



## ORIGINALES

### Nursing care after coronary transluminal angioplasty: protocol validation

Cuidados de enfermagem pós-angioplastia transluminal coronariana: validação de protocolo

Cuidados de enfermería post-angioplastia transluminal coronaria: validación de protocolo

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#### ABSTRACT:

**Objectives:** To validate an elaborate care protocol for clients after coronary transluminal angioplasty.

**Methods:** For the validation of the protocol, the Delphi technique was used, counting on a panel of nine judges, all nurses with expertise in the area of cardiology. In addition to the qualitative evaluation, as recommended by the Delphi technique, we used quantitative measures such as the content validity index and the agreement rate.

**Results:** According to the suggestions made by the experts in each round, the document was adjusted to reach the agreement rate and content validity index of at least 0,9, requiring three rounds of questionnaires.

**Conclusion:** The validated protocol is considered a tool to guide the practice of nurses working in this specific area.

**Key words:** Nursing Care; Nursing; Validation Studies; Practice Guidelines as Topic; Angioplasty, Balloon, Coronary; Cardiovascular Nursing.

#### RESUMO:

**Objetivo:** Validar um protocolo de cuidados elaborado para clientes pós-angioplastia transluminal coronariana.

**Métodos:** Para validação do protocolo, foi utilizada a técnica Delphi, contando com um painel de nove juízes, todos enfermeiros com expertise na área de cardiologia. Além da avaliação qualitativa, conforme preconiza a técnica Delphi, utilizou-se medidas quantitativas como o índice de validade de conteúdo e a taxa de concordância.

**Resultados:** De acordo com as sugestões feitas pelos especialistas em cada rodada, o documento foi ajustado até atingir a taxa de concordância e índice de validade de conteúdo de no mínimo 0,9, sendo necessárias três rodadas de questionários.

**Conclusões:** Considera-se o protocolo validado uma ferramenta para nortear a prática do enfermeiro que atua nesta área específica.

**Palavras-chave:** Cuidados de Enfermagem; Enfermagem; Estudos de Validação; Guias de Prática Clínica como Assunto; Angioplastia Coronária com Balão; Enfermagem Cardiovascular.

## RESUMEN:

**Objetivos:** Validar un protocolo de cuidados elaborado para clientes post-angioplastia transluminal coronaria.

**Métodos:** Para validación del protocolo, se utilizó la técnica Delphi, contando con un panel de nueve jueces, todos enfermeros con experiencia en el área de cardiología. Además de la evaluación cualitativa, según preconiza la técnica Delphi, se utilizaron medidas cuantitativas como el índice de validez de contenido y la tasa de concordancia.

**Resultados:** De acuerdo con las sugerencias hechas por los expertos en cada ronda, el documento fue ajustado hasta alcanzar la tasa de concordancia e índice de validez de contenido de por lo menos 0,9, siendo necesarias tres rondas de cuestionarios.

**Conclusión:** El protocolo de validación se considera la herramienta para guiar la práctica de las personas que trabajan en esta área específica.

**Palabras clave:** Atención de Enfermería; Enfermería; Estudios de Validación; Guías de Práctica Clínica como Asunto; Angioplastia Coronaria con balón; Enfermería Cardiovascular

## INTRODUCTION

Studies on Coronary Artery Disease (CAD) have brought Coronary Transluminal Angioplasty (CTA) as a strategy against myocardial revascularization surgery. CTA is the non-surgical treatment of coronary artery obstructions by means of a balloon catheter, with the aim of clearing the artery and increasing the flow of blood to the heart <sup>(1)</sup>. The management of the client submitted to the ATC by the nurse is an extremely important factor to ensure the success of the post-procedural results still in the hospital phase and facilitate the good evolution, avoiding the most common complications, such as: stent thrombosis; need for new interventions; bleeding due to the use of antiplatelet agents and others.

