

INTEGRATIVE REVISION

DEFINING CHARACTERISTICS OF THE NURSING DIAGNOSIS IMPAIRED URINARY ELIMINATION IN INFANTS: INTEGRATIVE REVIEW

CARACTERÍSTICAS DEFINIDORAS DO DIAGNÓSTICO DE ENFERMAGEM ELIMINAÇÃO URINÁRIA PREJUDICADA EM LACTENTES: REVISÃO INTEGRATIVA

CARACTERÍSTICAS DEFINITORIAS DEL DIAGNÓSTICO DE ENFERMERÍA ALTERACIONES EN LA ELIMINACIÓN URINARIA DE NIÑOS LACTANTES: UNA REVISIÓN INTEGRADORA

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ABSTRACT

Investigating child urinary elimination enables one to identify nursing diagnoses and appropriately plan care actions. Regarding the nursing diagnosis (ND) of impaired urinary elimination, as identified by NANDA-I, gaps can be found in its defining characteristics (DC) when infants are involved, due to particularities of how children in this age group show this diagnosis. The present study aimed to identify the clinical manifestations reported in the literature concerning infants with urinary elimination disorders. An integrative literature review was carried out, whose guiding question was: "What clinical manifestations are infants with urinary elimination disorders likely to present?" CINAHL, Cochrane, PubMed, and LILACS databanks were consulted, identifying 621 articles. Taking the inclusion and exclusion criteria into account, the sample consisted of 21 articles, which were read and classified according to their evidence level. Among the defining characteristics identified in the integrative review, and that are contemplated by NANDA-I, urinary retention and dysuria proved to be the most prevalent. Other clinical manifestations were also found in the literature as likely to be observed in infants with urine elimination disorders, such as weak urinary stream, interruption of urination, crying when urinating, hematuria, and malodorous urine. Results suggest that other DCs should be studied in an attempt to include these in NANDA-I taxonomy so as to better illustrate the condition of infants with the nursing diagnosis of urinary elimination disorder.

Keywords: Nursing; Nursing Diagnosis; Infants.

RESUMO

Investigar a eliminação urinária da criança possibilita identificar diagnósticos de enfermagem e planejar adequadamente ações de cuidado. No que diz respeito ao diagnóstico de enfermagem (DE) eliminação urinária prejudicada da NANDA-I, identifica-se a possibilidade de lacunas em suas características definidoras (CD) quando se trata de lactentes, dadas as particularidades na forma como crianças nessa faixa etária manifestam a ocorrência deste diagnóstico. O objetivo do presente estudo foi identificar as manifestações clínicas relatadas na literatura para lactentes com alterações na eliminação urinária. Foi realizada revisão integrativa da literatura, cuja questão norteadora foi: "Quais são as manifestações clínicas que lactentes com alterações na eliminação urinária podem apresentar?" Foram consultadas as bases CINAHL, Cochrane, PubMed e LILACS. A busca resultou em 621 artigos. Considerados os critérios de inclusão e exclusão, 21 artigos compuseram a amostra. Os artigos foram lidos e classificados de acordo com seu nível de evidência. Entre as características definidoras identificadas na revisão integrativa que são contempladas pela NANDA-I destacaram-se retenção urinária e disúria. Foram encontradas outras manifestações clínicas na literatura como passíveis de serem observados em lactentes com prejuízos na eliminação de urina, tais como jato urinário fraco, interrupção na micção, choro ao urinar, hematuria, urina fétida. Os resultados sugerem que outras CDs devem ser estudadas com vistas à sua inclusão na taxonomia da NANDA-I para melhor retratar a condição dos lactentes com o diagnóstico de enfermagem eliminação urinária prejudicada.

Palavras-chave: Enfermagem; Diagnóstico de Enfermagem; Lactentes.

RESUMEN

Investigar la eliminación urinaria del niño permite identificar diagnósticos de enfermería y planificar adecuadamente acciones de cuidado. En lo concerniente al diagnóstico de enfermería (DE) alteraciones de la eliminación urinaria, según la NANDA-I, se identifica la posibilidad de que haya lagunas en sus características definitorias (CD) cuando se trata de bebés, dadas las particularidades cómo los niños en esa franja de edad

