



## Antineoplastic agents extravasation from peripheral intravenous line in children: A simple strategy for a safer nursing care<sup>☆</sup>

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### A B S T R A C T

#### Keywords:

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Oncology nursing  
Safety  
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Pediatric nursing  
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Quality of care  
Evidence-based nursing

**Purpose:** The antineoplastic agents infusion through peripheral lines may lead to several adverse events such as extravasation that is one of the most severe acute reactions of this sort of treatment. The extravasation prevention and management must be part of a safe and evidence-based nursing care. Due to this fact, two algorithms were developed with the purpose of guiding nursing care to children who undergo chemotherapy through peripheral line. The objectives of this study were to determine the content validity of both algorithms with pediatric oncology nurses in Brazil and United States of America, and to verify the agreement between the evaluations of both groups.

**Methods and Sample:** A descriptive validation study was carried out through the Delphi Technique that has the following steps: development of the data collection instrument, application to the specialists, data analysis, algorithms' review, re-evaluation by the specialists, final data analysis and content validity determination.

**Results:** The data analysis was descriptive and based on the specialists agreement consensus equal or higher than 80% in every step of the algorithms. The process showed that the agreement with both instruments ranged from 92.8% to 99.0%.

**Conclusion:** The algorithms are valid for application in nursing care with the main purpose of preventing and managing the antineoplastic agents' extravasation.

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### Introduction

According to the Oncology Nursing Society, extravasation is the passage or escape of antineoplastic drugs into the tissue that may lead to necrosis in severe conditions (Polovich et al., 2005). However, there are other definitions that consider extravasation as only the escape of vesicant drugs into the tissue (Infusion Nurses Society, 2006). Extravasation is described as the most severe acute complication in the peripheral intravenous therapy with antineoplastic drugs, resulting in extreme distress and suffering to the patient and its prevention must be part of nursing care. For that reason, it is necessary to have the best practice of highly trained professionals in administering antineoplastic drugs

(Sauerland et al., 2006; Kassner, 2000). Once extravasation occurs, it is impossible to completely remove the drug from the tissue; however, a prompt and consistent intervention within the event time reduces significantly the risk of permanent injuries and distress to the patient. In addition, the prompt intervention minimizes possible costs related to treatment and avoids delay in the chemotherapy treatment which may negatively interfere with the patient prognosis (Wickham et al., 2006; Kassner, 2000). Furthermore, the tissue destruction caused by the extravasation of antineoplastic drugs is indolent and progressive. Most of the damage is not always immediately perceived after its occurrence, and it can remain imperceptible until the patient returns to the treatment center 24 or 48 h later, showing the first signs of progressive tissue injury. Due to this fact, either the suspicion or the occurrence of extravasation should be strictly monitored by the nursing team (Kumar et al., 2001). Because extravasation is a severe adverse event with serious consequences to the patient, its occurrence should be reported. This action allows monitoring of the cases, investigation of the possible causes involved, and adoption of procedures to treat the patient. Moreover, it provides important information to implement prevention strategies for new cases (Adami et al., 2005).

<sup>☆</sup> This study is part of the Dissertation "Algorithms for Prevention, Treatment and Follow-up after Antineoplastic Agents Extravasation from Peripheral Intravenous Line in Children: Content Validation" presented to the Graduate Program in Nursing of the Federal University of Sao Paulo for obtaining Masters Degree in Nursing - UNIFESP, 2009.

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Extravasation prevention and control should be part of institutional protocols, reflecting the concern of providing safe nursing care within the quality standards. Protocols that are easy to follow and are based on scientific evidence should be adopted in order to improve nursing care and to assure safety to the patient (Adami et al., 2005; Hadaway, 2007). Algorithms are one of the main quality management tools currently used in the development of

protocols and are an important way to organize processes involving quality (Ishikawa, 1993). Based on the importance to standardize nursing practices involved in the process of prevention, intervention, follow-up and documentation of this adverse event, two algorithms were built to achieve this goal by collecting inherent information and by proper reviewing of literature (Chanes et al., 2008).

