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RESEARCH ARTICLE (ORIGINAL)

Using the Delphi technique to validate nursing interventions for stroke patients

Técnica Delphi na validação de intervenções de enfermagem na abordagem ao doente com acidente vascular cerebral

Técnica Delphi en la validación de intervenciones de enfermería para pacientes con accidente cerebrovascular

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Abstract
Background: The prevalence of stroke remains high, where clinical procedures are recommended.
Objective: To validate, using the Delphi technique, nursing interventions in the approach to patients with suspected stroke in the acute phase, with a panel of specialists.
Methodology: A survey was carried out, based on a quantitative-descriptive study. A systematic literature review was carried out beforehand.
Results: The sample consisted of six specialists. Two rounds of the Delphi technique were used to validate nursing interventions for patients with suspected stroke in the acute phase, namely: correct referral taking into account the time of symptom progression; emergency room approach (based on the ABCDEFGH assessment); monitoring and response to adverse reactions during and after thrombolysis.
Conclusion: The validation of nursing interventions in the approach to patients with suspected acute strokes led to the development of a solid work instruction for nurses.

Keywords: stroke; critical pathways; Delphi technique; nursing care; critical care

Resumo
Enquadramento: A prevalência do acidente vascular cerebral continua elevada, sendo recomendada a existência de procedimentos clínicos.
Objetivo: Validar, através da técnica *Delphi*, intervenções de enfermagem na abordagem ao doente com suspeita de acidente vascular cerebral em fase aguda, com um painel de especialistas.
Metodologia: Realizou-se uma pesquisa *Survey,* com base num estudo quantitativo-descritivo, sendo que uma revisão sistemática de literatura foi realizada previamente.
Resultados: Amostra composta por seis especialistas. Realizadas duas rondas da técnica *Delphi*, foram validadas intervenções de Enfermagem ao doente com suspeita de acidente vascular cerebral, em fase aguda, nomeadamente: correto encaminhamento tendo em conta o tempo de evolução dos sintomas; abordagem em sala de emergência (baseada na avaliação ABCDEFGH); vigilância e resposta a reações adversas durante e após trombólise.
Conclusão: A validação das intervenções de enfermagem na abordagem ao doente com suspeita de acidente vascular cerebral em fase aguda levou à elaboração de uma instrução de trabalho sólida, direcionada aos enfermeiros.

Palavras-chave: acidente vascular cerebral; procedimentos clínicos; técnica Delphi; cuidados de enfermagem; cuidados críticos

Resumen
Marco contextual: La prevalencia de los accidentes cerebrovasculares sigue siendo elevada, por lo que se recomiendan procedimientos clínicos.
Objetivo: Validar, mediante la técnica Delphi, las intervenciones de enfermería en el abordaje de pacientes con sospecha de accidente cerebrovascular en fase aguda, con un panel de especialistas.
Metodología: Se realizó una investigación de tipo Survey, basada en un estudio cuantitativo-descriptivo. Previamente se realizó una revisión bibliográfica sistemática.
Resultados: La muestra estaba formada por seis especialistas. Tras dos rondas Delphi, se validaron las intervenciones de enfermería para pacientes con sospecha de accidente cerebrovascular en fase aguda, a saber: derivación correcta teniendo en cuenta el tiempo de progresión de los síntomas; abordaje en urgencias (basado en la evaluación ABCDEFGH); seguimiento y respuesta a las reacciones adversas durante y después de la trombolisis.
Conclusión: La validación de las intervenciones de enfermería en el abordaje de pacientes con sospecha de accidente cerebrovascular agudo condujo al desarrollo de una sólida instrucción de trabajo para enfermeras.

Palabras clave: accidente cerebrovascular; vías clínicas; técnica Delphi; atención de enfermería; cuidados críticos

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Introduction

Patients spend most of their time with nurses. These health professionals play a pivotal role in the assessment and care of patients presenting signs or symptoms of an acute stroke. In an emergency department, nurses are responsible for the identification and management of patients with potentially life-threatening conditions (by using the Manchester Triage System), and their appropriate referral. They are also responsible for the care, monitoring, evaluation, and surveillance of patients, as well as potential inter-hospital transfers.