manifiestan tal trastorno. El objetivo del presente estudio fue identificar las manifestaciones clínicas relatadas en la literatura para bebés con alteraciones en la eliminación urinaria. Se realizó una revisión integradora de la literatura en base a la pregunta orientadora: "¿Qué manifestaciones clínicas pueden presentar los bebés con alteraciones en la eliminación urinaria?" Se investigaron las bases CINAHL, Cochrane, PubMed y LILACS, obteniéndose 621 artículos. Considerados los criterios de inclusión y exclusión, 21 artículos compusieron la muestra. Los artículos se leyeron y clasificaron de acuerdo con su nivel de evidencia. Entre las características definitorias identificadas en la revisión integradora contempladas por la NANDA-I, se destacaron retención urinaria y disuria. Se encontraron otras manifestaciones clínicas en la literatura como pasibles de ser observadas en bebés con trastornos en la eliminación de orina, tales como, chorro de orina débil, interrupción en la micción, llanto al orinar, hematuria, orina fétida. Los resultados sugieren que deben estudiarse otras CD con vistas a su inclusión en la taxonomía de la NANDA-I para retratar mejor la condición de los bebés con el diagnóstico de enfermería alteraciones en la eliminación urinaria.

Palabras clave: Enfermería; Diagnóstico de Enfermería; Lactante.

INTRODUCTION

The NANDA-I¹ nursing diagnosis classification system, among other nursing diagnoses related to urinary elimination, presents impaired urinary elimination, which is defined as a "urinary elimination disorder".¹

Its defining characteristics include: dysuria, frequency, urinary hesitancy, incontinence, nocturia, urinary retention, and urinary urgency.¹ The possibility of gaps in their defining characteristics can be identified when infants are involved, given the particularities of how children in this age group can show the occurrence of this nursing diagnosis.

Among infants – children from one to twelve months of age² – the signs and symptoms of changes in urinary elimination are not as evident as are changes in the upper respiratory tract, for example. Therefore, many cases may go unnoticed due to the difficulty in observation, the presentation of specific symptoms, and the fact that infants are unable to verbally express their feelings and sensations, which makes the detection of any discomfort they may be feeling difficult.³

At this stage of development, the early detection of urinary problems is particularly important, since in children under one year of age, the likelihood of scarring in the renal parenchyma by urinary tract infections is higher if not treated in time, causing permanente damage, such as renal scarring, which, in turn, could lead to the development of hypertension and chronic renal insufficiency.^{3,4}

Collecting data on infant urinary elimination in the pediatric clinical routine helps to identify nursing diagnoses and appropriately plan proper care actions, thus ensuring safe, effective practice.

Therefore, it is expected that the defining characteristics presented in the NANDA-I¹ taxonomy for the nursing diagnosis of impaired urinary elimination, in fact, represent what infants show when this type of change occurs, aimed at a proper planning of care actions and obtaining of records and satisfactory parameters for evaluation.

This study is justified by the need for continued improvement and development of the nursing diagnosis for impaired

urinary elimination, as well as the proper approach on the part of the nursing staff that care for the infants. Its objective was to identify the clinical manifestations reported in the literature for infants with changes in urinary elimination.

METHOD

An integrative review of the literature was conducted to identify evidence of clinical manifestations related to problems of infant urinary elimination. The present study opted for this kind of review, as it is a method that enables both experimental and non-experimental research to be summarized, providing a broad understanding of a particular topic and making it easier to identify new and updated information on the topic in question.⁵⁻⁸

The steps proposed by Broome⁵ were followed when preparing the integrative review: establishing the search process criteria, data extraction, study categorization, and critical assessment of the research. After these steps, the author also presents a topic called the analysis and synthesis of the integrative review, which also supported the preparation of the review.

The main question in this study was: What are the clinical manifestations that infants with changes in urinary elimination may present?

Inclusion criteria included: articles published in English, Spanish, or Portuguese that addressed situations related to impaired urinary elimination in infants (children aged one to twelve months of age) and that had been published within the last five years (2008-2012). The latter criterion was adopted due to NANDA-I¹ recommendations that, when reviewing its diagnoses, a literature review must consist of the papers published within that period. Exclusion criteria included: articles that did not address the question of the study, abstracts, and articles not obtained in full after an extensive search had been made.

The research was carried out using four databases with nursing significance: *Cumulative Index to Nursing and Allied Health Literature* (CINAHL); The Cochrane Library; *PubMed*, a service of the *U.S. National Library of Medicine of the National Institutes of Health*; and the Latin American and Caribbean

Health Sciences Literature (LILACS). All were accessed through the CAPES journals web site using a proxy system offered by the library of the Federal University of São Carlos (UFSCar), available at <<http://www.periodicos.capes.gov.br/>>.

Controlled descriptors were identified using the *Medical Subjects Headings* (MeSH) for descriptors in English (used in PubMed, CINAHL, and The Cochrane Library), and *Descritores em Ciências de Saúde* (DeCS) for descriptors in Portuguese (used in LILACS). The following controlled descriptors were then selected: urologic diseases, urination disorders, urinary tract, and infant. Combinations of descriptors were made using the Boolean operators AND and OR to carry out the search.

