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USE PRE AND POSTTEST DEPEND ON (C)ABCDE GUIDELINE FOR EMERGENCY NURSES' PRACTICES TO ASSESSING PATIENTS WITH BRAIN TRAUMA

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Abstract

Background: According to recent studies, statistics indicate that more than 10 million people are exposed to brain injuries in all countries of the world annually. Brain injury patients, as well as their families, are usually concerned with the expectations and possible complications as a result of the injury and the extent of their recovery, and they request this information from nurses. The cognitive level of nurses plays an essential role in providing care to brain injury patients, which reflects negative outcomes if perceptions are inaccurate. Most deaths from traumatic brain injury are related to massive hemorrhage, which is preventable. Its percentage increases before the patient arrives at the hospital, and therefore attention must be paid to the (C)ABCDE guide to reduce the possible consequences.

Methodology: In the study, we used one group for comparison between the unequal control group and study group after implemented the program to evaluate the effect of the (C)ABCDE guideline for patients with brain trauma, with intermittent time differences to compare the results (pre-test) and (post-test1,2). The observation list was used as a study tool based on the (C) ABCDE guide.

Results: The nurses' practices were tested before and after implementing the training program. We noticed an increase in the efficiency of the nurses' practice towards brain trauma patients in the emergency room. When comparing the pre-test and the post-test that occurred after implementing the training program, there was a noticeable difference, and this increase in practices may be due to the training. The results reached by researchers found that there were differences in the pre-test and post-test of 1.2, with the average more than 1 adequately representing nurses' practices, and the average less than 1.45. Which indicates that the effectiveness of the program is great in implementation and has a significant effect. The results of the practices regarding brain trauma in the emergency unit were collected by the nurses working in that unit on September 3, 2023 and September 28, 2023. The results were tabulated in a table, which represents a preliminary test before administering the program. The primary assessment of patients was based on the frequency method, where the focus was on the axes whose scores ranged from 20-45.

Conclusion: It became clear from the results of the study that it is possible to improve and develop nurses' practices regarding the assessment of brain trauma patients when they enter the emergency

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unit, by relying on (C)ABCDE, and this increases the quality of care provided and reduces potential complications. It is also possible to focus on other research related to (C)ABCDE.

Aims of study: The study purpose was determine effect of (C)ABCDE guideline for emergency nurses' practices to assessing patients with to brain trauma.

Keywords: Nurses Practices , Patients , Brain Trauma.

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Introduction

According to recent studies, statistics indicate that more than 10 million people are exposed to brain injuries in all countries of the world annually [(1)]. Brain injury patients, as well as their families, are usually concerned with the expectations and possible complications as a result of the injury and the extent of their recovery, and they request this information from nurses [(2)]. The cognitive level of nurses plays an essential role in providing care to brain injury patients, which reflects negative outcomes if perceptions are inaccurate [(3)]. Most deaths from traumatic brain injury are related to massive hemorrhage, which is preventable. Its percentage increases before the patient arrives at the hospital, and therefore attention must be paid to the (C)ABCDE guide to reduce the possible consequences [(5)]. In the past two decades, there has been a change in the management of brain injuries causing neuropathy as a result of the focus on the concepts of first aid and initial assessment of patients[(6)]. The nurse must work with the rescue team and document all early signs that occur in people with brain injuries[(7)]. It is necessary to document all clinical procedures on people exposed to this injury. In this study, the (C)ABCDE approach was adopted to evaluate nurses' practices for brain trauma patients, based on which patients are assessed and know the severity of the condition and the type of care provided by them. It includes several steps: (C)Catastrophic bleeding ,Air way, breathing, Blood circulation, Disability, Exposure. Each step includes clinical evaluation, verification, and immediate intervention to move the patient to the safe side. The nurse's role does not end at this point, but rather continues on a regular and monitored basis.

Methodology:

Study design

In the study, we used one group for comparison between the unequal control group and study group after implemented the program to evaluate the effect of the (C)ABCDE guideline for patients with brain trauma, with intermittent time differences to compare the results (pre-test) and (post-test1,2). The observation list was used as a study tool based on the (C) ABCDE guide.