Ma (2022) notes a current lack of specialized nursing care for patients with suspected stroke, which underscores the relevance of developing targeted work instructions for nurses in this area. These instructions should enable earlier, more comprehensive, organized, and specialized care to be delivered to patients with suspected acute stroke. Therefore, our study aims to validate nursing interventions for patients with suspected acute stroke by using the Delphi technique.

Background

Bearing in mind that the national prevalence of stroke is high, the implementation of clinical practice guidelines (such as work instructions) allows the use of interventions based on the latest scientific evidence. These interventions should focus on the delivery of early, comprehensive, organized, and specialized care to patients with suspected acute stroke. Despite having some limitations, the implementation of clinical practice guidelines is encouraged as a means of promoting best practices in hospital settings (Jang et al., 2020).

By using the Delphi technique, our study aimed to determine the consensus of experts regarding which nursing interventions should be incorporated into the work instruction. The Delphi technique is an effective means of building consensus across different disciplines (Taze et al., 2022), and is a valuable approach to research in the field of nursing. In addition to its continued evolution, it has become more accessible (McPherson et al., 2018) due to technological advances. For instance, the development of digital communication methods, such as the email (which must be voluntarily provided), has enabled communication between geographically distant experts.

The following stages were carried out to gather the data necessary to reach the consensus of the group of experts on the given topic (Humphrey-Murto et al., 2020): selection of the panel of experts, elaboration of the content validation form, validation of the study; processing of the data obtained; and analysis of the data provided by the panel of experts (Marques & Freitas, 2018).

Research question

Which nursing interventions should be included in the work instruction for the management of patients with suspected acute stroke?

Methodology

Study design

Based on a quantitative-descriptive study, a survey was carried out to gather the opinion of a specific group of people on a given question, phenomenon, or problem. The frequencies of the responses obtained were calculated (Ruas, 2021) in order to find out the trends in participants' answers to each question posed. The objective was defined and research on the topic was conducted through a systematic literature review. Once the initial structure of the work instruction was established, a content review was conducted. The criteria for including experts in the study were defined, and the questionnaire to be used in the initial round of the Delphi study was created. This was then sent (via email) to the experts after they were contacted and invited to participate in the survey. After two weeks, the responses to the questionnaire were collected, and the data were processed and analyzed. Following the analysis of the responses gathered during the first round, amendments were made to the work instruction, and a new questionnaire was created and disseminated (via email) in the second round of the Delphi study. The data from the second round were also collected, processed, and analyzed, resulting in the final version of the work instruction. The final results were presented to the group of experts.

Sample (Inclusion criteria)

The sample consisted of experts in the field (nurse specialists) asked to validate the content of the work instruction. Participants were selected using the non-probability snowball sampling method and required to meet the following inclusion criteria: to be a nurse specialist in medical-surgical nursing or critical care nursing with at least one year of professional experience; to work for at least two years in an emergency department where clinical practice guidelines and interventions are implemented for critical care patients with suspected acute stroke. Following their selection, the experts were formally invited via email.

Data collection instrument

A questionnaire was used as the data collection instrument. It included mandatory closed-ended questions scored based on a 5-point Likert scale (*totally disagree*, *disagree*, *neither disagree nor agree*, *agree*, *totally agree*), and optional open-ended questions (not scored). The responses to the questions determined the inclusion or exclusion of nursing interventions from the work instruction. These interventions included the appropriate referral of patients considering the time of symptom progression, the management of patients in the emergency department (based on the ABCDEFGH approach), and the surveillance and management of adverse reactions during and after thrombolysis.