Important points to be observed by the nurse are: pre-intervention evaluation (clinical history and physical examination), various clinical situations (allergy to aspirin, allergy to contrast, diabetes, use of heparins and anticoagulants) and test results (Pre-and post-procedure), complications in the access pathway (hematomas, pseudoaneurysms, fistulas). All these aspects when analyzed will contribute to a good planning of nursing care of this customer<sup>(2)</sup>.

Also in the context of technical procedures for the health team. It is common to find clients hospitalized in use of various technological apparatus such as catheters, monitoring, mechanical ventilators, infuser pumps, among others, which also demand the work of the nursing team in the care of this client. The technology does not exclude the need for basic nursing care to the client, but many times its execution has not been valued by the nurse himself. Despite the technician profile, nurses in the area of cardiovascular nursing should critically reflect on their role, and appropriate the

provision of basic care, which are the basis of their work and will provide the provision of a care humanized and quality<sup>(3)</sup>.

In this context, it is observed the need for effective care models that guide nursing practice. Above all, it is desired to promote the use of nursing technologies, which favor the recovery of the individual during the health-disease process. These models can be called protocols, and decrease the variability of clinical practice and the asymmetry of information, call attention to health problems and can serve as an educational instrument for future health professionals. It is believed that a care protocol can promote quality in care because it assists in nursing actions, favors greater security for clients and health professionals will serve as a guide for the decision making of the nurse, guiding this decision and not manipulating its activities<sup>(4,5)</sup>. The objective of this study was to validate a care protocol elaborated for clients after transluminal coronary angioplasty.

## **MATERIAL AND METHOD**

A descriptive study, developed in two phases: first, an integrative literature review that served as a basis for the elaboration of the protocol and the second, its validation by the Delphi technique.

### **PHASE 1: Integrative Literature Review (IRL)**

The following question was formulated for the IRL: What are the basic nursing care recommended in the literature for the post-ATC client?

The inclusion criteria were: articles on the subject, published in english, portuguese or spanish; In the format of articles and available in full. The exclusion criterion was: studies conducted with clients under 18 years of age. The search was carried out in May 2017. The bases were used as data source: Medical Literature Analysis and Retrieval System Online (MEDLINE), Sciverse Scopus and Cumulative Index to Nursing and Allied Health Literature (CINAHL). When researching the descriptor "angioplasty" and "nursing care", 73 articles were found in MEDLINE, 22 articles in Cinahl and 51 articles in Scopus, totaling 146 articles. It is noteworthy that "and" was used among the descriptors as a boolean operator, and that was established as a temporal clipping the last twelve years, that is, articles published between 2005 and 2017, justified period due to the advancement in public policies of cardiovascular health between the years 2004 and 2005.

The titles and abstracts were read. Of the 146 articles found, 133 were excluded because they were not related to the theme and/or repetition in the bases, totaling 13 articles, five from MEDLINE, five from CINAHL and three from SCOPUS. Thus, the productions that met the previously established criteria were selected and read in full. From this sample, the described care was identified and they served as the basis for the elaboration of the Protocol, which initially counted with 25 items distributed in three blocks: Customer embracement in post-ATC, nursing interventions during Recovery and Rest and nursing care for discharge.

## PHASE 2: Validation by Delphi Technique

After the elaboration of the protocol, validation was performed by specialist nurses using the Delphi technique. The technique is a systematic method of judgment of information, aimed at reaching the consensus of opinions on a given subject, of the knowledge of a group of experts, through assessments articulated in rounds of questionnaires, favored by anonymity, because there is no face-to-face encounter with the participants. For this, it is necessary an executor group, composed of researchers, and a respondent group formed by randomly selected participants. The number of participants may vary from seven to twelve<sup>(6,7)</sup>.

