ORIGINAL ARTICLE

Emergency department nurses' knowledge and practices related to extravasation injuries of non-cytotoxic medications

Emre Kuğu,[1] Nuray Akyüz[2]

[1]Department of Anesthesia, Fenerbahce University Vocational School of Health Services, Istanbul-*Türkiye*

[2]Department of Surgical Nursing, Istanbul University- Cerrahpaşa Florence Nightingale Faculty of Nursing, Istanbul-*Türkiye*

ABSTRACT

BACKGROUND: Extravasation of non-cytotoxic medications can lead to serious complications such as pain, tissue necrosis, limb loss, and even death. This descriptive cross-sectional study aims to assess the knowledge levels of emergency department (ED) nurses regarding extravasation incidents involving non-cytotoxic medications and to highlight the importance of effective management and prevention.

METHODS: The study was conducted in the EDs of three hospitals in Istanbul, Türkiye, between November 19, 2020 and December 31, 2020. A total of 100 ED nurses participated in the study. Inclusion criteria required nurses to be working full-time in the EDs during the study period and to provide written and verbal consent. The study utilized a survey to assess sociodemographic characteristics, knowledge of non-cytotoxic medications (e.g., epinephrine), symptoms of extravasation, prevention strategies, and intervention practices.

RESULTS: The mean age of the nurses was 29.43 years, with 57% female and 73% holding a bachelor's degree. Among participants, 52% had 0-3 years of ED experience. Ninety-one percent reported not receiving education on extravasation after graduation, and 82% indicated no extravasation protocol was in place at their workplace. Knowledge about non-cytotoxic medications causing extravasation significantly increased with ED experience (p=0.035). Nurses in units with an extravasation protocol had significantly higher knowledge levels (p=0.007). Female nurses demonstrated better knowledge of extravasation symptoms than male nurses (p=0.012). Nurses with a bachelor's or higher degree had significantly better knowledge than others (p=0.015). The knowledge rate for the extravasation care protocol was 64%, with the most recognized protocol item being "immediately stop the infusion" (97%) and the least recognized being "aspirate the medication not to exceed 3-5 mL" (33%). Strong correlations were found between non-pharmacological factors and knowledge of non-cytotoxic medications (r=0.601; p<0.001), as well as between knowledge of extravasation care protocols and non-pharmacological factors (p<0.001).

CONCLUSION: The study highlights the need for targeted education and the establishment of institutional protocols for managing and preventing extravasation in EDs. Nurses' knowledge significantly impacts their adherence to prevention and care protocols. To ensure patient safety, it is important to provide ongoing education and implement evidence-based intervention protocols for the management of extravasation in ED settings.

Keywords: Emergency department; extravasation; complication management.

Cite this article as: Kuğu E, Akyüz N. Emergency department nurses' knowledge and practices related to extravasation injuries of non-cytotoxic medications. Ulus Travma Acil Cerrahi Derg 2025;31:860-866.

Address for correspondence: Nuray Akyüz

Department of Surgical Nursing Istanbul University- Cerrahpaşa Florence Nightingale Faculty of Nursing, Istanbul, Türkiye

E-mail: nuray.akyuz@iuc.edu.tr

Ulus Travma Acil Cerrahi Derg 2025;31(9):860-866 DOI: 10.14744/tjtes.2025.73839

Submitted: 23.06.2025 Revised: 30.06.2025 Accepted: 24.07.2025 Published: 05.09.2025

INTRODUCTION

The primary goals of care provided by Emergency Department (ED) nurses in healthcare systems around the world are to protect health, ensure patient safety, and improve health. Medication errors are a key indicator of patient safety.[1-3] The ED's multitasking environment, overcrowding, and need for quick decisions can contribute to medication errors. Medication administration errors can threaten patient safety, leading to incorrect treatments, various complications, injuries, limb loss, and even death.[4,5] There can be many complications in the administration of medications. Examples of these complications include bleeding, hematoma, thromboembolism, infection, and extravasation of the medication.[6,7] Extravasation is an iatrogenic complication that occurs when medications or solutions administered to the patient via intravenous (IV) infusion leaks into the surrounding tissues such as subcutaneous tissue, adipose tissue, connective tissue, and muscle tissue, rather than staying within the vein. Extravasation not only prolongs the patient's hospital stay but also has an impact on their daily life; it may cause critical and irreversible local injuries. If left untreated, medications that cause extravasation and are used in the ED can cause tissue necrosis, dysfunction, and permanent disfigurement.[8-11] Extravasation injuries and non-standardized nursing care caused by non-cytotoxic medications administered by ED nurses may negatively affect the patient's health and quality of life.[12-15]