Validity and reliability criteria

This quality improvement study, based on the Standards for Quality Improvement Reporting Excellence (SQUIRE), was conducted between February and June 2023, with the participation of six nurse specialists. Yusoff

(2019) considers that this number is within the acceptable range for content validation, with six being the minimum number of experts required and 10 being the maximum. The questionnaire, which was online and anonymous, ensured data confidentiality and freedom of response. Before the study began, the participants were provided with guidance regarding its objectives, rationale, and benefits. Calculating the Content Validity Index (CVI) is a fundamental step in processing and analyzing the data collected using the Delphi technique. The expected standard value for the total CVI had to be greater than or equal to 0.9 or 90%, and the expected standard value for the CVI per item had to be greater than or equal to 0.78 or 78%. Each affirmative response (*agree* or *totally agree*) scored one (1), and each negative or neutral response (*totally disagree*, *disagree*, or *neither disagree nor agree*) scored zero (Silva & Montilha, 2021).

Ethical and legal considerations

The research was approved by the Ethics Committee and the Board of Directors of a hospital center in the central region of Portugal (Reference No. 1/CES/2023).
Once the study was approved, the research team presented it and its purpose to the participants. These were then asked to provide their informed consent online. The principles of the Declaration of Helsinki regarding data confidentiality and anonymity were respected.

Results

After having provided their free and informed consent, six experts participated in our study. The experts were predominantly female (66.67%) and from the central region of Portugal (66.67%; Table 1).

Table 1

Characteristics of the sample

	Gender	Geographical Area		Length of experience in years as a Nurse Specialist	Length of experience in years as a Nurse in an Emergency Department with VVAVC
% Female	66.67%		**Mean**	7.33	8
% Male	33.33%		**Median**	4	6.5
% North region		33.33%	**Mode**	4	2; 5; 6; 7; 10; 18
% Central region		66.67%	**Standard deviation**	8.93 (7.33 ± 8.93)	5.06 (8.00 ± 5.06)
			Minimum	1	2
			Maximum	27	18
Participants (Total)	100%	100%		*N* = 6	*N* = 6

Note. VVAVC = Via Verde do AVC (stroke protocol implemented in Portugal).

Results following the first round of the Delphi study

In the first round, the items (identified as I.1.1, I.1.2, I.1.3, and so on, up to I.1.73) corresponded to the nursing interventions evaluated by the experts. The experts scored these items according to their level of agreement or disagreement with their inclusion in the work instruction (Table 2).

Table 2

Results of the first round of the Delphi study

	Exp.1.1	Exp.1.2	Exp.1.3	Exp.1.4	Exp.1.5	Exp.1.6	Total agreement between experts per item	CVI per item (%)	Universal agreement (%)
Item (Nursing intervention)									
I. 1.1	1	1	1	1	1	1	6	100%	100%
I. 1.2	1	0	1	1	1	1	5	83.33%	0%
I. 1.3	1	1	1	1	1	1	6	100%	100%
I. 1.4	0	0	0	1	1	1	3	**50%**	0%
I. 1.5	1	1	1	1	1	1	6	100%	100%
I. 1.6	1	1	1	1	1	1	6	100%	100%
I. 1.7	1	1	1	1	1	1	6	100%	100%
I. 1.8	1	1	1	1	1	1	6	100%	100%
I. 1.9	1	1	1	1	1	1	6	100%	100%
I. 1.10	1	1	1	1	1	1	6	100%	100%
I. 1.11	1	1	1	1	1	1	6	100%	100%
I. 1.12	1	1	1	1	1	1	6	100%	100%
I. 1.13	1	0	0	1	1	1	4	**66.67%**	0%
I. 1.14	1	1	0	1	1	1	5	83.33%	0%
I. 1.15	1	1	1	1	1	1	6	100%	100%
I. 1.16	1	1	1	1	1	1	6	100%	100%
I. 1.17	0	0	1	0	1	1	3	**50%**	0%
I. 1.18	1	1	1	1	1	1	6	100%	100%
I. 1.19	1	1	1	1	1	1	6	100%	100%
I. 1.20	1	1	1	1	1	1	6	100%	100%
I. 1.21	1	1	1	1	1	1	6	100%	100%
I. 1.22	1	1	1	1	1	1	6	100%	100%
I. 1.23	1	1	1	1	1	1	6	100%	100%
I. 1.24	1	1	1	1	1	1	6	100%	100%
I. 1.25	1	1	1	1	1	1	6	100%	100%
I. 1.26	1	1	1	1	1	1	6	100%	100%
I. 1.27	1	1	1	1	1	1	6	100%	100%
I. 1.28	1	0	1	1	1	1	5	83.33%	0%
I. 1.29	1	1	1	1	1	1	6	100%	100%
I. 1.30	1	1	1	0	1	1	5	83.33%	0%
I. 1.31	1	1	1	1	1	1	6	100%	100%
I. 1.32	1	1	1	1	1	1	6	100%	100%
I. 1.33	1	1	1	1	1	1	6	100%	100%
I. 1.34	1	1	1	1	1	1	6	100%	100%
I. 1.35	1	1	1	1	1	1	6	100%	100%
I. 1.36	1	1	1	1	1	1	6	100%	100%
I. 1.37	1	1	1	1	1	1	6	100%	100%

