Compliance of hand hygiene in maintaining the catheter for hemodialysis

Conformidade de higiene das mãos na manutenção do cateter para hemodiálise

Conformidad de la higiene de las manos en el mantenimiento del catéter para hemodiálisis

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ABSTRACT

Objective: to assess the compliance of the practice of hand hygiene in maintaining the temporary double-lumen catheter for hemodialysis, through the use of process indicator at the University Hospital of the University of São Paulo. **Method:** a quantitative, exploratory, descriptive, observational study. Sample consists of 155 observations of patients with catheter from March to November 2011, using the Maintenance Indicator Temporary Dual Lumen Catheter for Hemodialysis. **Results:** the overall compliance rate was 65.8%. Of the 13 specific components evaluated, 9 (69.2%) had 100% compliance. Hand hygiene by health professionals presented one of the worst rates (83.9%). **Conclusion:** it is necessary to implement strategies to reduce the rates of non-compliance, improve quality of care and safety of patients with catheter, and explore factors that affect the process, such as structural issues, and behavioral materials.
Key words: Quality of Health Care; Evaluation of Health Services; Renal Dialysis.

RESUMO

Objetivo: avaliar a conformidade da prática de higiene das mãos na manutenção do cateter temporário duplo lúmen para hemodiálise, por meio do emprego do indicador de processo, no Hospital Universitário da Universidade de São Paulo. **Método:** estudo quantitativo, exploratório-descritivo, observacional. Casuística composta por 155 observações de portadores de cateter, de março a novembro de 2011, empregando-se o Indicador de Manutenção do Cateter Temporário Duplo Lúmen para Hemodiálise. **Resultados:** o índice geral de conformidade foi 65,8%. Dos 13 componentes específicos avaliados, 9 (69,2%) apresentaram 100% de conformidade. A higiene das mãos pelos profissionais de saúde apresentou um dos piores índices (83,9%). **Conclusão:** é necessário implementar estratégias visando diminuir os índices de não conformidade, melhorar a qualidade assistencial e a segurança dos portadores de cateter, bem como explorar elementos que interferem no processo, como questões estruturais, materiais e comportamentais.
Descritores: Qualidade da Assistência à Saúde; Avaliação de Serviços de Saúde; Diálise Renal.

RESUMEN

Objetivo: evaluar el cumplimiento de la práctica de la higiene de las manos en el mantenimiento del catéter de doble luz para hemodiálisis temporal, mediante el uso del indicadores de proceso en el Hospital Universitario de la Universidad de São Paulo. **Método:** estudio cuantitativo exploratorio, descriptivo y observacional. Muestra compuesta por 155 observaciones de pacientes con catéter, de marzo a noviembre 2011, utilizando el indicador de mantenimiento del temporal catéter de doble luz para hemodiálisis. **Resultados:** la tasa global de cumplimiento fue de 65,8%. De los 13 componentes específicos evaluados, 9 (69,2%) tuvieron 100% de cumplimiento. Higiene de las manos de los profesionales de la salud presenta una de las peores tasas (83,9%). **Conclusión:** Es necesario implementar estrategias para reducir las tasas de incumplimiento, mejorar la calidad de la atención y la seguridad de los pacientes con catéter, y explorar los factores que afectan el proceso, como las cuestiones estructurales, materiales y de comportamiento.
Palabras clave: Calidad de la Atención de la Salud; Evaluación de los Servicios de Salud; Diálisis Renal.

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INTRODUCTION

Quality is an indispensable condition on health services, and aiming to promote assistance with this attribute, most institutions live in a constant competitiveness for pursing the appliance of best practices, new technologies, and to offer the best service to meet needs and expectations of users.

According to Donabedian[1-2], health quality is to obtain more benefits against less risks to user. On its turn, benefits are defined in what is achievable, in accordance with available resources and existing social values.

The problem that involves the quality context is present in all health departments, and in what regards Hemodialysis (Hd) is not different, given the dialysis treatment is complex and requites a proper physical structure, as well as capable professionals for a safe practical assistance, avoiding damages of variable dimensions, including the own life of patients with renal disease.