Ethical issue of study

We will obtain official agreements from the Training and Development Division of the Wasit Health Department, which in turn sent letters to Al-Zahraa Teaching Hospital / Continuing Education Unit to obtain written approvals with the signature of the study sample represented by nurses.

Clinical practice guideline implementation and development.

Before starting the pre-test, a preliminary test was conducted to determine the levels of practice towards patients with neurological brain injuries, based on the ABCDE guideline. This test was designed by a team of specialized evaluators whose experience in this field is not less than 5 years. The duration of this test was one week. In the initial test, we focused on the areas of lack of oxygen, bleeding, breathing level, blood pressure, and variables related to the body's dynamics during the injury, the most important of which are vital signs such as temperature and pulse.Blood pressure, tachypnea. The period between the pre- and post-test included 4 consecutive weeks. The program was designed in the form of applied lessons based on the actual practices of the patients towards brain injury patients in the emergency unit, and it ranged between 30 to 45 minutes. The study consisted of a group of nurses working in the emergency unit who are in contact with brain trauma patients. They numbered 40 nurses on the morning and evening shift. Their educational levels and experiences were different in the field of nursing in general and the emergency unit in particular, The tools were presented with the executive program to experts from various nursing specialties to provide validity in application. The number of experts was 10.

Data collection

The results of the practices regarding brain trauma in the emergency unit were collected by the nurses working in that unit on September 3, 2023 and September 28, 2023. The results were tabulated in a table, which represents a preliminary test before administering the program. The primary assessment of patients was based on the frequency method, where the focus was on the axes whose scores ranged from 20-45.

Results

Table (1) : the pre-test for assess nurses' practices in emergency before implementing the training program based on (C) ABCDE guide for evaluating patients with brain trauma.

Assessment Main domain	Chick list - Observation	Faire	Enough
(C)Catastrophic bleeding	Evaluation of Catastrophic bleeding	36(90)	4(10)
	Evaluation the vital sings (BP,RR,PR,BT)	32(80)	8(20)
	Check the bleeding from the drains	26(65)	14(35)
	Check the ooze from the wound site	28(70)	12(30)
	Examination the patient from head to toe by SCALPER and evaluation the site of missed injury that may be the bleeding potentially	31(77.5)	9(22.5)
	Perform a point-of-care test to check hemoglobin with the previous result	11(27)	29(73)
	Check the response to previous blood trans fusion	22(55)	18(45)
A: air way	Examination the airway and ensuring endotracheal tube clearness	39(97.5)	1(2.5)
B: breathing	Check oxygen situation	19(47.5)	21(52.5)
	Examination the chest for determine any deformity, bruising	33(82.5)	7(17.5)
	Listening to breath sound	22(55)	18(45)
	Arterial gases	40(100)	0

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	Check clinical features of difficulty of breathing	17(42.5)	23(57.5)
C: circulation	Check heart sound	40(100)	0
	Check peripheral pulse	9(22,5)	31(77.5)
	Check Capillary Refill	13(32.5)	27(67.5)
	Monitoring input And Out Put Fluid	15(37.5)	25(62.5)
	Check peripheral and central cyanosis	18(45)	22(55)
D: disability	Check level of conscious	38(95)	2(5)
	Check blood glucose	18(45)	22(55)
	Observe projectable vomiting	16(40)	24(60)
	Check peripheral movement	15(37.5)	25(62.5)
	Check peripheral sensation	22(55)	18(45)
E: exposure	Keep appropriate environment to prevent heat loss	11(27)	29(73)

It turned out that there were differences in the practices of nurses working in emergency situations in the pre-test, with the majority of the percentage of inadequate practice ranging between 5%-77%.

Table 2: post-test 1 for assess nurses' practices in emergency before implementing the training program based on (C) ABCDE guide for evaluating patients with brain trauma.

