Assessment of the Health Team Performance in the First 24 Hours Regarding Patients with Stroke

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Abstract

Background: Stroke is a leading cause of death and disability worldwide. It is a complex disease and medical emergency that requires immediate medical attention, efforts and skills of all members of the multidisciplinary team to minimize brain damage and potential complications especially in the first 24hrs. **Aim of the study** was to assess the health team's performance in the first 24hrs regarding patients with stroke. **Design:** An exploratory descriptive study **Setting:** The study was carried out and conducted in the stroke ICU, neuro-surgical ICU, the emergency and neurosurgery department at Nasr Institute Hospital for research and treatment. **Study subjects:** A purposive sample consists of 60 nurses and 40 neurologists and ICU physicians their mean age was 34.5±8.28 and36.10±7.94 respectively. **Data collection tools:** a) health team self-administered questionnaire. b) Health team practice observational checklist, and c) Health team self-administered form (attitude scale). **Results & conclusion:** Firstly, (sixty, fifty-one & fifty-five) of the nurses under the study had unsatisfactory level of knowledge, practice and had a negative attitude in the first 24 hours regarding patients with stroke respectively. Secondly, (sixty-five, sixty& fifty-five) of the neurologists and ICU physicians under the study had satisfactory level of knowledge, practice and had a positive attitude in the first 24 hours regarding patients with stroke respectively. Furthermore, there was a highly statistically significant relation between nurses' knowledge, practice, attitude and their demographic data. Also, there was a highly statistically significant relation between neurologists and ICU physicians' knowledge, practice, attitude and their demographic data. **Recommendation:** This study recommends the importance of in- service training courses and designing health team educational program to enhance their knowledge and improve their practices in the first 24hrs regarding patients with stroke and minimize complications after stroke.

Key words: Health team, Performance, Patient, Stroke.

Introduction

One of the most vascular disorders of central nervous system is stroke. It is a complex disease and a medical emergency that requires the efforts and skills of all members of the multidisciplinary team **(Mayoclinic, 2020)**.

Stroke is a serious health hazard and a leading cause of death and disability worldwide that also called cerebrovascular accident. It is a medical emergency that needs immediate medical attention so prompt treatment is crucial and early action can minimize brain damage and potential complications, but the good news is that

can be treated and prevented. Now it is referred as a" brain attack" which means that it is in the same urgency as a "heart attack" which occurs when there is a disruption of blood flow either interrupted or reduced to a region of the brain depriving the brain tissue of oxygen and nutrients causing brain cells begin to die within minutes **(Myoclinic, 2020).**

The World Health Organization defined stroke as 'rapidly developed clinical signs of focal (or global) disturbance of cerebral function, lasting more than 24 hours or leading to death, with no apparent cause other than of vascular origin. It can also define as a sudden a cute onset of neurological dysfunction due to an abnormality in cerebral circulation as cerebrovascular disease **(Anandabai & Gupta, 2013), (Feigin & Forouzanfar, 2014) and (Lippincott Williams & Willkins, 2012)**

Stroke can be broadly be divided into two major classifications: ischemic stroke, hemorrhagic stroke and other type like ischemic stroke called mini-stroke **(Stroke Foundation, 2108)**

The first hours after stroke can be very scary and fast paced so the healthcare team should be working quickly to figure out the type of stroke, take action that prevent further damage of the brain cells and provide early treatment as the type of treatment depends on the type of stroke **(Heart and stroke foundation of Canda, 2018).**

Health care professionals who treat stroke patients are required to be qualified in order to offer specialized and continuous care from the moment a patient enters a hospital. Nurses play an important role in all phases of care of the stroke patients. Nurses represent the largest professional group working with stroke survivors, they are often responsible for the continuum coordinated care of the patient with acute stroke that results in improved outcomes,

decreased lengths of stay and costs so they in neurointensive care unit have a vital and critical role in patient management as they achieve the highest standards and quality of stroke care, move the patient to rehabilitation quickly and maximize the patient's outcomes. **(Jytte et al , 2013) & (Elaine, 2015)**

Significance of the study:

Globally it affects 13.7 million people per year and is the second leading cause of death, with 5.5 million deaths per year. Not only does the burden of stroke lie in the high mortality but the high morbidity also results in up to 50% of survivors being chronically disabled. Thus stroke is a disease of immense public health importance with serious economic and social consequences **(Eric, 2018), (Swan & Jay, 2019) & (Bruce et al., 2019).**

Aim of the study:

The aim of this study was to assess the health team's performance in the first 24hrs regarding patients with stroke. Through the following:

(1) Assessing the health team level of knowledge regarding patient with stroke

(2) Assessing the health team level of practice regarding patient with stroke.

(3) Assessing the health team attitude regarding patient with stroke.

Research questions:

1- What is the health team level of knowledge regarding patient with stroke in the first 24hrs?

2- What is the level of health team practice regarding patients with stroke in the first24hrs?

3- What is the health team attitude regarding patients with stroke in the first 24hrs?

Subjects and Methods

Research design:

An exploratory descriptive design used in carrying out the study.

Research Setting:

This study was carried out at Nasr Institute Hospital for Research and Treatment (the stroke ICU, Neuro-surgical ICU and the emergency and neurosurgery department)

Subjects:

A convenience sample of 100 subjects used in this study and consists of 60 nurses and 40 neurologists and ICU physicians caring for patients with stroke in the first 24 hours

Tools for data collection:

Three tools were used for each nurse and physician:

I- Tool I: Health team self-administered questionnaire (Appendix I): this tool was developed by the researcher based on the related literature **(Ibrahim, 2014)**, and consisted of two parts as the following

(A) Demographic characteristics of health team: The studied sample characteristics included age, gender, level of education, experience years and pervious training courses.

(B) Assessment of Health team Knowledge level about stroke that quoted from **Sullivan& Dunton**, **(2006), