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ORIGINAL ARTICLE

ASSESSMENT OF THE QUALITY OF NURSING CARE IN MAINTENANCE OF LONG-TERM INDWELLING URINARY CATHETERS

AVALIAÇÃO DA QUALIDADE DA ASSISTÊNCIA DE ENFERMAGEM NA MANUTENÇÃO DE CATETERES VESICAIS DE DEMORA

EVALUACIÓN DE LA CALIDAD DE ATENCIÓN DE ENFERMERÍA EN EL MANTENIMIENTO DE SONDAS VESICALES PERMANENTES

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ABSTRACT

Objective: to assess the quality of vesical catheterization maintenance in adult patients admitted to a university hospital. ***Method:*** observational, prospective and quantitative study conducted in two hospitalization units for medical-surgical care of a university hospital from May to June 2014. Six items were assessed, which comprise the indicator for vesical catheterization maintenance. The assessments were carried out through compliance calculation. The project of the study was approved by the Research Ethics Committee, Opinion No. 014/2011. ***Results:*** 142 assessments of vesical catheterization were conducted. The item "closed drainage system" achieved the highest compliance rate (86%), and the items "adequate fixation" and "collection bag identification" exhibited the lowest rates (72 and 66%, respectively). ***Conclusion:*** there were high non-compliance rates of many items, which could mean an unfavorable perspective for nursing care quality. ***Descritores:*** long-term catheterization; Indicators; Healthcare; Nursing.

RESUMO

Objetivo: avaliar a qualidade da manutenção do cateterismo vesical em pacientes adultos internados em um hospital universitário. ***Método:*** estudo observacional, prospectivo e quantitativo realizado em duas unidades de internação em clínica médica e cirúrgica de um hospital de ensino, entre maio e junho de 2014. Foram avaliados seis itens que compreendem o indicador de manutenção do cateterismo vesical. A análise deu-se a partir do cálculo de conformidade. O estudo teve o projeto aprovado pelo Comitê de Ética em Pesquisa, Parecer n° 014/2011. ***Resultados:*** foram realizadas 142 avaliações da manutenção do cateterismo vesical. O item "sistema de drenagem fechado" alcançou o maior índice de conformidade (86%) e os itens "fixação adequada" e "identificação da bolsa coletora" tiveram os menores índices (72% e 66%, respectivamente). ***Conclusão:*** houve elevado índice de não conformidade de muitos itens, o que pode significar uma perspectiva desfavorável à qualidade da assistência de enfermagem. ***Descritores:*** Cateteres de Demora; Indicadores; Assistência à Saúde; Enfermagem.

RESUMEN

Objetivo: evaluar la calidad de mantenimiento del sondaje vesical en pacientes adultos internados en un hospital universitario. ***Método:*** estudio observacional, prospectivo y cuantitativo llevado a cabo en dos unidades de hospitalización en clínica médica y quirúrgica de un hospital universitario entre mayo y junio de 2014. Se evaluaron seis ítems que componen el indicador de mantenimiento de cateterismo vesical. El análisis se realizó a través del cálculo de conformidad. El proyecto de investigación fue aprobado por el Comité de Ética en Investigación, Dictamen N° 014/2011. ***Resultados:*** se realizaron 142 evaluaciones del mantenimiento de sondaje vesical. El ítem "sistema de drenaje cerrado" tuvo el mayor índice de conformidad (86%) y los ítems "fijación adecuada" e "identificación de la bolsa colectora" tuvieron los menores índices (72 e 66%, respectivamente). ***Conclusión:*** hubo un alto índice de no conformidad de muchos ítems, lo que podría significar una perspectiva desfavorable de la calidad de atención de enfermería. ***Palabras clave:*** Sondas permanentes; Indicadores; Asistencia a la salud; Enfermería.