The technique consists of six stages: the first one refers to the selection of participants and the second stage to the referral of the questionnaire. The third stage consisted of the analysis of the content of the answers, in which a qualitative and quantitative evaluation of the answers of the judges was made, and these data served as the basis for the fourth stage: elaboration of the second questionnaire. From the experts' responses, the protocol was altered, and a new questionnaire was elaborated. The document was forwarded again to the specialists and they were invited to perform a new trial. In the fifth stage there was the return of the responses of each round, a new analysis and modifications were made of the items that returned with suggestions in order to reach the consensus. The sixth stage refers to the elaboration of the final product and the return of the same to the participants with appreciation for participation<sup>(7)</sup>.

The selection of specialists had as inclusion criteria: nurses associated with the nursing Department of the Brazilian Society of Hemodynamics and Interventional Cardiology (DESBHCI), specialists and/or with experience in units post-angioplasty or hemodynamics for at least three years, and answer the e-mail regarding the invitation letter within seven days. The invitation was sent by DESBHCI to 105 nurse partners. Of these, 16 responded with acceptance and received the informed consent form (ICF). From this phase, the questionnaire/Protocol was forwarded, in which 12 nurses returned the signed ICF and received the other instruments. Of these, three were excluded, since they did not respond to the questionnaire within the established deadline, with nine participants remaining, a number considered satisfactor<sup>(6)</sup>.

For data collection were used: ICF, questionnaire to identify the profile of the specialists, and the instrument aimed at evaluating the protocol itself. Data were collected between may and november 2017, in which the six steps recommended by the Delphi technique were followed.

The questionnaire was formulated with evaluations for each item of the protocol described and using the Likert Scale, where the participant reports his/her opinion among the proposed points, and the same may agree or disagree with what is stated in the item. In this approach, respondents are asked to indicate to what extent they agree or disagree with the declaration<sup>(8)</sup>. For this study, the four-point Likert Scale was used, being: 1-Irrelevant, 2-Need a great review, 3-Need a small review and 4-Relevant. A field was added for the considerations, because for the scores of one to three, respondents were asked to justify their answers.

The analysis of the responses was performed according to the attributed score, and the Content Validity Index (CVI) was measured, which measures the proportion of specialists who are in agreement on certain aspects of the instrument. The score is

calculated by means of the sum of concordance of the items that were marked by "3" or "4" by the specialists. Items that have been given a score of "1" or "2" should be revised or deleted. Thus, for each item, the formula was used: Number of responses "3" or "4" divided by the total number of answers<sup>(6)</sup>. The acceptance of each aspect of the protocol should reach the rate of 0.9<sup>(9)</sup>. It was also established the acceptable concordance rate (CT) among the specialists. In the case of six or more participants, a rate of not less than 0.78<sup>(9)</sup> is recommended.

The study was carried out through submission and approval by the Research Ethics Committee of Universidade Federal Fluminense - Faculty of Medicine under the opinion N° 2.090,479.

## **RESULTS**

### **Socio-demographic Profile of the Specialists**

Nine nurses participated in the study, all female, in the age range between 32 and 62 years. Of these, three are from the southeast region, three from the northeast, two from the south and one from the Federal district. All have some specialization courses in the various areas. In this group, five nurses have a master's degree, two have a doctorate and two have specialization. Regarding the time of experience in hemodynamics and post-angioplasty units, this time ranged between five and 25 years. The time of total experience as a nurse ranged from eight to thirty-nine years.

### **Analysis of experts' responses on protocol evaluation**

The protocol is directed to the elective client, which maintains an average length of stay between 24 and 48 hours. It consists of three columns, and 25 lines in its first version (before validation), in each line the care is identified by a numeral and its justification/rationale. Each of the three blocks were changed according to the observations of the participants:

**First Block - Customer Embracement in post-ATC** - In the first step of questions and answers, four specialists suggested modifications regarding the recommendation of the elevation of the approached limb. On the physical examination, a modification was suggested regarding the observation of the puncture site (transparent dressing) by two specialists, and alteration of the essay. In the measurement of vital signs, it was suggested to add which signs should be measured and the periodicity, and on the location of the cuff to measure blood pressure, was suggested alteration in the essay. In the second phase, there was only suggestion to change the wording of two items and in the third phase, there were no suggestions for changes and this block was then finalized, having the agreement of all specialists.