Hd treatment maintenance of patients with renal disease directly depends of the presence of an efficient vascular access (VA). The referring complications to this access represent most part of patients' morbidity on hemodialysis therapy. VA is fundamental for the dialysis treatment, since the therapy efficacy is intimately associated to its proper implementation, handling, and monitoring, carrying forward dialysis quality, and consequently, well-being and survival for the patient[3].

On Hd services, several patients are submitted to a simultaneous treatment, which may favor the dissemination of microorganisms by direct or indirect contact, and through devices, equipment surfaces or professionals' hands, which highlights the need for hands hygiene before and after contact with patients[4].

Hands hygiene is one of the priority measures on health programs and actions destined to patients' safety, as well the adhesion of professionals and institutional resources, considered as fundamental to propitiate quality and safe assistance. According to the Brazilian Health Surveillance Agency (ANVISA), this is the most important procedure, and less expensive to avoid infections transmission related to health assistance healthcare-associated infections (HAI).

In the last two decades, questions related to health quality have been evolving, making possible to amplify its construction and outlining of proper methods to measure it. Considering several value components, the subjectivity and its specialties, the quality concept becomes multidimensional. However, it is necessary to appropriate components to evaluate if a product data or service meets quality on actual and expected standards.

On this direction, Donabedian[2] brings the idea that quality is not an abstract attribute, but a measurable assistance evaluation, proposing to be performed through analysis of structure, work processes, and results. Therefore, an evaluation model has been established, focusing on health services and assistance practices, based on components of structure, process and result[1-2].

In this sense, we may appeal to the appliance of indicators as tools destined to monitor quality of a service with efficiency, liability and conclusion of processes, constituting, thus, a valuable practice for health services evaluation.

The goal of a health evaluation is to monitor quality, exerting a continuous vigilance, in such way that deviations from the standard may be early detected, to be interrupted or improved[1].

Facing this, service evaluation has been considered as a process used to determine the amplitude to what goals has been reached, favoring to make assertive decisions[5].

Given the different instruments of the health evaluation, indicators have been highlighted especially the ones that were built, validated and applied to analyze a specific phenomenon or situation.

To Nicole and Tronchin[3], among assistance practices on Hd services, the ones that involve VA handling are imperative on health professionals discussion groups, once the accesses are responsible for high levels of hospitalization, infection, and mortality of patients with renal disease. However, there are significant breakthroughs on Hd development, still persisting a lacuna regarding evaluation of involved process in this therapeutic.

The intensity of changes occur on life style and quality of users, it is also something to consider. For such reason, the performance of impacting studies on assistance quality to patients with renal disease becomes imperative, aiming to minimize the wear out and suffering provoked by the therapeutic itself, offering subsides to best co-living and acceptance of the required treatment on the disease course.

Facing those exposed considerations; we believe that hygiene practice on maintenance of Temporary Two Lumen Catheterization (TTLC) for Hd is based on several practices, requiring to be evaluated on services of Renal Replacement Therapy (RRT), for keeping a strict relation between quality and assistance evaluation, as well as the life quality of patients with renal disease, impacting on assistance and management practices on the health sector.

Therefore, this present study underlined as a goal to evaluate compliance of hand hygiene practice on temporary double lumen catheter maintenance for hemodialysis through appliance of the process indicator, on the University Hospital of the University of São Paulo.

METHOD

This is a study with a quantitative, descriptive exploratory, observational approach developed on the hemodialysis unit of the University Hospital of the University of São Paulo (HU-USP).

Data collection occurred from March to November, 2011, on the morning and afternoon shifts, through a structured observation, using two forms, the first one was based on the Operational Manual for Maintenance Indicator of Temporary Two Lumen Catheterization for Hemodialysis (TTLCH)[3], applying to evaluate the compliance of assistance practice. It contains the data referring to a number of observation, date, shift, the 13 components to be evaluated (among them, the practice of hand hygiene practice), and evaluation result. The second instrument was used to register users' features according to gender, age, and the first three-admission diagnosis on the Hd program.

Casuistry corresponded to 155 observation opportunities, each one made by 13 specific components to evaluate 2015 components on maintenance practice TTLC for Hd, performed by health professionals. The sample was collected by convenience.

Compliance with the activities and processes were considered

in compliance when an specific pattern capable to define the pursued quality in such way to not compromise coherence and what was forebode by the service, determined throughout the evaluation[6].