The aim of this descriptive study is to draw attention to the fact that extravasation can cause serious complications such as pain, limb loss, tissue necrosis, and death and to determine the knowledge levels of ED nurses about extravasation. Although the causes, symptoms, and nursing process of extravasation have been addressed in various independent articles in the literature, the knowledge levels of nurses about extravasation have not been examined in detail and systematically. This study aims to fill this gap in the literature.

MATERIALS AND METHODS

Design and Setting

This descriptive cross-sectional study was conducted in the Emergency Departments of three hospitals located in Istanbul, Türkiye, under the jurisdiction of the Ministry of Health, between November 19, 2020 and December 31, 2020. The sample included 100 ED nurses (n=100) who met the inclusion criteria and were actively working in the EDs during the study period. The minimum required sample size was calculated using the G*Power software with a 95% power (α=0.05), resulting in 76 participants. To ensure sufficient statistical power and account for potential non-responses or data loss, the final sample consisted of 100 participants, exceeding the minimum required sample size.

Inclusion Criteria

The study included ED nurses who were working full-time in the Emergency Departments of the selected hospitals during the study period and who agreed to participate by providing both verbal and written consent.

Exclusion Criteria

Nurses who were excluded from the study included those who refused participation or did not provide the necessary verbal and written consent, part-time workers, nurses on leave, those with physical or psychological conditions that hindered participation, and those who were assigned to different units during the study period. Nurses who left their positions during the study period were also excluded.

Data Collection Process and Data Collection Tools

The data collection tool was developed by adapting questions from existing literature and previous studies on extravasation injuries and related practices.[3,8,15] To ensure the validity and relevance of the survey, the opinions of five nurse academicians with expertise in the field were sought. Their feedback was incorporated into the final version of the survey, leading to revisions in wording and structure. The expert validation process confirmed that the tool was both valid and reliable for assessing the knowledge and practices of ED nurses regarding non-cytotoxic medication extravasation.

A pilot study was conducted with a small sample of ED nurses to test the reliability and clarity of the survey. The feedback from the pilot study confirmed that the questions were clear and understandable, and the survey was revised accordingly.

The final survey included questions regarding the sociodemographic characteristics of ED nurses, such as age, education, and work experience. It also assessed their knowledge about non-cytotoxic medications, such as epinephrine, used in the ED that may cause extravasation. The survey further explored their understanding of extravasation symptoms, prevention strategies, and the interventions they would implement when dealing with extravasation injuries. Additionally, nurses were asked to respond to protocol-based statements concerning the current practices they would follow in managing extravasation.

Ethical Considerations

The study was conducted in accordance with the ethical principles outlined in the Helsinki Declaration, ensuring the privacy and confidentiality of all participants. The survey was administered only after obtaining written consent from each participant. Personal and medical information was kept confidential, with all data stored securely. The study received ethical approval from the Istanbul University-Cerrahpaşa, Social and Human Sciences Research Ethics Committee (January 7, 2020, decision no: 2019/165) and the necessary institutional permissions from the Ministry of Health.

Data Analysis

The collected data were analyzed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics (e.g., frequencies, percentages, means, medians, and standard deviations) were calculated to summarize the sociodemographic characteristics and responses of the participants. To examine differences between groups, the Independent Samples t-test was used for continuous variables, and One-Way Analysis of Variance (ANOVA) was used to compare means across different groups. When significant differences were found in the ANOVA, multiple comparisons were conducted using the Tukey test. The relationship between two continuous variables was assessed using the Pearson correlation test. A significance level of $p<0.05$ was applied for all statistical tests, and results were evaluated within a 95% confidence interval.

RESULTS

The mean age of the participating ED nurses was 29.43 (standard deviation [SD]=5.90). It was determined that 57% (n=57) of them were female, and 73% (n=73) had received a bachelor's degree. When looking at their ED experience, ED nurses with 0-3 years of experience comprised 52% (n=52) of the study. Ninety-one percent (n=91) of the ED nurses stated that they had not received any education on extravasation after graduation, and 82% (n=82) indicated that there was no extravasation protocol implemented in their workplace (Table 1).