**Second Block - Nursing interventions during recovery and rest** - In the first phase there was suggestion of alteration in items related to head elevation and grids, routine examinations, continuous monitoring of vital signs, bruising and bleeding and the compression of the dressing, the latter being the most criticized. The items on pain assessment, diet acceptance and early ambulation also received suggestions for alterations. In the second phase, the items referring to spirituality, electrocardiogram, regular assessment of vital signs, cardiac monitoring, use of compressive dressing-including length of stay, pain, bladder eliminations and bathing were discussed and

altered. In the third phase, the item on electrocardiographic monitoring was punctuated as irrelevant by an expert. Considering the risk of cardiac alterations after the procedure, the item was maintained, and the observation on the alert for signs, such as chest pain and tachycardia, was included. Item 9 was dismembered, since it deals with two distinct situations, which occur at different times: The hematoma -e arlier, and the skin lesion later. This proposal was made by an expert and accepted. The frequency for urinary output recording was also altered and in the item about bathing, the expression "when necessary" was added, since bathing should not be a routine to be fulfilled with 3 hours of rest, but in the need of it, this minimum time must be respected. Thus, this block is finalized, based on the suggestions made and according to the agreement between the specialists.

Third block- Nursing care for high in the first phase - The vital signs item was considered repeated and suggested by two specialists who were excluded. This suggestion was not accepted, but the moment when vital signs should be measured was added: Before forwarding the client to the residence. It was also suggested to add the evaluation of serum levels of urea and creatinine for evaluation of renal function, review the length of stay of the dressing, review the time established for the restrictions with the approached limb (48 hours) and specify the weight (load) to that the customer is restricted to pick up. The suggestion was accepted and according to the recommendations of SOCERJ (Society of Cardiology of the State of Rio de Janeiro) it was recommended the rest period of two weeks and the maximum permissible load of ten kilos<sup>(10)</sup>. In the second phase of evaluation by the specialists, changes were made to the text. In addition, in item 23, five specialists criticized the limb resting time and the established load. Regarding these criticisms, the observation was not excluded, it was decided to describe that this is a recommendation given by specialists in the area. In the third phase, small changes in the wording of the items were also made and thus, this block was finalized, having the agreement of all specialists, since the acceptance rates were favorable and the changes made were contributions to valorization of the document. The final version of the protocol is illustrated in the table below:

**Table 1: Protocol items after changes. Niterói. Universidade Federal Fluminense, 2017**

<b>POST-ATC NURSING CARE PROTOCOL</b>
<b>CUSTOMER WELCOME</b>
1-Present to customer and family
2-Perform physical examination and assess vital signs
3-Consult customer history
4-Monitor vital signs
5-Orient customer and family
<b>RECOVERY/HOME</b>
1-Maintain elevated bed grids
2-Provide electrocardiogram and laboratory exams
3-Install continuous Heart monitoring
4-Evaluate the area around the puncture site regarding the appearance of hematomas and skin lesions
5-Assess peripheral circulation
6-Assess and record pain presence and intensity
7-Monitor acceptance of prescribed diet
8-Strictly register urinary output

9-Maintain patent venous access
10-Stimulate water intake
11-Auxiliary in body hygiene
12-Make the change of decubitus
13-Auxiliary in the first ambulation after the rest
14-Evaluate the presence of bleeding at the puncture site
15-Facilitating access to leisure activities
16-Stimulating the client to exercise his spirituality
<b>CARE AND GUIDELINES FOR HIGH</b>
1-Assess and record vital signs before forwarding the customer to the residence
2-Perform new electrocardiogram examination and arrange/collect blood Sample
3-Evaluate the puncture site and surrounding area
4-Orient the client and family about care with the member approached
5-Orient to contact the service or seek an emergency in case of intercurrents
6-Guidance on outpatient follow-up

Source: Own elaboration. Niterói, 2017.