I. 1.38	1	1	1	1	1	1	6	100%	100%
I. 1.39	1	1	1	1	1	1	6	100%	100%
I. 1.40	1	1	1	1	1	1	6	100%	100%
I. 1.41	1	1	1	1	1	1	6	100%	100%
I. 1.42	1	1	1	1	1	1	6	100%	100%
I. 1.43	1	0	0	1	1	1	4	**66.67%**	0%
I. 1.44	1	1	1	1	1	1	6	100%	100%
I. 1.45	1	1	1	1	1	1	6	100%	100%
I. 1.46	0	1	1	1	1	1	5	83.33%	0%
I. 1.47	1	1	1	1	1	1	6	100%	100%
I. 1.48	1	1	1	1	1	1	6	100%	100%
I. 1.49	1	1	1	1	1	1	6	100%	100%
I. 1.50	1	1	1	1	1	1	6	100%	100%
I. 1.51	1	1	1	1	1	1	6	100%	100%
I. 1.52	1	1	1	1	1	1	6	100%	100%
I. 1.53	0	1	1	1	1	1	5	83.33%	0%
I. 1.54	1	1	1	1	1	1	6	100%	100%
I. 1.55	1	1	1	1	1	1	6	100%	100%
I. 1.56	1	1	1	1	1	1	6	100%	100%
I. 1.57	1	0	1	1	1	1	5	83.33%	0%
I. 1.58	0	1	1	1	1	1	5	83.33%	0%
I. 1.59	1	1	1	1	1	1	6	100%	100%
I. 1.60	1	1	1	1	1	1	6	100%	100%
I. 1.61	1	1	1	1	1	1	6	100%	100%
I. 1.62	1	1	1	1	1	0	5	83.33%	0%
I. 1.63	1	1	1	1	1	1	6	100%	100%
I. 1.64	1	1	1	1	1	1	6	100%	100%
I. 1.65	1	1	1	1	1	1	6	100%	100%
I. 1.66	1	1	1	1	1	1	6	100%	100%
I. 1.67	0	0	1	1	1	1	4	**66.67%**	0%
I. 1.68	1	1	1	1	1	1	6	100%	100%
I. 1.69	1	1	1	1	1	1	6	100%	100%
I. 1.70	1	1	1	1	1	1	6	100%	100%
I. 1.71	1	1	1	1	1	1	6	100%	100%
I. 1.72	1	1	1	1	1	1	6	100%	100%
I. 1.73	1	1	1	1	1	1	6	100%	100%
Mean agreement per Expert	**0.91**	**0.89**	**0.94**	**0.97**	**1**	**0.98**			
Total CVI								**94.83%**	
Mean universal agreement									**80.56%**

Note. CVI = Content validity index; Exp1. = Expert – round 1.