A search of the PubMed database was carried out based on the *PubMed Search Builder* strategy. First, a cross-reference was made with the following terms: *urologic diseases AND urinary disorders OR urologic diseases AND infants*, using the limits: publications within the last five years; humans; with abstracts; articles in Portuguese, English, and Spanish; infants: 1-23 months. Although infants in this study considered children of 1-12 months, the latter limit was used following the manner in which this was presented in PubMed. Therefore, the selection for the 1-12 months age group was made by the researchers during article consultation. This search resulted in 70 studies, of which 12 met the proposed criteria.

Another cross-reference was performed using the following terms: *urologic diseases AND urinary tract AND infant*, applying the same limits mentioned above. This search resulted in 682 studies, which was further refined by using a more specific term: *urination disorders*. The combined terms were: *urination disorders AND urinary tract AND infant*, still applying the above-mentioned limits. The search found 239 studies. Of these, after perusing the titles and abstracts, fourteen studies met the inclusion criteria and complete copies were obtained for reading and categorization. Afterwards, three articles were excluded for not showing clinical signs of urinary elimination disorders in infants, leaving eleven studies that formulated the sample of this database.

An advanced search form was used in the CINAHL, using the following search terms: *urinary tract OR urologic diseases OR urination disorders AND infant*. The following items were used in the "search terms" option: *boolean/phrase*; infant; exclude MEDLINE records and publications from January 2007 to December 2011. The search resulted in 45 studies. Of these, after perusing the titles and abstracts, twenty studies met the inclusion criteria, and complete copies were obtained for reading and categorization. However, three were not found in their entirety, and one had been published in French. After reading through all of the studies, six were excluded for not addressing situations related to impaired urinary elimination in infants, leaving ten studies, which formulated the sample of this database.

The following search terms were used in The Cochrane Library: *"urinary tract" OR "urologic diseases" OR "urination disorders" AND "infant"*. No search refinement was made. The search found 153 studies, and after perusing the titles and abstracts, none of them met the proposed inclusion criteria. Other combinations of terms were used in the database to find eligible studies: *"urologic diseases" AND "infant"*, resulting in thirteen studies; *"urologic disorders" AND "infant"*, resulting in three studies; and *"urinary tract" AND "infants"* resulting in 333 studies. After perusing the titles and abstracts, sixteen met the inclusion criteria and complete copies were obtained for reading and categorization. After having read these, thirteen were excluded for not addressing situations related to impaired urinary elimination in infants, leaving three in the sample that formulated this database.

The following terms were used in LILACS: *urinary tract diseases, urinary tract, urinary disorders, AND infant*. The search was done by using the iAH form. First, a cross-reference was conducted using the following terms: *urinary tract diseases OR urinary disorders OR urinary tract AND infants*. The search resulted in two studies, but none of these met the proposed criteria. Therefore, another cross-reference was performed using the following terms: *urinary tract diseases AND infants*. This search resulted in one study. A third cross-reference was then carried out using the following terms: *urinary tract AND infant*, resulting in one study. Cross-referencing the terms: *urinary disorders AND infants* yielded no studies. The fifth cross-reference used the following terms: *urinary tract AND infants*, which resulted in four articles. After perusing the titles and abstracts, only one met the inclusion criteria, and a complete copy was obtained for reading and categorization. Therefore, only one study formulated this database.

Complete copies of all articles were searched for in the CAPES journals web site, using the proxy system offered by UFSCar's Community Library. Each article was read in its entirety and, subsequently, a Microsoft Excel spreadsheet was completed with the data. The studies' level of evidence was determined based on the revised classification of the strength of evidence proposed by Melnyk; Fineout-Overholt,⁹ which considers seven levels of evidence: Level I – evidence derived from a systematic review, or meta-analysis, of all of the pertinent controlled randomized clinical trials (ECRC) or derived from guidelines based on systematic ECRC reviews; Level II – evidence from at least one well-designed ECRC; Level III – evidence from well-designed clinical studies without randomization; Level IV – evidence from case-control and well-defined cohort studies, Level V – evidence from systematic reviews of descriptive and qualitative studies; Level VI – evidence from a single descriptive or qualitative study; and Level VII – evidence based on the opinion of authorities and/or expert committee reports.

Therefore, on a scale from I to VII, I represents the type of study with the highest level of scientific evidence, while VII represents the type of study with the lowest level of scientific evidence. All articles that formulate the sample of this study were classified as regards their strength of evidence.

RESULTS

The sample consisted of studies from Medicine and Nursing, distributed as follows: Pediatrics (26.3%); Pediatric Nephrology (21.0%); Pediatric Urology (10.5%)/ Pediatric Surgery (10, 5%); General Medicine (10.5%); Nursing (10.5%); and unidentified (5.2%).