### Descriptive statistical analysis

The values of the three phases performed were organized and evaluated the concordance rates (CT) and content validity index (CVI) of each item of the protocol. Regarding the CVI, in the first phase, of the 25 items, two did not reach the recommended rate (0,9), already in the second phase, all items were accepted, remaining in this way in the third phase. Regarding CT, only six items of the protocol reached the recommended rate, in the first phase, while in the second phase, 17 items reached the recommended rate, when it comes to research with more than six specialists<sup>(9)</sup>. In the third phase, all items had a TC equal to or higher than 0,9, which shows how much the alterations in the acting contributed to the improvement of the Protocol. The Mean Content Validity Index (MCVI) in the first phase was 0.96 and in the second phase it rose to 0,99, reaching the score of 1.0 in the last phase. The Mean Concordance Rate (MCR) was 0,69 in the first phase, being elevated to 0.86 in the second phase and 0,94 in the third. This finding reveals that, for this research, three assessments were necessary to reach the recommended rate. The data are elucidated in the following tables:

**Table 2: Data from the first round of questions and answers. Niterói. Universidade Federal Fluminense, 2017**

Phase 1												
Protocol Item	E1	E2	E3	E4	E5	E6	E7	E8	E9	IVC	TC	
1	3	4	4	4	3	3	3	2	3	0,9	0,33	
2	3	4	4	4	3	4	3	4	3	1	0,55	
3	4	4	4	4	4	4	3	4	4	1	0,9	
4	4	4	4	4	3	4	3	4	4	1	0,77	
5	3	3	4	4	4	4	4	4	4	1	0,77	
6	4	3	4	4	4	4	3	4	4	1	0,77	
7	4	4	4	4	3	4	4	3	4	1	0,77	
8	3	4	4	3	3	4	3	4	4	0,9	0,55	
9	4	3	4	3	3	3	3	3	3	1	0,22	
10	4	4	4	4	4	4	4	4	4	1	1	

11	4	3	4	4	4	3	4	4	4	1	0,77
12	4	3	4	4	4	1	4	4	4	0,9	0,77
13	4	4	4	4	3	3	4	4	4	1	0,77
14	4	3	4	4	4	4	3	4	4	1	0,77
15	4	3	4	4	4	4	4	4	4	1	0,9
16	4	4	4	4	4	3	4	4	4	1	0,9
17	4	4	4	4	4	4	3	4	4	1	0,9
18	4	4	4	4	4	3	3	3	4	1	0,66
19	2	3	4	3	3	1	3	3	4	0,77	0,22
20	1	3	4	4	4	4	1	4	4	0,77	0,66
21	4	3	4	4	3	4	2	3	4	0,9	0,55
22	4	3	4	4	4	1	3	3	4	0,9	0,55
23	4	4	4	4	3	4	3	4	4	1	0,77
24	4	3	4	4	3	4	3	4	4	1	0,66
25	4	4	4	4	4	4	3	4	4	1	0,9
Average Index										0,96	0,70

Caption – CVI: Content Validity Index – number of specialists with attribution of note 3 or 4 / total of specialists, CR-N: Concordance rate- number of specialists with a score of 4 /total specialists.