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INTRODUCTION

The health and nursing contemporary scenario has experienced the continuous search for organizations, especially hospitals in order to obtain quality healthcare. This fact imposes the need of continuous and comprehensive assessment of the care provided, enabling the achievement of excellence in healthcare, patient satisfaction, and minimal risk.[1]

The concept "health quality" can be understood as: the association between benefits obtained; reduced risk and cost in the healthcare process; and high level of patient satisfaction.[2] In these terms, it is postulated that quality can be achieved in line with the so-called seven pillars that govern it, namely: efficacy; effectiveness; efficiency; optimization; acceptability; legitimacy; and equity.[2]

It is worth mentioning that healthcare quality is not an isolated phenomenon. Regarding its design, this desirable asset is greatly influenced by the historical moment and, above all, by the needs of organizations and society.[2] This way, quality and assessment are inseparable aspects in the health scenario, since the latter is seen as a management tool that can help in decision-making to meet the needs of organizations and users, thus contributing to the improvement of quality.[2-3]

Assessment has gained strategic character in the health sector and is related to the attempt to leverage the quality of services provided, starting by hospitals and expanding over time to other healthcare levels.[4] This way, hospital quality is expected to be managers' concern, which has possibly resulted in the development of instruments and tools to support the assessment and improvement of quality, even in Brazil.[3,5-6]

Among the tools used in quality management and assessment, there are indicators used to measure the quality and productivity of health programs and services.[7] An indicator can be defined as a unit used to measure an action/activity to which it is related; or it can be understood as a quantitative measure targeted at guiding, monitoring, and assessing quality of healthcare and management in a particular service.[7] Even though an indicator is not the real picture of quality (or its absence) of a product or service, it is possibly one of the most objective ways to obtain a perspective of the quality of what it is intended to assess.[3-8]

With respect to the use of indicators for assessing quality, it is worth mentioning that they can provide three perspectives (structural, procedural or performance, and outcome)[9] that complement one another in order to obtain systemic quality assessment.[10-11] Structural assessment is related to the resources required in a health institution, namely, professionals, system, care organization, and physical space, among others.[9] Procedural or performance assessment aims at checking the actions and decisions of health professionals, such as procedures, treatments for diseases, appropriateness of therapies, and outcomes efficacy and efficiency.[9] In turn, outcomes assessment identifies the consequences of healthcare (or their absence) showing whether certain events are desirable or not.[9]

Historically, among the most commonly used indicators in daily management of hospitals, there are those related to hospital infections,[10-12] which make it possible to assess quality from a specific perspective of healthcare in an organized and objective manner. This is because healthcare-related infection is an important outcomes indicator.[8,11-12]

In 2006, the Health Department of the State of São Paulo drew up the Manual of Indicators for Assessing the Quality of Hospital Infection Control Practices, with the purpose of evaluating and assessing the performance of the healthcare-related activities carried out by nursing professionals.[6] One of the indicators pointed out by the manual is the assessment of the maintenance of vesical catheterization, which aims at identifying the healthcare provided to the patient and the risk of developing urinary tract infection related to long-term indwelling urinary catheterization.[6]

Urinary tract infection is one of the predominant events of healthcare-related infections and it may achieve an average of 35 to 45% of total infections.[13] It is estimated that 16 to 25% of patients admitted will undergo vesical catheterization, which may be for intermittent or long-term drainage of bladder.[13] In this sense, it is worth mentioning the importance of this procedure with respect to patient safety, because urinary tract infection related to long-term indwelling urinary catheterization represents 40% of the infections occurring in the hospital environment, resulting in an average of three extra days of hospital stay. This fact may often generate complications, resulting in increased costs for the organization and, obviously, imposing avoidable burden on users and their families.[14]

Despite the above-mentioned factors, the use of long-term indwelling urinary catheterization in admitted patients is a resource of great importance, because it can be beneficial to the treatment and evolution of the clinical picture.[15] It is essential that services seek ways to avoid or minimize complications that may be caused by this procedure, with a view to patient safety and, consequently, healthcare quality. This goal may possibly be facilitated through the control and assessment of the maintenance of long-term indwelling urinary catheters.