Assessment Main domain	Chick list Observation	Faire	Enough
(C) Catastrophic bleeding	Evaluation of Catastrophic bleeding	29(72)	11(27)
	Evaluation the vital sings (BP,RR,PR,BT)	16(40)	24(60)
	Check the bleeding from the drains	12(30)	28(70)
	Check the ooze from the wound site	13(32.5)	27(67)
	Examination the patient from head to toe by SCALPER and evaluation the site of missed injury that may be the bleeding potentially	11(27.5)	29(72.5)
	Perform a point-of-care test to check hemoglobin with the previous result	10(25)	30(75)
	Check the response to previous blood trans fusion	11(27)	29(72)
A: air way	Examination the airway and ensuring endotracheal tube clearness	21(52.5)	19(47.5)
B: breathing	Check oxygen situation	12(30)	28(70)
	Examination the chest for determine any deformity, bruising	14(35)	26(65)
	Listening to breath sound	15(37.5)	25(62.5)
	Arterial gases	3(7.5)	37(92.5)
	Check clinical features of difficulty of breathing	5(12.5)	35 (87)
C: circulation	Check heart sound	22(55)	18(45)
	Check peripheral pulse	9(22.5)	31(77.5)
	Check Capillary Refill	17(42.5)	23(57.5)
	Monitoring input And Out Put Fluid	12(30)	28(70)
	Check peripheral and central cyanosis	5(12.5)	35 (87)
D: disability	Check level of conscious	22(55)	18(45)
	Check blood glucose	9(22.5)	31(77.5)
	Observe projectable vomiting	17(42.5)	23(57.5)
	Check peripheral movement	12(30)	28(70)
	Check peripheral sensation	8(20)	32(80)
E: exposure	Keep appropriate environment to prevent heat loss	5(12.5)	35 (87)

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The differences in nurses' practices regarding neurological brain trauma in emergency patients were evident in the pre-test. In post-test 1, most of their practices improved after giving the training program based on (C)ABCDE, as it was noted that the practices of most nurses were enough.

Table3: post –test 2 for assess nurses' practices in emergency before implementing the training program based on (C) ABCDE guide for evaluating patients with brain trauma.

Assessment Main domain	Chick list Observation	Faire	Enough
(C) Catastrophic bleeding	Evaluation of Catastrophic bleeding	9(22.5)	31(77.5)
	Evaluation the vital sings (BP,RR,PR,BT)	11(27)	29(72)
	Check the bleeding from the drains	10(25)	30(75)
	Check the ooze from the wound site	9(22.5)	31(77.5)
	Examination the patient from head to toe by SCALPER and evaluation the site of missed injury that may be the bleeding potentially	8(20)	32(80)
	Perform a point-of-care test to check hemoglobin with the previous result	15(37.5)	25(62.5)
	Check the response to previous blood trans fusion	16(40)	24(60)
A: air way	Examination the airway and ensuring endotracheal tube clearness	12(30)	28(70)
B: breathing	Check oxygen situation	13(32.5)	27(67)
	Examination the chest for determine any deformity, bruising	11(27.5)	29(72.5)
	Listening to breath sound	10(25)	30(75)
	Arterial gases	11(27)	29(72)
	Check clinical features of difficulty of breathing	22(55)	18(45)
C: circulation	Check heart sound	21(52.5)	19(47.5)
	Check peripheral pulse	12(30)	28(70)
	Check Capillary Refill	14(35)	26(65)
	Monitoring input And Out Put Fluid	15(37.5)	25(62.5)
	Check peripheral and central cyanosis	3(7.5)	37(92.5)
D: disability	Check level of conscious	5(12.5)	35 (87)
	Check blood glucose	22(55)	18(45)
	Observe projectable vomiting	9(22.5)	31(77.5)
	Check peripheral movement	17(42.5)	23(57.5)
	Check peripheral sensation	12(30)	28(70)
E: exposure	Keep appropriate environment to prevent heat loss	8(20)	32(80)

In post-test 2, the results of the practices of the nurses working in the emergency unit with the training program kit did not differ from what they were in post-test 1, as most of them were sufficient, despite the passage of time between them.

Table 4: total percentage for emergency nurses practice before and After Implanted Program depended (C)ABCDE.

