Care protocol for clients with respiratory disorder: tool for decision making in nursing

Protocolo de cuidados ao cliente com distúrbio respiratório: ferramenta para tomada de decisão aplicada à enfermagem

Protocolo de atención al cliente con trastorno respiratorio: herramienta para la toma de decisiones en enfermería

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Abstract

Objective: To elaborate a nursing protocol for care delivery to clients in situations of acute respiratory disorder and test its applicability. Methods: A quasi-experimental method was employed with a before-after design and quantitative approach, testing the protocol at different times. The research group included 22 nurses, who complied with pre-established criteria for participation in the research. Three consultants participated in the validation process. Results: The results indicated that the nurses' answers improved with the help of the protocol, and the consultants' opinions considered that the protocol was appropriate in view of the research variables. Conclusion: We believe that the nursing care protocol for clients with acute respiratory disorders contributes to improve their care, enhancing and speeding up appropriate interventions for clients with this condition.

Keywords: Protocols; Nursing Care; Respiratory Failure.
INTRODUCTION

Nurses deal with uncertainties, even if they are not always aware of this. Appropriate decision making often requires the articulation of different knowledge areas that affect the human rationality. In general, assessing objective data about the body, a subject that is inherently subjective, is not an easy task. Quantifying/qualifying the uncertainties can help to systemize care and value the nursing process.

The research is focused on a proposal to manage a specific problem, acute respiratory disorders, through the application of a systematic evidence-based and tested protocol. The intention of this protocol is to provide the nurses with information that enhances the agility and problem-solving ability of care for clients with acute respiratory disorders.

Thus, the aim in this research is to elaborate a nursing protocol for care delivery to clients with acute respiratory disorder and test its applicability, with a view to optimizing the decision process in a more dynamic, precise and uniform manner.

Although nursing care is based on the promotion of life, dialogue and each subject's individual potential, as the active cooperating principle of the health/disease process, theoretical and practical axes need to be constructed to improve this care. Consequently, the elaboration and implementation of protocols comply with this perspective, as these are theoretical-practical support tools that enhance care planning and, consequently, contribute to the quality of individual and collective care.

The standardization of care axes in client care, in view of the clients' particularities and subjective aspects not only contributes officially to the nursing records, but also enhances nursing care management, granting the professionals safety and autonomy for the necessary decision making.

The production of protocols that contain the best known evidences can support care delivery based on good clinical practices and permit the recovery/ restoration of the problematic health status. In that sense, the application of care guidelines is increasingly necessary to consolidate some aspects of clinical nursing practice, especially when involving critical clients, as they systemize care and objectively establish steps and conducts to approach a certain problem. In the case under study, the best recommendations were extracted and summarized for earlier approaches to a specific problem, acute respiratory disorders, through the application of a systematic evidence-based and tested protocol.

The guidelines for clinical nursing practice (protocols) are potential means to incorporate the available evidence, even if much evidence is only based on consensus and lacks experimental and observational studies that can be demonstrated with methodological rigor, constituting the best alternative for the client.

METHOD

A quasi-experimental study with a before-after design was undertaken, known as a non-randomized trial. This is characterized as a research in which the researcher intervenes in the characteristic that is being investigated; the participants are not randomly allocated though.

In this study, a protocol for the assessment of clients with acute respiratory disorder was used as an intervention factor. The protocol was applied at two different times, first test (T0 test) and second test (T1 re-test), and to the same participants, who constituted the control group and the experimental group at the same time. The target population, including 22 nurses, was allocated non-randomly and submitted to the same conditions: first the control group (before); and then the experimental group (after).

To achieve the proposed objectives, the study was undertaken in two phases: the first involved the testing of the protocol through the assessment of problem situations expressed in the form of clinical cases; the second phase implied an initial validation process of the proposed protocol through expert assessment.

First Phase: Testing of the Protocol

The intent in this phase was to investigate whether the interviewees' response patterns changes or not with the help of the proposed protocol. It was undertaken at two moments: pre-test (assessment of problem situations without the use of the proposed protocol) and post-test (assessment of problem situations using the care protocol), without a compulsory interval between the test and the retest.