With the increase in the ED experience of ED nurses, it was determined that their knowledge about the extravasation potential of non-cytotoxic medications increased (p=0.035). Depending on whether there was an extravasation protocol implemented in the unit where ED nurses worked, it was found that ED nurses had significantly higher knowledge levels regarding non-cytotoxic medications causing extravasation (p=0.007) (Table 2). When the extravasation symptom knowledge levels of ED nurses were examined according to gender, it was determined that women had a statistically significantly higher level of knowledge about extravasation symptoms compared to men (p=0.012). It was found that the extravasation symptom knowledge levels of ED nurses varied significantly according to their educational level (p=0.015); the group with the highest knowledge level about extravasation symptoms was composed of ED nurses with a bachelor's degree and postgraduate education (Table 2). When looking at the knowledge level of ED nurses about the extravasation prevention protocol according to their sociodemographic and professional characteristics, it was observed that the knowledge levels of ED nurses regarding the extravasation prevention protocol varied significantly according to their educational level (p=0.033); the group with the highest knowledge level about the extravasation prevention protocol was composed of ED nurses with a bachelor's degree and postgraduate education (Table 2).

When the knowledge levels of ED nurses regarding the extravasation care protocol were examined, the rate of being knowledgeable was determined as 64% (n=64); it was found that the protocol item about which ED nurses were most knowledgeable was "immediately stop the infusion," with a rate of 97% (n=97), and the least knowledgeable protocol item was "aspirate no more than 3-5 mL of the medication," with a rate of 33% (n=33) (Table 3).

The Pearson correlation coefficients (r) demonstrate significant relationships between nurses' knowledge levels and their extravasation management practices. The strongest correlation was observed between non-pharmacological fac-

Table 1. Sociodemographic and professional characteristics of emergency department nurses

Variables	N*
Number of nurses	100
Age, years#	29.4±5.9
Age group	
<30 years	66
≥30 years	34
Sex: Female	57
Education	
High School	10
Associate's Degree	13
Bachelor's Degree	73
Graduate Degree	4
Hospital	
A	33
B	33
C	34
Duration of professional experience	
<3 years	38
4-6 years	27
7-10 years	8
≥11 years	27
Emergency department experience	
0-3 years	52
4-6 years	17
7-10 years	15
≥11 years	16
Received extravasation training after graduation	
Yes	9
No	91
Implementation of extravasation protocol in the work unit	
Yes	18
No	82

#Mean±standard deviation; *Number and percentage are the same value.

Table 2. Nurses' knowledge levels on factors causing extravasation and prevention protocols according to their sociodemographic and professional characteristics

	Knowledge of Non-Cytotoxic Medications		Knowledge of Extravasation Symptoms		Knowledge of Extravasation Prevention Protocol	
Variables	**X±SD**	**P Value**	**X±SD**	**P Value**	**X±SD**	**P Value**
Sex	0.722		0.012		0.820	
Female	7.8±4.7		3.4±0.7		9.5±3.1	
Male	7.5±4.6		3.1±0.8		9.3±3.3	
Education		0.380		0.015		0.033
High School	7.9±4.9		2.9±0.6		7.2±3.3	
Associate's Degree	6.0±4.1		2.9±1.1		8.7±3.8	
Bachelor's & Graduate Degree	7.9±4.7		3.4±0.7		9.8±2.9	
Emergency Department Experience		0.035	0.459		0.662	
0-3 years	7.5±4.5		3.3±0.7		10.4±2.3	
4-6 years	6.4±4.9		3.0±0.7		8.4±3.5	
7-10 years	6.8±4.5		3.3±0.9		9.3±3.9	
≥11 years	10.6±3.9		3.3±0.7		9.2±3.5	
Received extravasation training after graduation		0.007	0.561	0.447		
Yes	10.3±4.7		3.2±0.8		8.9±3.3	
No	7.1±4.5		3.3±0.7		9.5±3.2	

X: Mean; SD: Standard deviation. *P value was evaluated with the Mann-Whitney U test, with p<0.05.

tors, that is, elevation, cold/heat application, etc., and non-cytotoxic medications knowledge, with a correlation coefficient of r=0.601 (p<0.001), indicating a strong relationship between these two variables. Additionally, a moderate positive correlation was found between knowledge of non-pharmacological factors and extravasation symptoms (p<0.001) (Table 4).

