Vincristine is a cytotoxic chemotherapy agent classified as an antitumor alkaloid and is part of the vinca alkaloid family. Vincristine's mechanism of action is to primarily inhibit mitosis of the cancer cell and is given by IV route only for treatment. Accidental intrathecal administration of vincristine has lethal consequences for patients. To minimize the risk of accidental intrathecal administration of vincristine, 14 infusion centers participated in a quality improvement project to change the practice of vincristine administration from IV push to IV piggyback via minibag and gravity. After three months, all infusion centers successfully implemented the practice.

AT A GLANCE

- Vincristine administration using minibag with IV piggyback via gravity increases patient safety and prevents adverse events.
- A vincristine minibag policy was developed using a quality improvement method to standardize administration.
- A scripted video and checklist, including a demonstration of competencies for nurse training, eliminate the risk of unconscious trainer bias.

KEYWORDS
vincristine IV piggyback administration; patient safety; nurse skill training

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Vincristine Minibag Administration

A quality improvement project to minimize medical errors

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Vincristine is a vinca alkaloid that has been used in practice for more than 50 years. Since its introduction as a chemotherapy agent, it has been used to treat hematologic cancers, such as leukemia and lymphoma, and childhood sarcomas. Vincristine is administered to patients via IV. Accidental intrathecal administration of vincristine can be lethal for patients, causing ascending paralysis, neurologic defects, and eventual death (Corbitt et al., 2017; National Comprehensive Cancer Network [NCCN], 2016). Care must be taken when administering the drug to avoid patient harm (Corbitt et al., 2017). Since the 1960s, 125 deaths have been attributed to improper administration of vincristine (Institute for Safe Medication Practices, 2013). The risk of making this error is greatest when chemotherapy regimens include vincristine in addition to intrathecal chemotherapy agents (Corbitt et al., 2017).

Vincristine is considered a vesicant chemotherapy agent, which requires close observation of the site during IV administration. The Oncology Nursing Society (Polovich, Olsen, & LeFebvre, 2014) recommends that, when administering vesicant therapy, nurses avoid using an IV pump or syringe pump, remain with the patient throughout the infusion, verify blood return every 5–10 minutes for short infusions, and monitor for signs and symptoms of extravasation during infusion.

In 2016, the NCCN launched the Just Bag It campaign to showcase the importance of patient safety and the safe handling of vincristine. The American Society of Clinical Oncology and Oncology Nursing Society also recommend the standardization of minibag administration for all vinca alkaloids (Neuss et al., 2016). Many organizations (e.g., Joint Commission, Oncology Nursing Society) support initiatives to eliminate vincristine administration errors by using minibags for IV administration (Joint Commission, 2017). The Joint Commission (2017) urges that IV vincristine never be dispensed at a location where intrathecal chemotherapy is administered, as well as reinforces the National Patient Safety Goal of adherence to medication safety processes, including medication double checks and labeling.

In some cancer centers, vincristine is given IV push using a large-volume syringe. Accidental intrathecal administration of vincristine can occur if the syringe containing vincristine for IV administration is mixed up with a syringe containing a drug for intrathecal administration (Institute for Safe Medication Practices, 2017).

Policy and practice changes can minimize the risk of accidental intrathecal administration (Neuss et al., 2016). As a result, a quality improvement initiative was implemented at the author's healthcare system to change the method of vincristine IV administration using a syringe to using a minibag. The purpose of the initiative was to (a) introduce a new standard of care related to the preparation and administration of vincristine and (b) validate the uptake and standardization of this new standard of care