In view of the issues addressed, the guiding question of the present study was: What is the quality of nursing care in the maintenance of vesical catheterization in a public university hospital? In order to answer the research question, the goal was to assess the quality of vesical catheterization maintenance in adult patients admitted to a university hospital.

METHOD

This is an observational, descriptive and prospective study with a quantitative approach conducted in two adult hospitalization units for medical-surgical care of a university hospital of the State of Paraná, Brazil. This hospital had 195 beds, all of which were linked to the Unified Health System (SUS). Each unit assessed had 26 beds addressed to general medical-surgical care, orthopedics, and neurology.

The population of the study consisted of all patients with long-term indwelling urinary catheterization admitted to the respective units. The sample was selected in accordance with the following inclusion criteria: (a) patients aged 18 years and over; (b) patients under 18 years of age accompanied by family members or friends.

Data collection was carried out from May 1st to June 30th 2014 by a single researcher, a nurse resident in Medical-Surgical Nursing Management. Each observation site was assessed twice a day, starting at 11:00 am and 05:00 pm. These times were chosen because the units had lower number of visitors and flow of activities performed by professionals, thus enabling non-disruptive assessment, as well as the possibility of increasing the reliability of the assessment through double observation. The choice of the collection being performed by a single researcher at standardized times was due to the attempt to reduce the biases common to observational studies.

For data collection, we used an instrument called "Assessment spreadsheet - Assessment Indicator of Maintenance Conditions of Vesical Catheterization" established by the Manual of Indicators for Assessing the Quality of Hospital Infection Control Practices.[6] This instrument is considered a measure of process assessment. It is constituted by five assessment items relating to the maintenance of long-term indwelling urinary catheterization, namely: closed drainage system; adequate fixation; collection bag below the level of the bladder; urine output below two-thirds of the bag level; and unobstructed drainage.

Still, we decided to insert another component in the instrument for data collection, i.e., the identification of the collection bag. This choice was due to the fact that the identification shows the time of insertion of the long-term indwelling urinary catheter and, consequently, when it was changed, which, through a simple measure, also relates to maintenance conditions of vesical catheterization and can assist the nursing team in the prevention of infections.[15]

The data collected were stored using Microsoft Excel spreadsheets and analyzed according to the compliance rate of practices included by the manual.[6] Each component of the indicator was assessed separately using the following formula:

$$\frac{\textit{Total number of long-term indwelling urinary catheters with each maintenance component considered adequate}}{\textit{Total number of indwelling urinary catheters assessed in hospitalized patients}} \textit{ X100}$$

The criteria for defining compliance and non-compliance were used in line with those established by the manual, which are arranged according to the characteristic of the item assessed and with what is internationally advocated for vesical catheterization maintenance.[6] The ideal compliance value established by the methodological referential adopted for all assessment items is 100%.[6] We chose to use the same ideal compliance value for the item added, i.e., the identification of the collection bag, because it is considered a simple procedure. In this way, lower values are considered non-compliant and interpreted according to the extent of the outcome obtained.

The patients who participated in the study were informed about the purpose of the research, their voluntary participation, and

the confidentiality of their identification. In addition, the participants and the researcher signed an informed consent form in two counterparts of equal content.

The present study was submitted to the Research Ethics Committee of the State University of Western Paraná (UNIOESTE) and received a favorable opinion under Protocol No. 014/2011. In addition, the study met all ethical precepts of Resolution No. 466/2012 of the National Health Council, with respect to research involving humans.

RESULTS AND DISCUSSION

We carried out 142 assessments of the maintenance conditions of vesical catheterization in 71 patients admitted to the clinical-surgical units. As predicted, the following items were assessed in each unit: closed drainage system; adequate fixation; collection bag below the level of the bladder; urine output below two-thirds of the bag level; unobstructed drainage; and identification of the collection bag. The results are summarized in Table 1.

Table 1. Assessment items that compose the quality indicators of vesical catheterization maintenance, according to compliance and non-compliance. Cascavel, 2014.