There was also a significant correlation between extravasation care protocols and non-pharmacological factors (p<0.001), as well as with non-cytotoxic medications (p<0.001), indicating that as nurses' knowledge of these factors increased, their adherence to extravasation care protocols also improved (Table 4).

Other notable correlations include the relationship between extravasation prevention protocols and extravasation symptoms (p<0.001) and the relationship between extravasation prevention protocols and non-pharmacological factors (p<0.001). These findings suggest that nurses' knowledge across various aspects of extravasation management is consistently related to their practical implementation of both prevention and care protocols. All correlations reported were statistically significant, with p-values less than 0.05, indicating meaningful associations between knowledge and practice in extravasation management (Table 4).

Table 3. Management of extravasation and nursing care

Statements	**Practice Rate (%)**
Extravasation Care Protocol	
Immediately stop the infusion	97
Inform the physician	56
Aspirate the medication (not exceeding 3-5 mL)	33
Remove the peripheral venous catheter	68
Elevate the affected area	78
Apply hot and cold compresses	77
Administer the antidote, if necessary and available, as per physician's order	55
Complete the recording and reporting process related to extravasation	48

DISCUSSION

The primary aim of this study was to examine the knowledge levels and nursing practices of ED nurses regarding extravasation caused by non-cytotoxic medications. The results obtained showed that the general knowledge levels of ED nurs-

Table 4. Correlation between nurses' knowledge and extravasation management practices

	Non-Pharmacological Factors	Non-Cytotoxic Medications	Extravasation Symptoms	Extravasation Prevention Protocols
Non-Cytotoxic Medications	0.601*			
Extravasation Symptoms	0.591*	0.420*		
Extravasation Prevention Protocols	0.521*	0.328**	0.412*	
Extravasation Care Protocols	0.599*	0.577*	0.270**	0.498*

*p<0.001; **p<0.01; Pearson correlation test.

es about extravasation were at a moderate level. The findings of this study are parallel to similar studies in the literature.[16-18] For example, in a study conducted to determine the knowledge levels of nurses working in a university hospital intensive care unit about extravasation, it was reported that the average general knowledge of nurses about extravasation was 80.41%.[19]

This study also examined the relationship between the knowledge level of ED nurses about medications that cause extravasation and their postgraduate extravasation training and professional experience. It was found that nurses with more ED experience and those who received postgraduate extravasation training had significantly higher knowledge levels about medications that cause extravasation. This finding is supported by previous studies. Yıldız and Avcı (2020)[19] reported that half of the nurses (53.8%) had knowledge about non-cytotoxic medications that can cause extravasation. Atay et al.[18] (2023) reported that 74.5% of nurses stated that they did not receive any postgraduate training on extravasation management during in-service training programs, and 89.7% of nurses reported that they had knowledge about medications that cause extravasation. According to Kahraman et al.[20] (2020), 89.9% of nurses reported that they did not receive any training on extravasation, and 55.7% did not consider extravasation as a medical error. There are studies reporting that in-service training programs provided a statistically significant improvement in nurses' knowledge and practices in minimizing extravasation.[20-22] This situation shows that nurses' knowledge level about medications that cause extravasation can be increased with increased ED experience and postgraduate extravasation training. In addition, the findings of the study conducted by Sisan et al.[23] (2018) were inconsistent; it was reported that only a small proportion of ED nurses (19.6%) had knowledge about non-cytotoxic medications that cause extravasation. It can be suggested that informing ED nurses about medications that can cause extravasation will reduce the risk of encountering this complication.

The research results provide an important starting point for understanding the educational level of ED nurses and their knowledge levels about extravasation symptoms. In particular, as the educational level of nurses increases, their knowledge levels about extravasation symptoms increase, providing a deeper understanding beyond previous general studies on this subject.

One of the important findings of this study was the educational level of ED nurses and their knowledge level about extravasation prevention protocols. As the educational level of ED nurses increases, their knowledge level about extravasation prevention protocols also increases. This finding is consistent with prior research. Pluschnig et al.[24] (2015) stated that implementing a protocol or standardized treatment for extravasation improves the management of the extravasation process. It can therefore be argued that providing ED nurses with training on the management of extravasation caused by non-cytotoxic medications would be beneficial.

