Genetic Variations Identify Patients Sensitive to Nerve Damage from Chemotherapy [1]

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In an analysis of the genes of more than 2,200 patients, researchers found that patients with specific genetic variations were more likely to develop peripheral neuropathy from chemotherapy with drugs called taxanes than patients without these changes. Peripheral neuropathy is nerve damage that causes pain and numbness. About one-third of patients who receive chemotherapy with a taxane develop neuropathy, and it can keep a patient from receiving a full dose of chemotherapy. The only other known risks of peripheral neuropathy are older age and a history of diabetes.

In this study, researchers looked for a correlation between changes in a person's DNA called single nucleotide polymorphisms, or SNPs, and the occurrence of peripheral neuropathy. Patients who had no changes to the specific gene examined in this study had a 27% chance of developing neuropathy. But, patients who had one change to the gene had a 40% chance and those who had two changes had a 60% chance of developing neuropathy. The study also showed that older patients and African Americans were much more likely to develop neuropathy.

What this means for patients

?These findings may allow doctors to know before recommending therapy whether the patient has a high risk of developing neuropathy from taxanes,? said lead author Bryan P. Schneider, MD, a physician and researcher at the Indiana University Melvin and Bren Simon Cancer Center and Associate Director for the Indiana Institute for Personalized Medicine. ?This may allow for better counseling, use of alternative drugs or schedules, or not using taxanes when appropriate. These genetic findings might also provide insight into how this side effect develops and lead to drugs to prevent it altogether.? Research is ongoing to understand how to better predict a patient's risk of neuropathy, and this type of genetic testing is available only through clinical trials.

Questions to ask your doctor

- What type of cancer do I have?
- What are my treatment options?
- What are the potential side effects from treatment?

- How can these side effects be prevented or managed?

For More Information

Cancer.Net Guides to Cancer [2]

Managing Peripheral Neuropathy [3]

Understanding Pharmacogenomics [4]

Managing Side Effects [5]

Side Effects of Chemotherapy [6]

Links:
[1] http://www.cancer.net/genetic-variations-identify-patients-sensitive-nerve-damage-chemotherapy
[2] http://www.cancer.net/patient/Cancer+Types
[3] http://www.cancer.net/patient/All+About+Cancer/Cancer.Net+Feature+Articles/Side+Effects/Managing+Peripheral+Ne
[4] http://www.cancer.net/patient/All+About+Cancer/Cancer.Net+Feature+Articles/Treatments%2C+Tests%2C+and+Proce
[5] http://www.cancer.net/patient/All+About+Cancer/Treating+Cancer/Managing+Side+Effects
[6] http://www.cancer.net/patient/All+About+Cancer/Cancer.Net+Feature+Articles/Side+Effects/Side+Effects+of+Chemot