Only nurses were included in the research, with different employment contracts and times since graduation, who were active in direct nursing care delivery in the intra and pre-hospital care sectors in Rio de Janeiro (RJ). As the nurses work in different scenarios, the researchers decided not to a priori define a specific health area/service. Twenty-two voluntary nurses participated in this first phase. Data were collected between June and November 2010.

Each participant received the material with explanations about the study, the free and informed consent form, the proposed protocol and a questionnaire. The protocol was assessed with the help of an instrument that contained a set of problem situations that permitted the analysis and interpretation of conditions involving clients with acute respiratory disorder. As the time since graduation and the type of professional experience define different response patterns, these two variables were incorporated into the questionnaire.

In compliance with the recommendations in Resolution 196/96 on research involving human beings, the voluntary nature of the participants’ participation in all research phases (pretest and data collection itself) and the respondents’ anonymity were guaranteed. The study was submitted to and received approval from the Research Ethics Committee at Escola de Enfermagem
Second Phase: Initial Validation Process

After testing the protocol in the group of nurses, an initial validation process was started, involving three ad hoc experts, who were asked to give their opinion. The criteria to choose the experts were as follows: professionals with vast experience and an unquestionable reputation in the activity area related to the evaluated dimension⁶.

Three evaluation criteria were adopted: relevance, feasibility and validity of the instrument. The relevance considered the applicability and pertinence of the protocol; the feasibility involves the easy operation, costs, data needed and other barriers associated with the application of the protocol; the validity verified the extent to which the protocol achieves its objectives, that is, reflects the event or aspect it intends to measure. Three validity aspects can be assessed in operational terms: content validity (legitimacy of the measure), construct validity (degree of correlation with other measures of the same event) and criterion validity (logical meaning for experts)⁵-⁷.

RESULTS

Together with the algorithm for intervention in acute respiratory disorders, the protocol consists of three parts. The first part briefly surveys the client history, together with the physical examination; in the second part, nursing problems are identified, expressed through the symptoms the client with acute respiratory disorder presents. The third phase consists of four steps, including proposed interventions and complementary nursing assessments.

Presentation of the Protocol and its Algorithm, in the Table 1

In Figure 1, we present the Model of the Nursing Care Algorithm for Clients with Acute Respiratory Disorders. Rio de Janeiro (RJ), 2009-2011².

Subject Characteristics

All of the 22 nurses interviewed work in high and medium-complexity intra-hospital sectors; in addition, four are active in pre-hospital rescue services.
Table 1. Model of the Protocol for the identification of disorders associated with acute respiratory failure based on the client’s semiologic findings. Rio de Janeiro (RJ), 2008-2011

1 - Definition:
Acute Respiratory Failure (ARF) is characterized as an acute functional disorder caused by the inability of the respiratory system to maintain the need for ventilation/oxygenation, with severe problems in the hematosis process.

2 - Classification:

2.1 - Acute Hypoxemic Respiratory Failure:
Condition that can strongly reduce the arterial oxygen tension. Results from disorders in the relation between alveolar ventilation and perfusion, characterized in gasometric terms as hypoxemia without retention of CO₂.

2.2 - Acute Hypercapnic-Hypoxic Respiratory Failure/Acute Ventilatory Failure:
Condition in which the elimination of CO₂ is inappropriate. Results from alveolar hypoventilation, characterized in gasometric terms as hypoxemia associated with increased PaCO₂.

3 - Causes of acute respiratory failure:

3.1 - Acute Hypoxemic Respiratory Failure:
• Acute lung injury.
• Acute respiratory distress syndrome (ARDS).
• Cardiogenic pulmonary edema.
• Pneumonias.
• Pulmonary embolism.

3.2 - Acute Ventilatory Failure:
a) Disorders affecting the respiratory stimulus:
• Overdose.
• Brain stem stroke.
b) Commitment of respiratory muscle function:
• Amyotrophic lateral sclerosis.
• Guillain-Barré syndrome.
• Myasthenia gravis.
c) Increased respiratory effort:
• Asthma.
• Chronic Obstructive Pulmonary Disease (COPD).