By analyzing the results of the first round, it was possible to see that five items had a CVI per item of less than 78%. Thus, it was necessary to conduct a second round. These items were: I. 1.4 (CVI 50%): "When a patient with suspected acute stroke is identified, with regard to Airway (ABCDE FGH), to what extent do you agree with maintaining airway patency by inspecting the oral cavity and removing foreign bodies, blood, vomit or others, and

considering the insertion of a nasogastric tube?"; I. 1.13 (CVI 66.67%): "When a patient with suspected acute stroke is identified, with regard to Circulation (ABCDE FGH), to what extent do you agree with the insertion of two venous accesses with a caliber of no less than 18G (preferably in the left upper limb, for ease of access during inter-hospital transportation)?"; I. 1.17 (CVI 50%): "When a patient with suspected acute stroke is identified, in terms of Circulation (ABCDE FGH), to what extent do you agree that thrombolysis should be performed, even if laboratory results are not available?"'; I. 1. 43 (CVI 66.67%): "To what extent do you agree with monitoring patients' swallowing capacity, assessing possible dysphagia before ingesting food (liquids or solids)?"; and I. 1.67 (CVI 66.67%): "To what extent do you agree with applying physical and/or chemical restraint measures after thrombolysis if the patient is agitated/disoriented/at high risk of falling?".

Results following the second round of the Delphi study

The results of the second round are grouped in Table 3. It is worth noting that the items in the second round (identified as I. 2.1, I. 2.2, I. 2.3, and so on, up to I. 2.8) did not correspond to the items identified and evaluated in the initial round. The same occurred with the experts as the questionnaires were anonymous. Therefore, Expert 1 from the first round possibly did not correspond to Expert 1 in the second round. In the second round, experts were identified as EXP.2.1, EXP.2.2, EXP.2.3, EXP.2.4, EXP.2.5, and EXP.2.6. In this round, only one item had a CVI per item of less than 78% - I. 2. 6: "When a patient with suspected acute stroke is identified, in terms of Circulation (ABCDE FGH), to what extent do you agree with carrying out thrombolysis, even if laboratory results are not available, and considering that there is no suspicion of coagulation disorders?", with a CVI of 50%.

Table 3

Results of the second round of the Delphi study

	EXP.2.1	EXP.2.2	EXP.2.3	EXP.2.4	EXP.2.5	EXP.2.6	Total agreement between experts. per item	*CVI* per *item* (%)	Universal agreement (%)
Item (Nursing intervention)									
I. 2.1	1	1	1	1	1	1	6	100%	100%
I. 2.2	1	1	1	1	1	0	5	83.33%	0%
I. 2.3	1	1	1	1	1	1	6	100%	100%
I. 2.4	1	1	1	0	1	1	5	83.33%	0%
I. 2.5	1	1	1	1	1	1	6	100%	100%
I. 2.6	1	0	1	0	0	1	3	**50%**	0%
I. 2.7	1	0	1	1	1	1	5	83.33%	0%
I. 2.8	1	1	1	1	1	1	6	100%	100%
Mean agreement per Expert	**1**	**0.75**	**1**	**0.75**	**0.87**	**0.87**			
Total CVI								**87.50%**	
Mean universal agreement									**50%**

Note. *CVI* = Content validity index; EXP.2 = Expert - round 2.

Discussion

The nursing interventions for patients with suspected acute stroke evaluated by the experts included the appropriate referral of patients considering the time of symptom progression, the management of patients in the emergency department based on the ABCDEFGH approach, and the surveillance and management of adverse events during and after thrombolysis.

First round of the Delphi study

In the first round, the value for the CVI per item had to be greater than or equal to 78%. However, five of the 73 items evaluated did not achieve this result.

Item I. 1.4 obtained a CVI of 50%, with three experts (N = 6) positively evaluating this intervention. One of the experts made the following suggestion/comment: "I obviously agree with maintaining airway patency whenever necessary, but that doesn't mean always inserting a nasogastric tube" (P1.3).

The insertion of a nasogastric tube in acute stroke patients is relevant as it assists in preventing the development of complications, such as aspiration pneumonia (Cavalcante et al., 2014). In addition, according to the Portuguese National Institute of Medical Emergency (INEM), "oral and oropharyngeal suctioning must be performed in situations of partial airway occlusion by fluids - vomit, blood, or secretions" (INEM, 2021, p. 74).