The research project was submitted to and approved by the Nursing Department and Research Ethics Committee of the hospital under study (Protocol no. 1,080/10 - SISNEP CAAE 0107.0.198.196-10). Health professionals working on the unit were consulted about availability of research participation, and clarified about study goals and confidentiality of own identity and position. Therefore, all professionals of the health team participated on the study, signing a Free and Informed Consent Form delivered into two copies, one remaining with the responding subject and another with the researcher, in accordance with Resolution no. 196/96.

The obtained data were organized in an electronic worksheet, and afterwards treated through descriptive statistic.

General compliance equations were used to calculate indicator indices, and for each evaluated item, as recommended by the Operational Manual of Indicator TTLCH[3].

General indicator

$$\frac{\text{Number of patients with TTLC with all maintenance items in compliance}}{\text{Total of patients with TTLC evaluated}} \times 100$$

Indicator by component/variable

$$\frac{\text{Number of patients with TTLC handled after professionals' hand hygiene}}{\text{Total of patients with TTLC evaluated}} \times 100$$

RESULTS

Considering the method description, 155 observation opportunities referring to assistance practice were evaluated, each one composed by 13 specific components, and the total being 2,015 cases. We analyzed 41 users submitted to Hd, having as an access route TTLC, according to variables as gender and admission diagnosis on the Hd unit.

The data presented on Table 1 feature patients submitted to Hd, according to gender, age and admission diagnosis on the Hemodialysis unit of HU-USP.

Regarding demographic features of patients with catheter, Table 1 shows the predominance of men (31-75.6%). Referring to age, the correspondent average is 55 years-old (sd ± 16.5), varying from 20 to 84 years, and the median of 57 years old. When compared to average age among gender, there has not been a significant statistic difference (p = 0.455, Student t test).

Admission diagnosis on Hd service are indicated on Table 1, considering the same patient may be diagnosed with more than one pathology. We observed 20 patients (52.6%) with Systemic Arterial Hypertension (SAH), followed by Acute Renal Disease, 15 (39.5%), and Diabetes Mellitus (DM), diagnosed on 14 patients (36.8%).

Table 1 - Distribution of users with TTLC, according to gender, age and admission diagnosis on hemodialysis unit (N = 41), University Hospital, University of São Paulo, São Paulo, Brazil, 2011

Variable	n	%
Gender		
Male	31	75.6
Female	10	24.4
Age (in years)		
Average (sd)	55 (± 16.5)	
Median	57	
Minimum - Maximum	20-84	
Diagnostics*		
Hypertension	20	52.6
Acute renal disease	15	39.5
Diabetes	14	36.8
Alcohol and Smoking Consumption	14	36.8
Chronic renal disease	13	34.2
Dyslipidemia	5	13.2
Others**	11	28.9

Notes: *N = 38, due to three patients without information; **Anemia, Asthma, Sepsis, Urinary Tract Infection, Chronic Obstructive Pulmonary Disease, Acute Pulmonary Edema, Hepatitis C, Leptospirosis, Pancreatitis.

