

# Level of Adherence to an Extravasation Protocol Over 10 Years in a Tertiary Care Hospital

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**Background:** Extravasation of chemotherapy is an undesirable complication related to the administration of antineoplastic therapy. Establishing the real incidence is difficult. Because of the importance of a quick intervention after an extravasation, every hospital should have an extravasation protocol.

**Objectives:** The purpose of this study was to determine the degree of observance of an extravasation protocol by nursing staff and to determine extravasation incidence.

**Methods:** This descriptive, longitudinal, retrospective study was set in a tertiary-level hospital. The researchers reviewed 117 extravasation notification forms received by the pharmacy department during a 10-year period. Nursing actuation, particularly observance of the extravasation protocol, was analyzed.

**Findings:** Protocol adherence was 89%. Twelve deviations from the protocol in the application of recommended measures were detected. An antidote was used in 41 patients, and temperature measures were applied in 14 cases. Ninety-nine patients had at least one episode of reported follow-up. No cases of necrosis or skin ulcers were described, except by one patient, who developed a delayed skin ulcer to vinorelbine. Drugs most frequently reported were etoposide, carboplatin, and paclitaxel. Nursing staff should be continuously trained in extravasation protocol because a rapid actuation can prevent skin lesions.

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An undesirable complication related to the administration of antineoplastic therapy is extravasation of chemotherapy. Despite being rare, it causes high concern among nursing staff and patients because of the severe consequences it may have. The term *extravasation* includes the unnoticed leakage or escape of a chemotherapeutic agent from a vessel into the perivascular tissue, as well as the unintentional injection of a drug into surrounding healthy tissues (Sauerland, Engelking, Wickham, & Corbi, 2006; Schrijvers, 2003). Although establishing the real incidence of extravasation is difficult, available data point to a value that ranges from 0.1%–6.5% (Alfaro-Rubio et al., 2006; Ener, Meglathery, & Styler, 2004; Gonzalez, 2013). Typically, the

diagnosis of an extravasation is mainly clinical. Patients have local pain, burning sensation, swelling, or erythema (Ener et al., 2004). Patients and nursing staff must be educated to detect extravasation. Changes in drug infusion rate and absence of blood return are signs that indicate that an extravasation may have happened.

Tissue damage after an extravasation develops by different mechanisms, according to the ability of the extravasated agent to bind to DNA (Ener et al., 2004; Schulmeister, 2007). Drugs that bind to DNA enter into cells and cause rapid direct cell death. Drugs that do not bind to DNA are easily metabolized in the tissue into inactive compounds. The degree of tissue injury is lower because they are rapidly neutralized.