As a result, I. 1.4 was reformulated, resulting in two different interventions, which were again submitted to expert evaluation: I. 2.3 - "When a patient with suspected acute stroke is identified, with regard to Airway (ABCDE FGH), to what extent do you agree with maintaining airway patency by inspecting the oral cavity and removing foreign bodies, blood, vomit or others," and I. 2. 4 - "When a patient with suspected acute stroke is identified, with regard to Airway (ABCDE FGH), to what extent do you agree with assessing whether or not a nasogastric tube should be inserted to protect the airway if the patient is unable to swallow?".

Item I. 1.13 obtained a CVI value of 66.67% and achieved a positive score from four experts (N = 6). One of the experts noted the potential existence of paresis/ plegia - "highlighting the possibility of plegia" (P1.3).

Muscle tone influences the function of stroke patients' paretic or plegic upper limbs in the sense that the more flaccid the limb, the lower the muscle tone. As a result, muscle tone may be compromised at the circulatory level (Feijó & Santos, 2020). Therefore, I. 1.13 was reformulated and submitted again to expert evaluation, from which resulted I. 2. 5 - "When a patient with suspected acute stroke is identified, with regard to Circulation (ABCDE FGH), to what extent do you agree with the insertion of two venous accesses with a caliber of no less than 18G (preferably in the left upper limb for ease of access during inter-hospital transportation, provided that this is not the paretic or plegic limb)?".

Although there were no comments from the experts, item I. 1.17, with a CVI value of 50%, was also revised. For patients with an onset of stroke symptoms of less than 4.5 hours and for whom there is no suspicion of coagulation disorders thrombolysis should not be postponed but started while waiting for laboratory results (Powers, et al., 2019; Berge et al., 2021). Therefore, I. 1.17 was reformulated and submitted to a new expert evaluation, from which emerged I. 2.6 - "When a patient with suspected acute stroke is identified, in terms of Circulation (ABCDE FGH), to what extent do you agree with carrying out thrombolysis, even if laboratory results are not available, and considering that there is no suspicion of coagulation disorders?".

Item I. 1.43 obtained a CVI value of 66.67% after receiving a positive score from four experts (N = 6). The following comment was taken into account: "considering that feeding is secondary in an urgent/emergency context and not applicable in the context of fibrinolysis, I think it is unnecessary to monitor swallowing ability" (P1.3). As a result, the possibility of excluding I. 1.43 from the work instruction (I. 2.7) was submitted to a new expert opinion.

Finally, item I. 1.67 achieved a CVI value of 66.67%. The experts made no comments or suggestions regarding this item. Nevertheless, it is worth noting that the promotion of patient safety requires coordinated and persistent efforts. Moreover, a systematic and continuous approach promoting safety and a safety culture must be based on a logic of constant non-punitive improvement (Despacho n.º 9390/2021 do Gabinete do Secretário de Estado Adjunto e da Saúde, 2021). Therefore, in their continuous search for professional excellence, nurse specialists should act as prevention agents for health complications in patients undergoing complex critical illness processes (Ordem dos Enfermeiros, 2017).

In light of the above, I. 1.67 was reformulated and a new question was created: I. 2.8 - "To what extent do you agree with ensuring all safety conditions after thrombolysis if the patient is agitated/disoriented/at high risk of falling to prevent possible complications?".

Although items I. 1.2 and I. 1.3 achieved the desired consensus, the experts' suggestions were taken into account. Therefore, these items were also reformulated considering the relevance and importance of the suggestions made. After being improved, they were submitted to a new expert evaluation.

The following comment was made for item I. 1.2 (To what extent do you agree with referring the patient to the Intermediate Care Area/ Orange Area if the symptoms started more than 4.5 hours ago and less than 24 hours ago?):

I agree with referring the patient to the Intermediate Care Room/Orange Area if the onset of symptoms occurred more than 4.5 hours ago and less than 24 hours ago; however, I don't totally agree because sometimes the target waiting time cannot be met, which delays care delivery. Another aspect is the difficulty in monitoring these patients, either because of access to available continuous patient monitoring equipment or because of nurse staffing. Thus, I believe these two aspects are better in the emergency department (P1.5).