Test	% of faire ENP	% of Enough ENP
Pre-test	70.4%	29.6%
Post-test 1	30.11%	69.89%
Post-test 2	29%	71%

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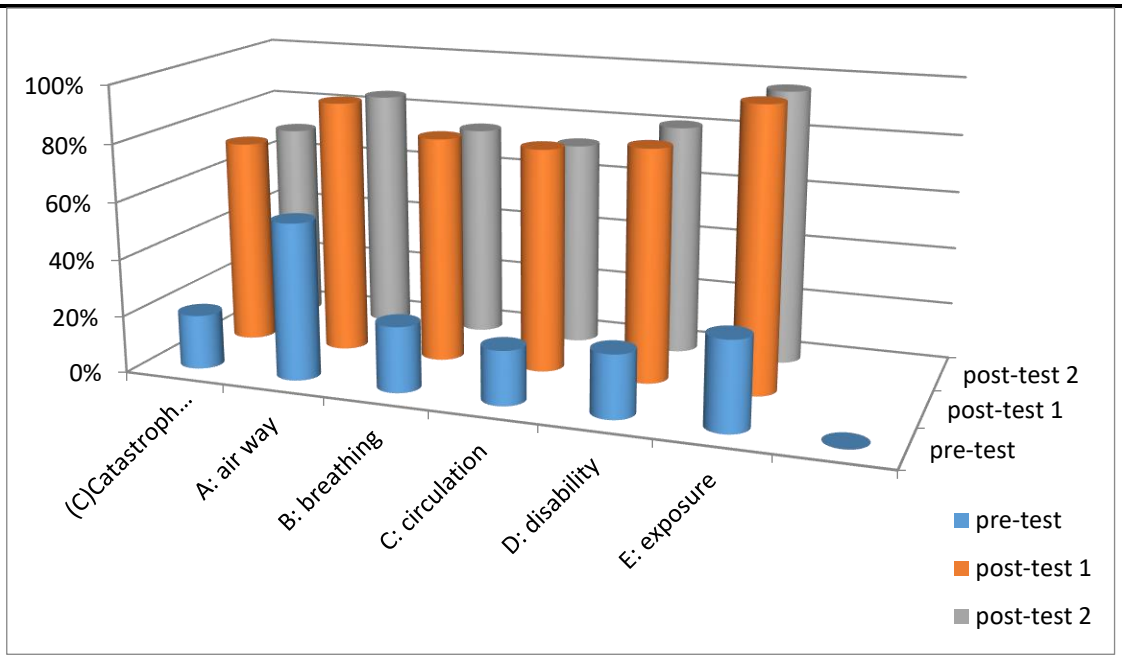

Figure: (1)

ENP: Emergency nurse practice

Table (2): Levels of nurses' practice depending (C) ABCDE guideline for patients with brain trauma.

	Pre -test		Post-test1		Post-test 2	
(C)Catastrophic bleeding	Mean	level	Mean	Level	Mean	Level
A: air way	1.37	Fair	1.79	Enough	1.80	Enough
B: breathing	1.42	Fair	1.84	Enough	1.83	Enough
C: circulation	1.35	Fair	1.83	Enough	1.85	Enough
D: disability	1.30	Faire	1.86	Enough	1.89	Enough
E:exposure	1.18	Faire	1.93	Enough	1.97	Enough

Faire range (1.181.45) enough range (180-1)

The results shown above indicate that the levels of practice among emergency nurses (C) ABCDE guideline for patients with brain trauma were weak and insufficient in the pre-test, that is, by giving several training lectures, while the table shows the disparity of results for the post-test in both attempts, 1.2 participants.

Discussion

Emergency nurses' work is to receive patients at any moment. Their responsibility is to intervene and deal with the patient in an emergency, especially critical cases such as brain injuries that may lead to death or permanent neurological disability. Therefore, they must work as members of one team to perform their tasks, such as assessing the dynamic state of the patient's body, which includes several elements: the most important of which is breathing and blood circulation in the body through the work of the heart, maintaining the access of oxygen and nutrients to the tissues

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(i.e. maintaining the blood sugar level within normal). Focusing on the ABCDE (C) guide to providing intervention for brain trauma patients strengthens their practices and makes them systematic, regular, and every step is purposeful in order to provide the best care.