Items assessed	Compliance		Non-Compliance		Total	
	No.	%	No.	%	No.	%
Closed drainage system	122	86	20	14	142	100
Adequate fixation	40	28	102	72	142	100
Collection bag below the level of the bladder	109	77	33	23	142	100
Urine output below two-thirds of the bag level	97	68	45	32	142	100
Unobstructed drainage	109	77	33	23	142	100
Identification of collection bag	**49**	**34**	**93**	**66**	**142**	**100**

The item "closed drainage system" was the component with the largest adequacy rate (86% of the cases). Those bags exhibiting leakage at the time of observation were considered open drainage systems (14% of the cases). Studies conducted at the Hospital de Clínicas of Ribeirão Preto and at the State of Paraíba Federal Hospital, which assessed this item of the indicator, found compliance rates between 100[16] and 99%,[17] respectively, which may indicate that the institution assessed in the present study had reduced compliance level.

With respect to the collection bag below the level of the bladder, it was observed that 77% of the cases were in accordance with the criterion established by the indicator. However, 23% of the cases were not in accordance. This might have happened due to the time of data collection matching care actions provided to the patients, or during patients' ambulation. It was also possible to observe that in some cases the collection bags below the bladder were not closed for handling.

It is known that the collection bag must be below the level of the bladder. When this does not occur, there can be urine reflux from the bag into the bladder, causing damage to the mucosa of the organ and, consequently, favoring the development of an infectious process and biofilm formation on that surface.[15]

Unobstructed drainage was found in 77% cases. However, it was found that 23% of the cases exhibited inadequacy, due to the fact that, at the time of observation, some catheters had small elongated particles of diverse color in all their extension, or were closed due to any procedure performed before the observation.

A study conducted in 2012 found that 96% of the cases of the item "unobstructed drainage" were in accordance with the indicator. The other cases exhibited kinks in the catheters.[16] It is known that the long-term indwelling urinary catheter should be free of kinks and stress in the extension tube. If this requirement is not met, there may be obstruction of the urine drainage, urine return into the bladder, and urinary tract infection.[18-20] This way, it is evident that the nursing team was inefficient regarding simple and necessary care provided to almost a quarter of the patients under their care.

Bags of 2,000 mL capacity were taken into consideration to assess the component "urine output below two-thirds of the bag level", as standardized by the institution, and the bags with a maximum of 1,300 mL capacity were considered adequate. The assessment showed 68% of adequate cases; however 32% were not in accordance with the capacity recommended by the indicator and the standards of the institution. Similarly, another study conducted in a similar hospital found 69.8% adequacy with respect to the same component.[17]

The volume of the collection bag above two-thirds can make urine return into the bladder and result in bacteriuria in a period of 24 to 48 hours.[17] This way, this outcome also means an alert to the nursing team of the service, because it demonstrates that the

patients subject to their care procedures are exposed to another predisposing factor for infections associated with the use of catheters, which is a critical component of patient safety.

Adequate fixation was the component that had the lowest compliance rate, with only 28% of the cases, representing 72% of inadequate fixations. The long-term indwelling urinary catheter should be fixed on the inner surface of the thigh in women and in the hypogastric region in men.[6] Studies conducted in hospitals of different regions of Brazil between 2012 and 2014 also found inadequacy of 93 and 100%,[17] which indicates that this situation is a problem to be addressed in different geographical spaces of the national territory.

Even though the fixation of the long-term indwelling urinary catheter is a moderately simple procedure established by the institutions through protocols, little consideration is given to its applicability in daily care practices, which may result in serious consequences, such as lesions of the urethra and, subsequently, urinary tract infections.[16] The nursing team faces an easy correctable problem; however, the results indicate that the action necessary for the prevention of lesions and infections through adequate catheter fixation had not been prioritized in the daily work of the service assessed.

With respect to the component "identification of the collection bag", the institution had protocols that established the length of permanence and change of the urinary catheter, which totals 21-day permanence. After this period, the catheter should be removed and a new insertion performed. Given this, it was possible to observe that only 34% of the cases where in accordance with the indicator and 66% were inadequate.