In this study, the management of extravasation by ED nurses and what they do in nursing care were also questioned (Table 3). The findings obtained from this study were found to be parallel to similar studies in the literature.[21,25,26] Atay et al.[18] (2023) reported that the nursing care applied by nurses after extravasation was stopping the IV infusion (98.6%), elevation (89.7%), applying cold (76.6%), and aspirating the medications (40.7%). Elsayed et al.[25] (2024) reported that the management of intravenous chemotherapy extravasation of oncology nurses was positively affected by training. According to the study by Maasand et al.[26] (2019), nurses reported that the majority (91.0 %) of patients with radiographic contrast material injuries only elevated the injured area. The differences in extravasation management and nursing care may be attributed to the lack of standardized extravasation management and nursing care protocols in hospitals.

Limitations

The limitations of the study are, firstly, that the results have limited applicability to the general ED nursing population due to factors such as sample size and demographic characteristics. In addition, there are methodological limitations in the data collection method and research design. In this study, the use of a questionnaire as a data collection method may not fully reflect the participants' actual thoughts and behaviors due to social desirability bias, which may limit the accuracy of the results. In future studies, using larger and more varied groups of ED nurses can help address these issues, and including new medications that might cause extravasation can make the findings more applicable to a wider audience.

CONCLUSION

The study's findings recommend regular training on extravasation management and high-risk medications for ED nurses starting to work in the ED. Lack of knowledge among nurses may lead to failure to perform effective interventions, especially in critical situations that may affect patient safety. In light of the findings, it is suggested that in-service training programs be developed or updated regularly to align with internationally accepted practices for extravasation management. It is recommended that in-service training programs in EDs provide training on extravasation based on the Targeted Medication Safety Best Practices for Hospitals, prepared by the Institute for Safe Medication Practices (ISMP), and the Infusion Therapy Standards of Practice. [27,28] Moreover, extravasation management and related nursing care should be conducted in accordance with a standardized, up-to-date, and evidence-based protocol (e.g., checklists). Finally, it is recommended that a general standard for extravasation management be developed and supported by additional studies conducted across different healthcare institutions and on a broader scale.

Acknowledgement: This research was presented by the researcher as a master's thesis at the 4th International 12th National Turkish Surgical and Operating Room Nursing Congress - 2022, both in written and oral form.

Ethics Committee Approval: This study was approved by the Istanbul University-Cerrahpaşa, Social and Human Sciences Research Ethics Committee (Date: 07.01.2020, Decision No: 2019/165).

Peer-review: Externally peer-reviewed.

Authorship Contributions: Concept: E.K., N.A.; Design: E.K., N.A.; Supervision: N.A.; Resource: E.K., N.A.; Materials: E.K.; Data collection and/or processing: E.K.; Analysis and/or interpretation: E.K., N.A.; Literature review: E.K., N.A.; Writing: E.K., N.A.; Critical review: N.A.

Conflict of Interest: None declared.

Financial Disclosure: The author declared that this study has received no financial support.