The studies derived from Nursing were updated works on urinary tract infection, with the presentation of types of infection, signs and symptoms, and types of testing and treatment, all aimed at providing aid for safe and practical care,^{10, 11} as well as assistance on a urine exam that may provide valuable insight into the patient's condition, allowing for the detection of systemic diseases and infections.¹²

Studies from the fields of Nephrology and Pediatric Nephrology described clinical and laboratory findings of urinary tract diseases observed among infants, disease prevalence, prevention and treatment, and clinical symptoms in infants with urinary disease.¹³⁻¹⁷

Studies from the pediatric urology field described the prevalence of disease and clinical treatment and findings, which differ from Nephrology regarding the location of these diseases. More attention was given in the nephrological studies to problems in the upper urinary tract (kidneys and ureters) and urology¹³⁻²¹ and problems in the different urinary tract structures (kidneys, ureters, bladder, and urethra).²²⁻²⁴

A pediatric surgery study presented urodynamic abnormalities in infants.²⁵ One pediatric study showed general manifestations in children, which are sometimes related to genitourinary disorders as well as to diseases that describe crying as a sign observed in infants, including urinary tract infections.²⁶

The defining characteristics identified in the integrative review and covered by NANDA-I¹ include: urinary retention dysuria, which can be identified in infants by crying during urination. Dysuria was found in one level VII evidence study. Urinary retention was reported in three studies, one in level IV evidence, one in level VI evidence, and one in level VII evidence.

Other identified clinical manifestations mentioned in the literature as likely to be observed in infants with impaired urinary elimination were divided into specific and nonspecific clinical categories (Table 1), as was suggested by the authors.²⁷

The clinical manifestations most often found in the literature were nonspecific, namely, fever (14 occurrences), irritability (5 occurrences), and lethargy and vomiting (four occurrences). Clinical manifestations depicting specifics in infants were

less frequently identified in the literature, indicating the need for further studies. These include: anuria, weak urinary stream, interruption in urination, and crying while urinating, all with only one occurrence.

Table 1 - Specific and nonspecific clinical manifestations that depict changes in urinary elimination in infants – São Carlos, 2012

Specific clinical manifestations	Nonspecific clinical manifestations
Anuria	Fever
Urinary retention	Constipation
Weak urinary stream	Irritability
Interruption during urination	Lethargy
Crying while urinating	Septicemia
Hematuria	Vomiting
Malodorous urine	Abdominal pain
	Loss of appetite

Regarding the studies' levels of evidence, most were found in a level VII strength of evidence (68.4%), followed by level IV and level VI strength of evidence (10.5%), and level V and level II strength of evidence (5.2%). Studies with level I and level III strength of evidence were not found in the course of this research.

The relationship between identified clinical manifestations, type of study, and strength of evidence is shown in Table 2.

Table 2 - Relationship among identified clinical manifestations, type, and strength of evidence from the studies – São Carlos, 2012

Strength of evidence from the study	Type of study	Identified clinical manifestations
II	Controlled randomized study ^{21,28}	Fever
IV	Cohort study ¹⁴	Urinary retention and fever
V	Systematic review ²⁹	Fever
VI	Descriptive review ³⁰	Urinary retention and interruption during urination
VII	Published case report ¹⁸ , editorial ²⁴ , and updated articles ^{10, 11, 23, 26, 28, 29-35}	Weak urine stream, crying while urinating, hematuria, malodorous urine, constipation, septicemia, vomiting, abdominal pain, loss of appetite, irritability, and lethargy

Given that the identified clinical manifestations are strongly linked to urinary disorders in infants in the literature, clinical studies are deemed pertinent to identifying the possibility of including these manifestations as defining characteristics of impaired urinary elimination, with the intention of better portraying the condition of infants with this human response.

The literature reported that dysuria, one of the defining characteristics already included in NANDA-I¹, can be identified in infants as “crying while urinating,” which could be added to NANDA-I¹ to better depict the situation of infants with this symptom.

Given the importance of early detection of urinary changes in infants for better nursing planning, the clinical manifestations identified in the literature used in this study may contribute to expanding nurses’ knowledge, leading to a more effective practice in response to changes in infant urinary elimination.

CONCLUSION

Based on this study’s findings, it could be observed that the NANDA-I¹ diagnosis of impaired urinary elimination presents possible gaps in its defining characteristics when observed in infants.

The results suggest that the identified clinical manifestations should be studied for their ability to more accurately depict the condition of infants with impaired urinary elimination.

This study provides insights for future identification studies as to how the infant’s specifics could be presented between the defining characteristics that already exist in NANDA-I taxonomy and the possibility of adding new defining characteristics.

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