Therefore, this item was reformulated and subjected to a new evaluation, with the following question emerging: I. 2.1 - "To what extent do you agree with referring the patient to the Intermediate Care Area/ Orange Area if the symptoms started more than 4.5 hours ago and less than 24 hours ago, as long as continuous patient monitoring and surveillance is ensured and the target waiting time is respected. Otherwise, and until a clinical decision is made, the patient is admitted to the emergency department, where the first approach is made...".

For item I. 1.3 ("To what extent do you agree that communication between the triage nurse and the emergency department charge nurse should be done quickly and comprehensively, with the immediate referral of patients to the emergency department, when there is a suspicion of acute stroke?"), the following comment/suggestion was made: "If the patient is hemodynamically stable, they can go directly to the imaging room, accompanied by the emergency department charge nurse, with a bag containing the necessary material for the ABCDE approach, without passing through the emergency department" (P1.6).

This comment/suggestion led to a new question: I. 2.2 - "When a patient with suspected acute stroke is identified, to what extent do you agree that communication between the triage nurse and the emergency department charge nurse should be done quickly and comprehensively and, if the patient is hemodynamically stable, they should be sent directly to the imaging room, accompanied by a nurse with the stroke protocol bag and the necessary material for the ABCDE approach?".

Second round of the Delphi study

Taking into account the results of the second round, an isolated analysis was made of item I. 2.6 considering the experts' comments/suggestions (see Table 4).

Table 4

Analysis of Item I. 2.6.

Item description	Results	Comments without Suggestions	Analysis of Comments without Suggestions
When a patient with suspected acute stroke is identified, in terms of Circulation (ABCDE FGH), to what extent do you agree with carrying out thrombolysis, even if laboratory results are not available, and considering that there is no suspicion of coagulation disorders?	Three experts (*N*=6) scored the item positively. There were no negative assessments. The other 3 experts (*N*=6) chose a neutral position, neither disagreeing nor agreeing.	"And when taking anticoagulants is ruled out." (**EXP.2.1**)	The work instruction includes absolute and relative contraindications for thrombolysis, which override all other aspects. The issue of taking anticoagulation medication is one of the aspects mentioned. Therefore, despite the importance of this comment, it adds no new information.
		"To improve the speed of access to the results by informing the laboratory that they are a priority." (**EXP.2.4**)	This comment is highly relevant. However, this information is included in the work instruction. Therefore, despite being highly relevant, this comment also does not add any new information.

The Delphi study was concluded when stability and a mean total CVI of 91.16% were achieved.

The findings of our study have led to the emergence of new knowledge. Our research has demonstrated that assembling a group of experts to validate nursing interventions enables the combination and sharing of diverse types of knowledge and experiences, which are crucial for delivering quality care. However, our study is limited by the fact that few studies use this methodology in the area of patients admitted to the emergency department with suspected acute stroke.

Conclusion

Nursing care for critically ill patients with suspected acute stroke involves complex therapeutic protocols requiring highly complex technical care. Preparing studies using the Delphi technique allows for combining the most recent scientific evidence, resulting from systematic research, with the clinical experience of a panel of experts. This combination leads to the emergence of evidence-based practice. This type of practice guides clinical decision-making and has proven effective in improving the quality of care. Therefore, we recommend the implementation of further studies in this area.

Our study gathered geographically dispersed opinions and experiences to stimulate clinical reasoning and decision-making regarding nursing interventions for patients with suspected acute stroke. This assembly led to the development of a work instruction for nurses, in which all nursing interventions were validated. Furthermore, improving the safety of patients and health professionals, in this specific case, in nursing interventions for patients with suspected acute stroke, assists in promoting care standardization and quality.

Author contributions

Conceptualization: Conde, C., Duarte, H.
Data Curation: Conde, C., Duarte, H.
Formal analysis: Conde, C., Duarte, H.
Investigation: Conde, C., Duarte, H.
Methodology: Conde, C., Duarte, H.
Project administration: Conde, C., Duarte, H.
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Supervision: Duarte, H.
Validation: Duarte, H.
Visualization: Conde, C., Duarte, H.
Writing - Original Draft: Conde, C.,
Writing - Review & Editing: Conde, C., Duarte, H.

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