REFERENCES

1. Samuels-Kalow ME, Tassone R, Manning W, Cash R, Davila-Parrilla L, Hayes BD, et al. Analysis of a Medication Safety Intervention in the Pediatric Emergency Department. JAMA Netw Open 2024;7(1):e2351629.
2. Phillips K, Knowlton M, Riseden J. Emergency department nursing burnout and resilience. Adv Emerg Nurs J 2022;44(1):54–62.
3. Nguyen PTL, Phan TAT, Vo VBN, Ngo NTN, Nguyen HT, Phung TL, et al. Medication errors in emergency departments: a systematic review and meta-analysis of prevalence and severity. Int J Clin Pharm 2024;46(5):1024–33.
4. Roditi G, Khan N, van der Molen AJ, Bellin MF, Bertolotto M, Brismar T, et al. Intravenous contrast medium extravasation: systematic review and updated ESUR Contrast Media Safety Committee guidelines. Eur Radiol 2022;32(5):3056–66.
5. Marsh N, Webster J, Ullman AJ, Mihala G, Cooke M, Chopra V, et al. Peripheral intravenous catheter non-infectious complications in adults: a systematic review and meta-analysis. J Adv Nurs 2020;76(12):3346–62.
6. Arslan D, Aysever U, Deniz S, Püllü S, et al. Kemoterapi tedavi merkezine ilaç tedavisi için gelen hastalarda ekstravazasyon insidansı ve nedenleri. Dokuz Eylül Üniversitesi Hemşirelik Fakültesi Elektronik Dergisi 2018;11(2):113–9.
7. Marsh N, Larsen EN, Takashima M, Kleidon T, Keogh S, Ullman AJ, et al. Peripheral intravenous catheter failure: a secondary analysis of risks from 11,830 catheters. Int J Nurs Stud 2021;124:104095.
8. Atay S, Çukurlu D, Şen S. Non-sitotoksik ilaçlarda ekstravazasyon yönetimi. Hemşirelik Eğitim Araştırma Derg 2015;12(3):189–94.
9. Maly C, Fan KL, Rogers GF, Mitchell B, Amling J, Johnson K, et al. A primer on the acute management of intravenous extravasation injuries for the plastic surgeon. Plast Reconstr Surg Glob Open 2018;6(4):e1743.
10. Stowell JR, Rigdon D, Colglazier R, Filler L, Orosco D, Connell M, et al. Risk of contrast extravasation with vascular access in computed tomography. Emerg Radiol 2020;27(3):253–8.
11. David V, Christou N, Etienne P, Almeida M, Roux A, Taibi A, et al. Extravasation of noncytotoxic drugs. Ann Pharmacother 2020;54(8):804–14.
12. Melo JMA, Oliveira PP, Souza RS, Fonseca DFD, Gontijo TF, Rodrigues AB. Prevention and conduct against the extravasation of antineoplastic chemotherapy: a scoping review. Rev Bras Enferm 2020;73(4):e20190008.
13. Kim JT, Park JY, Lee HJ, Cheon YJ. Guidelines for the management of extravasation. J Educ Eval Health Prof 2020;17:21.
14. Pham TD, Tsunoyama T. Exploring extravasation in cancer patients. Cancers (Basel) 2024;16(13):2308.
15. Ong J, Van Gerpen R. Recommendations for management of noncytotoxic vesicant extravasations. J Infus Nurs 2020;43(6):319–43.
16. Al-Qadi MM. Nurses' perspectives of violence in emergency departments: a metasynthesis. Int Emerg Nurs 2020;52:100905.
17. Aljohani B, Burkholder J, Tran QK, Chen C, Beisenova K, Pourmand A. Workplace violence in the emergency department: a systematic review and meta-analysis. Public Health 2021;196:186–97.
18. Atay S, Üzen Cura Ş, Efil S. Nurses' knowledge and experience related to short peripheral venous catheter extravasation. J Vasc Access 2023;24(4):848–53.
19. Yildiz FT, Avcı O. Determination of the knowledge level of nurses working in intensive care unit for extravasation: an example of a university hospital. Turkiye Klinikleri J Nurs Sci 2020;12(3):378–84.
20. Kahraman A, Gerçeker GÖ, Yardımcı F, Bilsin E, Yaz ŞB, Özdemir HNÇ, et al. The effect of a nurse education program on infiltration and extravasation in pediatric patients at a university hospital. J Pediatr Res 2020;7(4):309–15.
21. Ibrahem M, Rashad HM, Selim MA. Effect of training program about extravasation injuries on nurses' performance. Pak J Med Health Sci 2021;15(6):1700–5.
22. Mohammed H, Mohammad Z, Azer S, Khallaf S. Impact of in-service training program on nurses' performance for minimizing chemotherapy extravasation. Asian Pac J Cancer Prev 2023;24(10):3537–42.
23. Sisan M, Rayan A, Elmorsy S, Elyan H, Salahat M. Knowledge regarding noncytotoxic medication extravasation among registered nurses working in western Saudi Arabia. J Vasc Nurs 2018;36(1):12–22.
24. Pluschnig U, Haslik W, Bayer G, Soleiman A, Bartsch R, Lamm W, et al. Outcome of chemotherapy extravasation in a large patient series using a standardised management protocol. Support Care Cancer 2015;23(6):1741–8.
25. Elsayed D, Badran H, El Zaafarany M, Ali W. Enhancement of oncology nurses' competency regarding management of intravenous chemotherapy extravasation. Mansoura Nurs J 2024;11(1):439–46.
26. Massand S, Carr L, Schneider E, Johnson TS. Management of intravenous infiltration injuries. Ann Plast Surg 2019;83(6):e55-e58.
27. Institute for Safe Medication Practices (ISMP). ISMP targeted medication safety best practices for hospitals. ISMP. 2024.
28. Nickel B, Gorski L, Kleidon T, Kyes A, DeVries M, Keogh S, et al. Infusion therapy standards of practice, 9th edition. J Infus Nurs 2024;47(1S Suppl 1):S1–S285.

