

# Nursing Implications of Imatinib as Molecularly Targeted Therapy for Gastrointestinal Stromal Tumors

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The scientific understanding and diagnosis of gastrointestinal stromal tumors (GISTs), a type of soft-tissue sarcoma, have increased dramatically in recent years. This research has translated into a molecular approach to anticancer therapy that has significantly altered the management of this challenging and often fatal cancer (Demetri et al., 2002). Before 2000, surgical resection was the only effective treatment option for GIST and no effective treatment had been found for patients with inoperable advanced or metastatic disease. Significant tumor regressions in GIST, long-term control of the cancer with prolongation of survival, and meaningful relief from the symptoms of advanced disease have been obtained with the oral drug imatinib mesylate (imatinib), known as Gleevec® in the United States and Glivec® in the rest of the world. Imatinib, produced by Novartis Pharmaceuticals in East Hanover, NJ, was called STI571 during research testing, (Demetri et al.; van Oosterom et al., 2001). Imatinib, which initially gained attention as a highly effective oral therapy for chronic myeloid leukemia (CML), now is approved to treat inoperable and/or metastatic GIST and presently is being tested in neoadjuvant and adjuvant settings for the management of GIST in its earlier stages.

Gastrointestinal stromal tumor (GIST), a form of soft-tissue sarcoma, is the most common noncarcinomatous tumor of the gastrointestinal tract. Despite its high incidence of recurrence, the malignant potential of GIST has been under-recognized. Advances in diagnostic technology since 2000 have led to increased diagnoses of GIST, suggesting that GIST is more common than previously suspected. Historically, the only treatment for GIST was surgical resection, but recent advances in the understanding of the pathogenesis of the disease have led to the development of a new treatment. A key factor in the growth and survival of cancerous GIST cells is the uncontrolled activation of a signaling enzyme known as KIT, a receptor tyrosine kinase, which becomes locked in an activated state. The abnormal signaling from the overactive KIT enzyme causes GIST cells to survive and proliferate uncontrollably. Imatinib mesylate is an oral drug designed to inhibit the kinase enzyme activity of KIT. Imatinib has been proven in several clinical trials to be effective against GIST and is currently the first-line medical therapy for malignant metastatic or recurrent GIST. Imatinib is administered as an outpatient oral drug and warrants nursing management with particular attention to potential side effects, significant drug interactions, monitoring, and patient education. This article—based on published trials and clinical experience—summarizes the nursing implications, clinical efficacy, and safety of imatinib as an effective and rationally targeted treatment for GIST.

Nurses play a critical role in the care of patients with GIST and must understand the disease and treatment with imatinib therapy.

Several factors influence nursing management of patients with GIST, including the high likelihood of disease recurrence, the need for long-term therapy of advanced disease stages, and

*Submitted February 2004. Accepted for publication November 19, 2004. At the time this article was written, Jeanne M. Griffin, APRN, BC, MSN, OCN®, was a research nurse at the Center for Sarcoma and Bone Oncology at the Dana-Farber Cancer Institute in Boston, MA, and cared for patients in the U.S.-Finland study of imatinib mesylate (Gleevec® [Novartis Pharmaceuticals, East Hanover, NJ]) in the treatment of advanced gastrointestinal stromal tumors. George D. Demetri, MD, holds research grants through the Dana-Farber Cancer Institute that are supported, in part, by Novartis Oncology. He also has been an occasional consultant to Novartis within the acceptable guidelines of Harvard Medical School. Demetri was the principal investigator in the U.S.-Finland imatinib gastrointestinal stromal tumor study. (Mention of specific products and opinions related to those products do not indicate or imply endorsement by the Clinical*

*Journal of Oncology Nursing or the Oncology Nursing Society.)*

Digital Object Identifier: 10.1188/05.CJON.161-169