**Algorithm for vesicant antineoplastic agent infusion in children through peripheral vein**

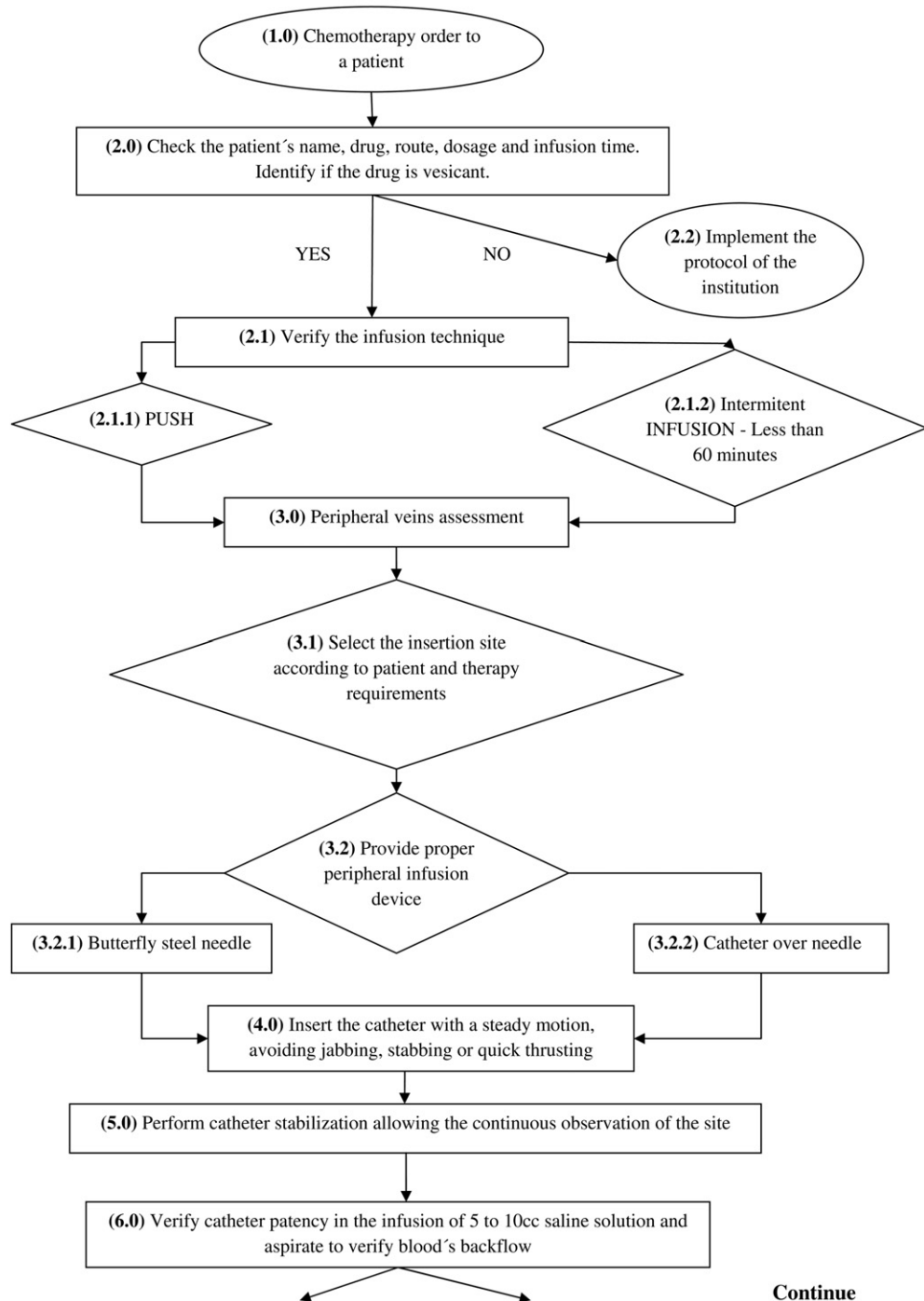


Fig. 1. Algorithm for vesicant chemotherapy administration. ○ Beginning or end of a process, □ Action, ◇ Decision, □ Report, ▽ File, □ Wait, / \ Direction signs

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