ORİJİNAL ÇALIŞMA - *ÖZ*

Acil servis hemşirelerinin sitotoksik olmayan ilaçların ekstravazasyon yaralanmalarıyla ilgili bilgi ve uygulamaları

AMAÇ: Non-sitotoksik ilaçların ekstravazasyonu, ağrı, doku nekrozu, uzuv kaybı ve hatta ölüme kadar ciddi komplikasyonlara yol açabilir. Bu tanımlayıcı kesitsel çalışma, acil servis (AS) hemşirelerinin non-sitotoksik ilaçlarla meydana gelen ekstravazasyon vakalarına ilişkin bilgi düzeylerini değerlendirmeyi ve etkili yönetim ve önlemenin önemini vurgulamayı amaçlamaktadır.

GEREÇ VE YÖNTEM: Çalışma, 19 Kasım 2020 ile 31 Aralık 2020 tarihleri arasında İstanbul, Türkiye'deki üç hastanenin AS'lerinde gerçekleştirilmiştir. Çalışmaya toplamda 100 AS hemşiresi katılmıştır. Dahil edilme kriterleri, hemşirelerin çalışma dönemi boyunca AS'lerde tam zamanlı çalışıyor olmalarını ve yazılı ve sözlü onay vermelerini gerektirmiştir. Çalışmada, hemşirelerin sosyodemografik özelliklerini, non-sitotoksik ilaçlar (örneğin epinefrin), ekstravazasyon belirtileri, önleme stratejileri ve müdahale uygulamalarına yönelik bilgilerini değerlendiren bir anket kullanılmıştır.

BULGULAR: Hemşirelerin yaş ortalaması 29,43 yıl olup, katılımcıların %57'si kadın ve %73'ü lisans diplomasına sahiptir. Katılımcıların %52'si AS deneyimi olarak 0-3 yıl arasında bir süreye sahiptir. Katılımcıların %91'i, mezuniyet sonrası ekstravazasyonla ilgili eğitim almadıklarını belirtmiş ve %82'si işyerlerinde ekstravazasyon protokolü bulunmadığını ifade etmiştir. AS deneyimi arttıkça, non-sitotoksik ilaçların ekstravazasyona yol açmasıyla ilgili bilgi seviyelerinin anlamlı bir şekilde arttığı gözlemlenmiştir ($p=0.035$). Ekstravazasyon protokolü bulunan birimde çalışan hemşirelerin bilgi seviyeleri, protokolsüz birimde çalışanlara göre anlamlı şekilde daha yüksektir ($p=0.007$). Kadın hemşireler, erkek hemşirelere göre ekstravazasyon belirtileri hakkında daha yüksek bilgiye sahipti ($p=0.012$). Lisans veya daha yüksek eğitim düzeyine sahip hemşirelerin, diğer gruplara göre daha yüksek bilgiye sahip olduğu bulunmuştur ($p=0.015$). Ekstravazasyon bakım protokolüne dair bilgi oranı %64 olup, en bilinen protokol maddesi "enfüzyonu hemen durdurma" (%97) ve en az bilinen maddesi "ilacı 3–5 ml'yi geçmeyecek şekilde aspirasyon yapma" (%33) olmuştur. Non-farmakolojik faktörler ile non-sitotoksik ilaç bilgisi arasında güçlü bir ilişki bulunmuş ($r = 0.601$; $p<0.001$) ve ekstravazasyon bakım protokolleri ile non-farmakolojik faktörler arasında anlamlı ilişkiler gözlemlenmiştir ($p<0.001$).

SONUÇ: Çalışma, AS'lerde ekstravazasyon yönetimi ve önlenmesi için hedeflenmiş eğitimlerin ve kurumsal protokollerin oluşturulması gerekliliğini vurgulamaktadır. Hemşirelerin bilgisi, önleme ve bakım protokollerine uyumlarını önemli ölçüde etkilemektedir. Hasta güvenliğini sağlamak için, AS ortamlarında ekstravazasyon yönetimi için sürekli eğitim sağlanması ve kanıta dayalı müdahale protokollerinin uygulanması önemlidir.

Anahtar sözcükler: Acil servis, ekstravazasyon, komplikasyon yönetimi

Ulus Travma Acil Cerrahi Derg 2025;31(9):860-866 DOI: 10.14744/tjtes.2025.73839