Likewise, this study is the first in Wasit Governorate to measure the effectiveness of the training program based on the (C)ABCDE guide, as we conducted three tests, one of them before implementing the program, and the rest after implementation, to measure the extent of the program's effectiveness in improving nurses' practices through real-time monitoring when exposed patients enter. To brain trauma, which may lead to death or permanent neurological disability. After the training program was implemented, we noticed an increase in the efficiency of nurses' practice and how to apply these standards in managing patient cases, especially the increase in four measures: catastrophic bleeding, air way, breathing, and circulation as in **tables (1,2)**. In general, this study provided an evaluation of the practices of nurses providing (C) ABCDE trauma patients in the unit where they did not have a standard for providing their services. When comparing the pre-test and the post-test that occurred after implementing the training program, there was a noticeable difference, and this increase in practices may be due to the training in **table (4).** This may enhance our confidence in the implemented program based on the (C)ABCDE guide. Although the implementation of the program was limited, it was noted that the improvement was striking, as the percentage recorded in the pre-test was 70.4%, as in figure (1). This result similar with Catherine A. Staton et al., through a study conducted in Tanzania, in the pre- and post-implementation periods included 1438 and 448 patients, respectively. There is no significant difference between age and gender, as they found that nurses' practices towards patients with neurological trauma increased from 15.4% to 12.1% after implementation. ($P = 0.038$) [(8)]. Their practices were insufficient and perhaps not regular, while. However, in the post-test, the practices provided by the nurses in dealing with brain trauma patients became adequate by 71%. The reasons for the nurses' lack of practices on how to deal with brain trauma patients may be due to the health institution not accrediting an accredited organization with complete credibility and reliability. Our pre- and post-test results measuring the effectiveness of the training program are consistent with similar studies in Colombia, India, Pakistan, and Thailand[(9-10)]. However, results from hospital settings in Rwanda, Kenya, and Malawi show that it is necessary to standardize the work of nurses as a team to standardize the care provided, as there are several factors that influence Such as the availability of international standards to take the correct steps and reliance on re-evaluation of nurses' practices regarding brain trauma. Operating resources and equipment and high costs, and this is the case in our study as well [(11-12)]. Continuing education within the hospital had no role in the field of practices by organizing training workshops on how to assess the awareness of patients and how to evaluate patients by examining vital signs, blood gases, and heart sounds. We conducted training courses and workshops only that focused on the cognitive aspect, but dealing with patients requires actual practices, and the absence of the role of working as a unified, cooperative team. On the other hand, our results contradicted the results reached by Oyesanya et al. They found that emergency nurses require levels of specialization, meaning that patients with states of consciousness or unconsciousness must be dealt with by neurological system nurses[(13)].

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Limitation of study

There are many limitations to this study, including that the sample was taken only from one hospital in Wasit Governorate, which is Al-Zahra Teaching Hospital, and this reduces the possibilities for generalizing the results. To reduce these limitations, a broad focus was placed on time periods to prevent bias in the tests carried out. Another limitation was the inaccuracy of the dates recorded for the occurrence of the shock, that is, before the pre-hospital period, and this actually affects the accuracy of the assessment of patients when they arrive at the emergency unit, for example, the period of bleeding and the duration of loss of consciousness. Another may be the beginning of the year in January, when nurses with little experience are appointed compared to nurses with service exceeding a year in the emergency unit. The time factor is also considered very necessary in applying this guide, as the emergency unit is crowded, which hinders the work of nurses and caregivers in providing an accurate and detailed assessment.

Conclusion

It became clear from the results of the study that it is possible to improve and develop nurses' practices regarding the assessment of brain trauma patients when they enter the emergency unit, relying on (C)ABCDE, and this increases the quality of care provided and reduces potential complications. It is also possible to focus on other research related to (C)ABCDE. In addition, future research should focus on nurses' educational levels, length of service, as well as their experience. Through this study, it was shown that nurses' practices need more reliable standards supported by other studies to follow in order to provide care and enhance their clinical experience.

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