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Vesicant Extravasation Part I: Mechanisms, Pathogenesis, and Nursing Care to Reduce Risk

Carmel Sauerland, RN, MSN, AOCN®, Constance Engelking, MS, RN, OCN®, Rita Wickham, PhD, RN, AOCN®, CHPN, and Dominick Corbi, MS, RPh

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Purpose/Objectives: To review the literature regarding the incidence, current practice, guideline recommendations, nursing management, and knowledge gaps relevant to vesicant extravasation.

Data Sources: Published research articles, books, case reports, and national guidelines.

Data Synthesis: Vesicant extravasation is a relatively rare but significant complication of chemotherapy administration. Extravasation may have a range of consequences that can cause serious physical and quality-of-life effects. Knowledge of risk factors and preventive measures can reduce patient risk. Data-based and empirical management strategies such as immediate local measures (agent withdrawal, comfort measures, and medical interventions) may minimize risk for extravasation, as well as lead to timely recognition and management and decreased morbidity should extravasation occur.

Conclusions: Vesicant extravasation and sequelae constitute a complex patient problem that clinicians should strive to prevent or to minimize injury should it occur. To this end, clinicians must demonstrate awareness of risks and use specialized knowledge while administering vesicant agents.

Implications for Nursing: Only nurses knowledgeable about extravasation and skilled in associated techniques should assume responsibility for vesicant administration.

Key Points . . .

- Pharmaceutical agents with vesicant properties can produce pain, swelling, inflammation, and progressive tissue damage, eventuating in necrosis and disability.
- Risks for vesicant extravasation include patient, clinician, therapy, and IV device factors.
- Prevention strategies include diligently monitoring infusions, selecting optimal administration devices, and using appropriate administration techniques.
- Because evidence-based data regarding management of vesicant extravasation are lacking, local comfort measures and antidotes are largely empirical.

Vesicant extravasation, although uncommon, has enormous potential to affect a patients' quality of life and survival, as well as generate substantial healthcare costs. Clinicians who administer vesicant agents must demonstrate appropriate skills and knowledge regarding the recognition and management of extravasation. The Oncology Nursing Society (ONS) book *Chemotherapy and Biotherapy Guidelines and Recommendations for Practice* (Polovich, White, & Kelleher, 2005) condensed the minimum standards for practice and is useful in any setting where chemotherapy is administered. However, management of extravasation remains largely based on anecdotes of "efficacious" interventions in small samples or in single clinical cases (Kretzschmar et al., 2003). Consequently, oncology nurses, physicians, and pharmacists face the challenge of determining best practice with a less-than-ideal body of evidence to support clinical decision making. Practitioner awareness and patient management that include use of current guidelines, as well as systematic data collection and case reporting, can contribute to the further development of evidence-based patient care.

Spectrum of Extravasation

Extravasation is the inadvertent leakage or escape of a drug or solution from a vein or unintentional injection into surrounding healthy tissues. Occurrences of vesicant chemotherapy extravasation may be underreported but are estimated to occur in 0.1%–6% of peripheral IV infusions

Carmel Sauerland, RN, MSN, AOCN®, is an oncology clinical nurse specialist in the Nursing Cancer Center at Westchester Medical Center in Valhalla, NY; Constance Engelking, MS, RN, OCN®, is an oncology nurse consultant with the CHE Consulting Group, Inc., in Mt. Kisco, NY; Rita Wickham, PhD, RN, AOCN®, CHPN, is an oncology and palliative care consultant and an associate professor of nursing in the College of Nursing at Rush University in Chicago, IL; and Dominick Corbi, MS, RPh, is the director of clinical research in the pharmacy at Westchester Medical Center. *This research was supported by an unrestricted educational grant from sanofi-aventis to Meniscus, Ltd. Sauerland and Corbi received honoraria from Meniscus, Ltd., for the preparation of Parts I and II. Engelking served on a sanofi-aventis advisory board and as a consultant for Meniscus, Ltd. Mention of specific products and opinions related to those products do not indicate or imply endorsement by the* Oncology Nursing Forum *or the Oncology Nursing Society. (Submitted November 2005. Accepted for publication March 12, 2006.)*

Digital Object Identifier: 10.1188/06.ONF.1134-1141