develop advanced colon cancer. Oxaliplatin, in combination with other chemotherapy drugs

such as 5-fluorouracil (5-FU), has emerged as a standard-of-care of first-line therapy for advanced colon cancer. However, oxaliplatin can cause both acute and chronic cumulative sensory neurological problems including pain, numbness and tingling that can prevent patients from completing treatment.

In the study, 50 of the 102 patients enrolled received intravenous calcium and magnesium along with oxaliplatin-based chemotherapy, while 52 patients received oxaliplatin-based adjuvant chemotherapy for colon cancer and an intravenous placebo. Study results showed that the use of calcium and magnesium infusions before and after oxaliplatin was associated with a significant decrease in the incidence and severity of neurotoxicity, and it also delayed the time to the onset of neurotoxicity on oxaliplatin therapy.

Calcium and magnesium are an easily administered, safe treatment option for oxaliplatin-induced neurotoxicity. “Some initial reports from other studies claimed that the use of calcium and magnesium reduced the activity of oxaliplatin-based chemotherapy,” says Axel Grothey, M.D., an oncologist at Mayo Clinic and study co-chair. “However, we have definitive results from an independent, blinded radiologic review which demonstrates no negative influence of calcium and magnesium on the outcome for oxaliplatin-based chemotherapy.”

“Now that we have shown the effectiveness of calcium and magnesium in reducing oxaliplatin-induced neurotoxicity, a further step may be to evaluate the benefit of calcium and magnesium in reducing neurotoxicity caused by other medications,” says Dr. Nikcevich. “Many other commonly used chemotherapy agents cause neurological sensitivity. By applying our study design, we can test the effectiveness of calcium and magnesium when used with other treatments.”

This study was done as part of a program coordinated by Charles Loprinzi, M.D., a medical oncologist at Mayo Clinic Rochester. The program he leads has conducted more than 50 clinical trials designed to find ways to prevent or treat untoward symptoms related to cancer and cancer therapy. This includes three trials to evaluate ways to treat established neuropathy caused by chemotherapy and three additional studies to try to prevent such toxicity. Additional trials are in development to find other ways to alleviate this toxicity.

Source: Mayo Clinic

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