4 - Bases for the diagnosis:
The observed clinical signs and symptoms can derive from a wide range of illnesses that can cause the ARD. The clinical manifestations originate in the hypoxia and hypercapnia, without any specific role in the acute respiratory failure diagnosis. Therefore, for the sake of an early and precise diagnosis of ARD, gasometric analysis of the arterial blood is needed.
4.1 - Guiding symptom:
Is a sign/symptom that allows the nurse to recompose the history of the current disease more easily and precisely. Changes in the respiratory frequency and/or rhythm are considered a basic finding of acute respiratory failure and are compulsorily present in these disorders.
Dyspnea: habitually observed and more relevant in Acute Respiratory Failure.

4.2 - Signs of alert:
Together with the dyspnea, the manifestation of two or more signs/symptoms determines the presence of acute respiratory disorder.

4.3 - Sign of gravity:
Indicates worsening of the ARD:
Cyanosis: late manifestation, considered important in the assessment of the ARD, can indicate increased hypoxemia ($\text{PaO}_2 < 50 \text{ mmHg}$).

5 - Objectives of the intervention in cases of ARD:
Correct the underlying cause and restore appropriate gas exchange through four methods:

6 - Nursing interventions in cases of ARD:
The treatment can include pharmacological measures, physical and psychosocial techniques and oxygen therapy. Some tasks require the intervention of other professionals, demanding joint monitoring by the health team involved in care delivery to ARD clients.

- Airway maintenance and permeability.
- Mobilization of secretions.
- Promotion of chest expandability.
- Oxygen therapy.

6.1 - Maintenance of airway permeability and clearance:
- Coughing technique - maintenance of airway permeability.
- Oropharyngeal/nasopharyngeal and/or orotracheal/nasotracheal aspiration.
- Invasive ventilatory support to correct ARD if necessary.

6.2 - Mobilization of secretions:
- Hydration - maintain normal mucociliary transport.
- Humidification - fluidize and mobilize pulmonary secretions.
- Nebulization - improve the cleaning of pulmonary secretions.
- Postural drainage.

6.3 - Promotion of chest expandability:
- Position change - reduce respiratory difficulty, facilitate chest expandability and mobilization of pulmonary secretions.
- Appropriate ventilatory support - promote alveolar recruitment, facilitate chest expandability.

6.4 - Maintenance and promotion of oxygenation:
- Oxygen therapy - use of facial mask.
- Position change - reduces ventilatory/respiratory difficulty.
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Figure 2. Distribution of Nurses: time since graduation x education sector, Rio de Janeiro (RJ), 2009-2011. Data from research subjects. Rio de Janeiro (RJ), 2009-2011.


and that not previewed for the clinical case. Complete agreement was found regarding the maintenance of position change. At the two assessment times, 21 nurses recommended the measure that was considered the priority, while 01(one) disagreed. This professionals works at the ICU and has graduated less than two years earlier. Although airway aspiration is not recommended for this case, ten nurses established this measure as care needed during the first assessment (T₀). With the help of the protocol (T₁), 16 nurses identified that the proposed intervention would be unfit for the clinical situation. Among the six nurses who continued indicating the need for aspiration, five are emergency care nurses and one is an emergency care nurse; five have graduated up to two years earlier and one between three and five years.

The third problem situation in this research proposed a scale of priorities and the respective nursing actions for a client with clear dyspnea, associated with dysphasia after inhalation exposure to chemical products. In the first assessment, before the use of the protocol, 02 nurses chose the position change as a preceding action. After the second assessment, undertaken with the help of the protocol, 09 changed opinion, so that 11 nurses started to
prioritize more appropriate actions from the perspective of clinical practice. Among the four interventions established for the case, in the first assessment (T₀), nine participants correctly identified the installation of oxygen therapy, the fourth action in a scale of priorities, in the recommended order, against 20 nurses in the second (T₁). Only two participants, one intensive care nurse and one emergency care nurse, did not change opinion (Figure 4).