Taking into consideration that the change of the urinary catheter is performed in accordance with the protocols established by the institution, the collection bag should contain the record of the date and time of catheter insertion, in addition to the name and signature of the professionals responsible for the insertions.[15] Another alternative for controlling the change of catheters would be that the institution records the insertion of long-term indwelling urinary catheters in another location, as for example, in specific spreadsheets for catheter insertion control, which could possibly be a measure for preventing catheter-related infection through the incisive and systematic control of "expiration date" of catheters permanence.

Studies show that urinary tract infection related to long-term indwelling urinary catheterization has several risk factors, such as sex, age, nutritional intake, antibiotic prophylaxis, and lack of care with catheters.[18-20] Among these factors, negligence or omission is considered to be a factor with increased chances of causing a preventable adverse event, i.e., infection, since it depends on measures delivered by direct care provided to patients and, more precisely, by nursing care.[18-20]

Having in mind the reality observed and what has already been pointed out in the literature, the following actions are necessary: continuing education for nursing and health teams; constant monitoring of the incidence of urinary tract infection related to long-term indwelling urinary catheterization by means of quality indicators; and implementation and review of protocols that establish catheter removal in the shortest possible time.[16]

In addition to the actions previously mentioned, studies conducted in different institutions demonstrate that healthcare quality and control of infections are directly related to the adequate number of nursing professionals for providing care in order to promote safe healthcare.[21]

It has been scientifically proved that the improper sizing of the nursing team is directly related to the development of hospital-acquired infection rates, which is one of the leading causes of death in the hospital environment.[16] A study conducted in Geneva showed that there has been 50% increase in risk of infection in patients receiving nursing care due to the insufficient number of professionals.[21]

It is possible to affirm that the proper number of nursing professionals may promote the maintenance of patient safety, as well as care quality, thus reducing the risk of diseases related to care provided to patients, as for example hospital-acquired infections.[21]

Different indicators should be used to assess care quality related to the maintenance of long-term indwelling urinary catheterization, because using outcome indicators separately is insufficient to identify the factors related to the occurrence of urinary tract infection.[16] Consequently, process indicators are important tools for assessing the actions performed by nursing and health professionals in patients admitted to the institution, because these indicators assess aspects of the procedures that may be related to the risk of urinary tract infection

associated with long-term indwelling urinary catheterization.[16]

Considering the importance of the indicators as assessment instruments, clinical protocols, continuing education, and adequate number of professionals should produce a set of strategies targeted at the implementation of actions and interventions in accordance with the situational diagnosis, promoting knowledge on the part of the professionals and improvement in the institution with respect to care quality.[22] The results presented and discussed in the present study point out the imminent need of continually promoting actions on the part of nursing leaders in order to enable care quality. To that end, it is necessary to use management tools, such as the indicators.

CONCLUSION

The assessment of the six items that compose the quality indicator related to the maintenance of long-term indwelling urinary catheterization made it possible to observe that none of the items had ideal compliance rates. The item "closed drainage system" achieved the highest compliance rate and the items "adequate fixation" and "identification of the collection bag" had the lowest rates.

Based on the findings, it is concluded that the nursing care of the units assessed. regarding the maintenance of long-term indwelling urinary catheterization, showed an unfavorable quality perspective.

The absence of inferential statistics is possibly the greatest limitation of the present study. However, the assessments made an important contribution to the institution and also for the creation of a theoretical framework based on actions related to nursing care quality in the maintenance conditions of vesical catheterization.

It is believed that it is necessary to conduct further research on the topic, as well as different methodological approaches, aimed at, for example, identifying the relationship between cause and effect of the inadequacies of vesical catheterization maintenance.

Finally, it is noteworthy that, in order to achieve and control nursing care quality, it is necessary that the services use systematic and periodic assessment strategies, such as the indicators. This way, the results obtained in each assessment can promote actions aimed at the minimization of undesirable events related to care provided and, therefore, the service will achieve exponential quality and safety parameters.

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