A gastrointestinal stromal tumor (GIST) is a soft tissue sarcoma that can occur anywhere along the gastrointestinal (GI) tract and is the most common noncarcinomatous malignancy of the GI tract. This article will review the pathology of GISTs, the molecular pathology related to c-kit, and disease management and will discuss a new drug approved in the management of GISTs, sunitinib malate. In addition, pharmacologic properties along with nursing considerations related to sunitinib malate will be reviewed.

Pathology

Cancer results from a disruption of the normal regulation of the cell cycle. When the cycle proceeds without control, cells divide without order and accumulate genetic defects that can lead to cancerous tumors (U.S. Library of Medicine, 2007). In GISTs, a specific mutation causes the proto-oncogene c-kit to be expressed constitutively. The c-kit proto-oncogene is a receptor protein tyrosine kinase whose ligand is the stem cell factor responsible for sending growth and survival signals within the cell. The mutant KIT enzyme triggers runaway growth of GIST cells. Mutated KIT has been found in approximately 90% of metastatic GISTs, but mutations have been reported in all stages, even those believed to be benign (Griffin et al., 2005). KIT expression in GISTs can be identified by antibodies to the CD117 antigen, which is a diagnostic marker (Griffin et al.). Positive CD117 staining, in conjunction with tissue that exhibits characteristic GIST histologic features (e.g., spindle cell or epithelioid morphology), confirms a GIST diagnosis (Corless, Fletcher, & Heinrich, 2004).