The second Reviewer (P2) refers to the relevance of the protocol and informs about its adherence to two important instances of professional conduct: the nursing care method and professional autonomy. As regards the feasibility, the reviewer considers the need to summarize the phases. In the validity dimension, the applicability of the protocol is ratified, referring to the convergence between the clinical method and the systematization of nursing care, which together culminate in the enhancement of the decision process in clinical nursing practice and in the approach of clients with respiratory problems.

When considering the consultants’ opinions, we perceive that the protocol partially complies with the pre-established criteria for its clinical operation. Nevertheless, the instrument will be reviewed biannually, so as to continuously legitimize its validity and applicability in care delivery to clients with respiratory problems.

**DISCUSSION**

It is considered that the protocol under investigation contributed to better assess the clients’ care needs through the identification of the priorities/recommended steps. Nevertheless, in real situations, some of the steps/recommendations of any guideline can be suppressed in function of the attended client’s potential clinical condition.

The nurses who changed opinion in the second assessment chose the correct diagnostic procedure/intervention, revealing an adjustment in the setting of priorities and in the implementation of the nursing process. A professional committed to quality care is expected to change opinion and behavior whenever this is necessary to assess and monitor the client. Due to the many new technologies and protocols recommended in the health area, the professionals lack syntheses that can go beyond legal and factual limits, beyond the limits of the abstract and the concrete, order and disorder, the printed and the read, the read and the understood, and the understood and the feasible. In general, the protocol was able to trigger positive changes and increase the number of participants who agreed with the best practices/conducts in almost all domains.

The care protocols are an attempt to systematize and standardize nursing practice, as a part of current knowledge and research. The impact of these protocols in care practice has been systematically assessed and the researchers believe that they can be effective in the change process of practice and in the improvement of patient outcomes.

The discussion of the expert group showed that the interpretation protocol of the acute respiratory disorders positively contributed to assess the proposed cases through problem situations. In addition, clinical care actions are proposed, delimiting the spaces and tasks of the multiprofessional team and supporting indirect and organizational care management.

Hence, the application of these tools depends on a broad discussion and adaptation, taking into account population/client and characteristics of the sectors/units where they will be put in practice.
Improving the guidelines for clinical practice depends on a broad testing and validation process. Characteristics like reproducibility and validity are never detached, but demand revisiting and constant updates. We are certain that the participation of experts, who are capable of adding technical-scientific contributions through their expertise, can be of help in the future to survey the best recommendations, in combination with strong evidence for the construction of nursing care models that respond to the actual needs of clinical nursing practice.

Studies focused on the work process have shown that the standardization of steps/flows/priorities promotes the better quality and evolution of professional activities. That is no different in nursing. In the nursing services, the people perform better if instruments are proposed to them that direct care, standardized guidelines or flows that can direct the execution of a task, based on order and stability, with a view to furthering and speeding up any service. The guidelines for clinical practice can serve as a valuable means of support for nurses, provided that they are used to incorporate strategies and pre-established "steps" informed by protocols in the elaboration of the nursing care process.

CONCLUSION

It could be evidenced that, when proposing a care protocol for clients with acute respiratory disorders, the intent was to use it as a distinguished and optimized nursing care systemization strategy, capable of appropriately setting priorities in care delivery to critical clients. The study limitations are related to the deeper study of the validation process, as it only involved a first qualitative evaluation phase, without the use of inferential statistical tests. Direct validation in direct care scenarios is considered as the use of the protocol by nurses in direct care delivery to clients who are victims of acute respiratory disorder.

We believe that this kind of interventionist research indicate a consistent perspective to consider and discuss the professional daily life of Nursing in clinical decision making, as well as the possibility of fruitful ways to improve nursing care in and by itself. In addition, it contributes to the construction and incorporation of the best evidence applied to the direct and indirect nursing management process in a wide range of care dimensions.

REFERENCES