Below, Figure 1 concerns general compliance of maintenance practice of Temporary Two Lumen Catheterization for Hd.
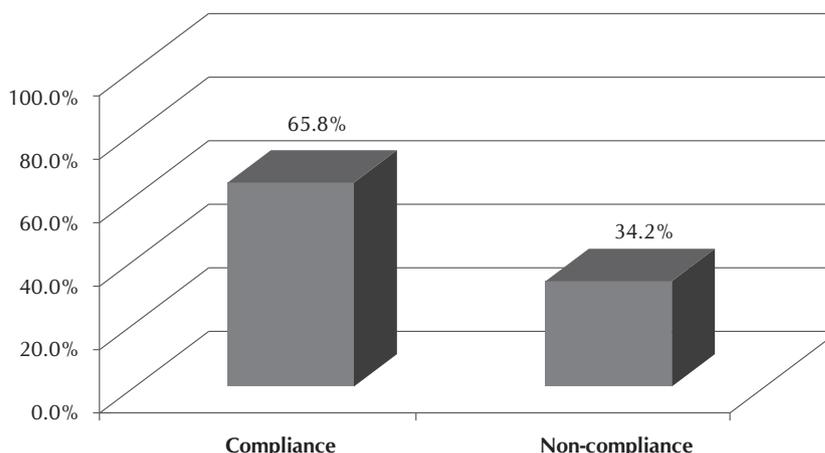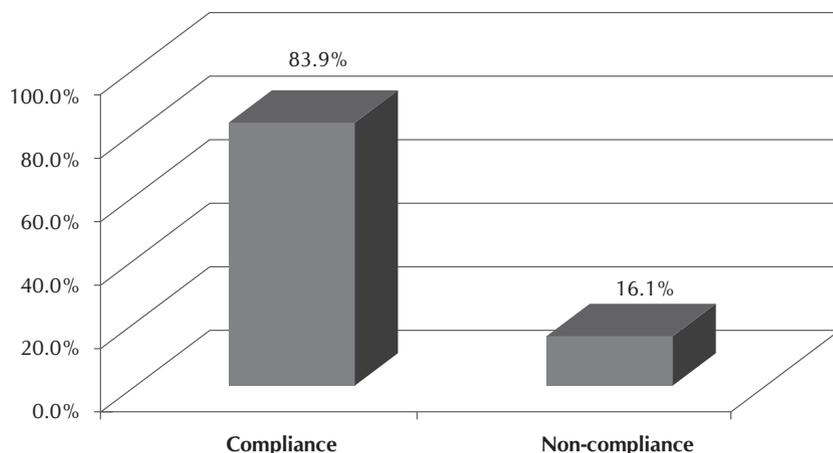

Figure 1 - Distribution of compliance and non-compliance on maintenance practice of Temporary Two Lumen Catheterization, University Hospital, University of São Paulo, São Paulo, Brazil, 2011

We verified, trough Figure 1, that the percentage of general compliance on maintenance assistance for TTLC for Hd corresponds to 65.8%.

From the 13 specific components evaluated, 9 (69.2%) reached maximum compliance percentage (100%), specifically: TTLC handling with sterile glove, professional used mask on Hd disconnection, insertion inspection of TTLC during dressing change, usage of alcoholic chlorhexidine on 0.5% on dressing change, dressing change pre-HD session, dressing covered with sterile gauze on each session, every 7 days, or when required, hygiene of connectors made with alcoholic chlorhexidine on 0.5%, TTLC route filling, after session with 10ml of Saline Solution 0.9% with heparin solution.

Professionals used mask on Hd connection and disconnection on most of evaluation opportunities, being 99.4% in compliance during connection, and 100% on disconnection. When comparing those results with the ones correspondents to mask use by patient on Hd connection and disconnection, the obtainment of a compliance indices lower in the last one was highlighted, being 92.3% of opportunities in compliance during connection, and 83.9% on disconnection.

Figure 2 represents the data referring to compliance and non-compliance on performance of hand hygiene.

Figure 2 - Compliance and non-compliance distribution on hand hygiene performance, University Hospital, University of São Paulo, São Paulo, Brazil 2011

Based on the data presented on Figure 2, we noticed that hand hygiene, although having compliance predominance of 130 (83.9%), presented a significant number of opportunities in non-compliance (25-16.1%), exposing fragility on practice adhesion. Compliance was considered only when the professional performed hand hygiene previous and after Hd connection and disconnection.

DISCUSSION

During the study's period, we evaluated 155 observation opportunities referring to assistance practice, from which 126

(81.3%) occurred on the morning shift and 29 (18.7%) on the afternoon shift –a total of 1,638 evaluations of specific components during the morning, and 377 during the afternoon. We observed a variation of attendance between shifts due to patients demand, highlighting that in the Hd unit from HU/USP, most sessions of Hd with TTLC occurs during the morning. Each opportunity was composed by 13 specific components, involving a total of 2015 observations evaluated.

On this study, the results presented regarding the variables gender and age support those found on national literature[7]. Other studies conducted with patients submitted to RRT by Hd[8] still demonstrated the predominance of male patients. The predominance of SAH and DM, as main base diseases also is in accordance with other results pointed out on literature[9].

Having in mind the dialysis efficiency depends on an adequate blood-flow, the concern with VA performance came to be a priority among professionals working on such therapeutic[10]. In Brazil, catheterization, most of the times, is strict to waiting periods for a definite access[11].