**Table 3: Data from the second round of questions and answers. Niterói. Universidade Federal Fluminense, 2017**

Phase 2											
Protocol Item	E1	E2	E3	E4	E5	E6	E7	E8	E9	IVC	TC
1	4	4	4	4	4	4	4	4	4	1	1
2	4	4	4	4	4	4	3	4	4	1	0,9
3	4	4	4	4	4	4	4	4	4	1	1
4	4	4	4	4	4	4	3	4	4	1	0,9
5	4	4	4	4	4	4	4	4	4	1	1
A	4	4	4	3	4	4	4	4	4	1	0,9
B	3	4	4	3	4	4	4	4	4	1	0,77
6	4	4	4	4	4	4	4	4	4	1	1
7	4	4	4	4	3	4	4	4	4	1	0,9
8	4	4	4	4	3	3	4	4	4	1	0,77
9	4	4	4	3	4	3	4	4	4	1	0,77
10	4	4	4	4	4	4	4	4	4	1	1
11	4	4	4	4	4	4	3	4	4	1	0,9
12	4	4	4	4	4	4	4	4	4	1	1
13	4	3	4	4	3	4	4	4	4	1	0,77
14	4	3	4	4	4	4	4	4	4	1	0,9
15	4	3	4	4	4	4	4	4	4	1	0,9
16	4	3	4	3	3	2	4	4	4	0,9	0,55
17	4	4	4	4	4	4	4	4	4	1	1
18	4	3	4	4	4	2	4	4	4	0,9	0,77
19	3	4	4	3	4	2	3	4	4	0,9	0,55
20	4	4	4	4	4	4	4	4	4	1	1
21	4	3	4	4	4	4	3	4	4	1	0,77



22	4	4	4	4	4	3	3	4	4	1	0,77
23	2	3	4	2	4	3	3	4	4	0,9	0,44
24	4	4	4	4	4	4	4	4	4	1	1
25	4	4	4	4	4	4	4	4	4	1	1
Índice Médio										0,99	0,86

Caption – CVI: Content Validity Index – number of specialists with attribution of note 3 or 4 / total of specialists, CR-N: Concordance rate- number of specialists with a score of 4 /total specialists.

**Table 4: Data from the third round of questions and answers. Niterói. Universidade Federal Fluminense, 2017**

Phase 3											
Protocol Item	E1	E2	E3	E4	E5	E6	E7	E8	E9	IVC	TC
1	4	4	4	4	4	4	4	4	4	1	1
2	4	4	4	4	4	4	3	4	4	1	0,9
3	4	4	4	4	4	4	4	4	4	1	1
4	4	4	4	4	4	4	3	4	4	1	0,9
5	4	4	4	4	4	4	4	4	4	1	1
A	4	4	4	4	4	4	4	4	4	1	0,9
B	4	4	4	4	4	4	4	3	4	1	0,9
6	4	4	4	4	4	4	4	4	4	1	1
7	4	4	4	4	4	4	4	4	4	1	0,9
8	1	4	4	4	4	4	4	4	4	0,9	0,9
9	4	3	4	4	4	4	4	4	4	1	0,9
10	4	4	4	4	4	4	4	4	4	1	1
11	4	4	4	4	4	4	3	4	4	1	0,9
12	4	4	4	4	4	4	4	4	4	1	1
13	4	4	4	4	4	4	3	4	4	1	0,9
14	4	4	4	4	4	4	4	4	4	1	1
15	4	4	4	4	4	4	4	4	4	1	1
16	3	4	4	4	4	4	4	4	4	1	0,9
17	4	4	4	4	4	4	4	4	4	1	1
18	4	4	4	4	4	3	4	4	4	1	0,9
19	4	4	4	4	4	3	4	4	4	1	0,9
20	4	4	4	4	4	4	4	4	4	1	1
21	4	4	4	4	4	4	3	4	4	1	0,9
22	4	4	4	4	4	4	3	4	4	1	0,9
23	4	4	4	4	4	4	4	4	3	1	0,9
24	4	4	4	4	4	4	4	4	4	1	1
25	4	4	4	4	4	4	4	4	4	1	1
Índice Médio										1,00	0,94

Caption – CVI: Content Validity Index – number of specialists with attribution of note 3 or 4 / total of specialists, CR-N: Concordance rate- number of specialists with a score of 4 /total specialists.

