

Recent approaches in treating pancreatic adenocarcinoma, an aggressive disease with limited survival, include the use of liposomal irinotecan as an option when first-line therapy has failed. Liposomal irinotecan has been approved in combination with 5-fluorouracil and leucovorin for patients with metastatic pancreatic cancer. Liposomal irinotecan is a newer therapy requiring oncology nurses to obtain knowledge and skills for proper administering, monitoring of hypersensitivity reactions during infusion, managing side effects, and providing patient education. Nursing considerations when administering this drug include infusion time, pre-medication, risk for hypersensitivity reactions and adverse events, and side effects.

#### AT A GLANCE

- Newer treatment for metastatic pancreatic adenocarcinoma involves the use of liposomal irinotecan as second-line therapy.
- Liposomal irinotecan can improve drug delivery and reduce toxicity in metastatic pancreatic adenocarcinoma.
- Oncology nursing considerations for liposomal irinotecan involve chemotherapy administration, adverse events, and side effects.

#### KEYWORDS

liposomal irinotecan; metastatic pancreatic cancer; patient education

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# Liposomal Irinotecan

## Nursing considerations in an outpatient cancer center

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**P**ancreatic ductal adenocarcinoma (PDAC) is an uncommon but highly aggressive and often fatal disease. Pancreatic cancer is the fourth-leading cause of cancer-related deaths in men and the fifth-leading cause of cancer-related deaths in women (Grapsa, Syrigos, & Saif, 2016). Patients with PDAC have frequently presented at the metastatic stage of disease at the initial time of diagnosis (Lamb & Scott, 2017). The one-year survival rate for patients with metastatic pancreatic cancer is 12%, whereas the five-year survival rate is 1% (Lamb & Scott, 2017). The high mortality rate associated with pancreatic cancer has often been related to late diagnosis, the aggressive nature of PDAC, disease resistance to treatment, and the presentation of PDAC at the metastatic stage of disease (Grapsa et al., 2016). Patients with metastatic PDAC often fail first-line treatment approaches with gemcitabine-based regimens (Ansari et al., 2016). Liposomal irinotecan (Onivyde®) was approved in 2015 as a second-line treatment for metastatic PDAC in combination with 5-fluorouracil (5-FU) and leucovorin, following failure of a regimen containing gemcitabine (Ansari et al., 2016; Merrimack, 2015).

### Liposomal Irinotecan Versus Irinotecan

Liposomal irinotecan and irinotecan are chemotherapy agents that can be administered with leucovorin and 5-FU to treat metastatic pancreatic cancer. However,

liposomal irinotecan and irinotecan are not interchangeable drugs because of their specific mechanisms of action. Irinotecan, a cytotoxic alkaloid derivative of synthetic camptothecin, targets the topoisomerase I enzyme involved in DNA replication, transcription, and repair (Grapsa et al., 2016). The active metabolite of this drug, known as SN-38, can cause significant neutropenia, cholinergic responses occurring within 24 hours (e.g., diaphoresis, flushing, abdominal cramping, early-onset diarrhea), and late-onset side effects occurring after 24 hours (e.g., diarrhea, anorexia, immunosuppression) (Ipsen Biopharmaceuticals, 2017). Nanoliposomal formulation of irinotecan improves pharmacokinetics delivery by increasing drug encapsulation and loading efficiency to prolong circulation with sustained release time for enhanced anti-tumor activity (from exposure to SN-38) while reducing gastrointestinal toxicity in the bloodstream compared to irinotecan (Kang et al., 2015; Zhang, 2016). Liposomal irinotecan remains in the bloodstream for 11.7 hours, whereas irinotecan remains in the bloodstream for 6.07 hours (Lamb & Scott, 2017). Advantages of choosing liposomal irinotecan over irinotecan include the ability to break up extensive growth of dense fibrous tissue, known as a desmoplastic response, found around tumors (Garrido-Laguna & Hidalgo, 2015) in people with metastatic PDAC.

### Nursing Considerations

Nursing considerations for liposomal irinotecan therapy involve premedication