In this context, TTLC maintenance for Hd is considered as a practice of fundamental importance, and is mainly performed by the nursing team, depending on technical, precision and ability competence, as well as the interaction and communication between nursing team, multiprofessional team and the user to ensure quality and therapeutic success.

For this, is indispensable to think about tool and evaluation models able to measure quality attributes on health services. Therefore, evaluations and its instruments in case, the identifier, are applied to constitute knowledge about institutional quality, and identifying fragilities and potentialities, as well as comprehend the meaning of the group and its activities to improve service quality[12].

The results of this study point to a general compliance percentage of assistance practice on temporary catheterization for Hd corresponding to 65.8%.

When considering data found on the literature, we noticed an increase in the number of studies about assistance practice evaluation and a wide variation of compliance indices results among them. However, the best results presented percentages from ≥ to 80%[13-15].

Based on the results of this study, we determined the corresponding component to hand hygiene, although there is a compliance predominance of 130 (83.9%), a significant number of opportunities is not in compliance 25 (16.1%), highlighting a fragility on practice adhesion.

During the completion of the multicentric investigation on nine Hd units in Spain, aiming to identify factors that affect adhesion to hand hygiene practice on hemodialysis units, the authors verified that in 1,902 hand hygiene opportunities, there has been practice adhesion of 35.6% after contact

with patients, and only 13.8% previously to contact with patients[16].

Studies carried out through all continents, approaching adhesion of hand hygiene, direct observation was the most used methodology, considered gold standard by the World Health Organization (WHO) on practice monitoring. Most results point to low adhesion from health professionals, configured as a major challenge on prevention and control of HAI. From the perspective of human factors, training for professionals was considered as priority, drawing attention for an apparently very simple practice, aiming change of habits and behaviors, essential to a better adhesion, with a positive impact on services[17-19].

In a research[15] aiming to evaluate compliance on hand hygiene and after the performance of procedures for control and prevention of ventilated-associated pneumonia, orotracheal aspiration, changing of lace and oral hygiene, general compliance indices obtained only 10.7% before and after the performance of selected procedures, which was considered very low to the expected compliance of 80%.

The hand hygiene theme is handled as priority by programs focusing on safety care of patients by health services. The World Alliance for Patient Safety, an initiative from WHO, launched on 2004, has been applying efforts on elaboration for guidelines and strategies for measure implementation, including adhesion to hand hygiene practice.

The incentive for such practice constitutes one out of nine solutions for patients' safety, launched in 2007 on the Nine Patient Safety Solutions program, considered the primary preventive measure to avoid harm to patients[20].

Low adhesion to hand hygiene on health services is a reality in a global dimension, and it may be assigned, many times, to physical, structural, and behavioral conditions, which involve lack of sinks and inputs, as soap and paper towel, lack of stimulus, commitment and professional liability.

In a study carried in eight American hospitals, the findings revealed a discouraging performance concerning the magnitude of proper fulfillment from opportunities performed on hand hygiene practice by health professionals[21]. Research still point out to technology usage and video electronic monitoring system to improve the practice and reduce HAI incidence. However, no results evidence positive impact[22].

Following this line of thought, low adhesion passes from the need of frequent hand washing and professional judgment, since most of times, the dirt is not visible and presence of microorganisms might not be determined without devices usage, constituting a major challenge for infection control[17].

Behavioral change on health professionals constitutes a major challenge for government organs, institutions, managers and employees, considering it is imperative to adhere recommendations and protocols directed to improve health assistance practices, especially hand hygiene, aiming patient and professional safety.

CONCLUSION

The specific indicator on hand hygiene practice has been influencing negatively compliance general indices on assistance processes, affecting quality of services and safety for the patient, in this study, from the 13 evaluated components, such item presented the worst compliance indices.

The component related to hand hygiene deserves more deep analysis, especially on behavioral dimension, of both professional and users, who are also social actors and requite to receive guidelines regarding the importance of the correct use of asepsis measures to catheter maintenance, benefiting the participation on safe care.

In this sense, we highlight the importance of the involvement of managers and health professionals on reviewing those indices, exploring other elements that may interfere on the process, as structural, material and behavioral questions.

Allied to previously exposed questions, we need to stress the need of precision on data acquisition, to produce reliable information. The non-fulfillment of this assumption may weaken the health evaluation process, leading to results deviation and, consequently, wrong decisions.

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