## DISCUSSION

The results revealed the importance of evaluating the protocol in three phases, because only in the third phase it was possible to establish agreement between the specialists. Several questions about nursing care to the post-ATC client were discussed, but only one of them had no objection, obtaining 100% of acceptance by the respondents: evaluation of the peripheral circulation. The questions about spirituality and leisure were less discussed and the probable fragility in knowledge about this theme in the area of cardiovascular nursing is understood, since it was possible to perceive the professional with a focus on performing techniques and procedures, leaving the subjective relationships of care in the background. We also discussed the need for body hygiene and the autonomy of nurses in the face of decision making in vascular complications. The questions related to the use of dressing and recognition of complications had many suggestions and contributions and therefore were more discussed. Regarding the practices of the use of compressive dressing on the femoral site after the removal of the introducer sheath and the use of continuous cardiac monitoring, it was evidenced through the participants that these are not applied in their care practices, in different scenarios of the Brazilian reality. Regarding the use of the compressive dressing, the protocol was added to the expression "as an institutional routine".

Regarding the use of cardiac monitoring, in the face of the scientific evidence that suggests its use, we highlight the issue of client safety, which has strong recommendations by the Ministry of Health. The guidance is that the health service establishes strategies and actions aimed at safety. In this study, we observed the strategies that strengthen the idea of the use of a care protocol, in order to prevent complications and adverse events guaranteeing the safety of the client. Of these, the actions of prevention and control of adverse events related to health care and the mechanisms to ensure surgical safety define well what is expected of protocols<sup>(11)</sup>. Therefore, several subjects were approached during the rounds of questionnaires, and in the third phase, few observations of change were made and they did not alter the content of the information.

It was observed, in most of the study, greater interest of nurses in relation to care of greater complexity, while care items related to basic human needs were less discussed. In the care practice, it is observed that the complexity of a situation is much more understood as coupled or to the summation of the technological apparatus or to the execution of nursing procedures, however, a sprinkler bath may become more complex than a bed bath due to various factors related to the client's health conditions<sup>(12)</sup>. The valorization of basic nursing care is justified, because these are part of the concept of what is understood as fundamental nursing. Basic care represents the bases on which all nursing practice is based, and includes the ethical-philosophical apparatus and the historical dimension of the profession<sup>(13)</sup>. It is noteworthy that care is directly linked to the situation in which the client is inserted and because it refers to the essence of the nursing profession, it is essential for the nurse to apply it to the client in various scenarios of performance.

Another aspect addressed in this study is the questions of orientation to the client and family in the context of health education. We emphasize the importance of keeping the client informed about his health situation throughout the recovery period, not only at the time of hospital discharge, which is approached in the validated protocol and

favors the question of the dialogue between professional and client. The nurse must understand that the hospital environment often causes weirdness for the family, arousing feelings such as insecurity, impotence and at the same time, arises the need to know and follow the changes in the health status of their family member<sup>(14)</sup>.

It was identified difficulty to include participants, considering the distance approach, requiring several extensions of deadlines to reach the answers of the questionnaires. The research favors the reflection on the nursing practice regarding the basic care of the post-ATC client, and in view of the results obtained intends to assist the nurse in decision making in order to reduce complications and promote comfort and safety to the client and family.

## CONCLUSION

This research evidenced, for the first time, a nursing care protocol to the post-ATC client validated by specialists in the area of cardiology and hemodynamics, and it is understood the relevance of the results achieved to guide the nurses who work in this specific area. In this sense, it is suggested the continuity of research, in the context of cardiovascular nursing, also through the validation of the clinical applicability of the proposed protocol and the development of new protocols, also addressing the pre and trans-ATC periods. Basic nursing care is emphasized in the contribution to nursing care and professional training of nurses, because it is noted the need for recognition by the nurse, that basic care is part of his/her training and the practice of caring/acting in nursing.

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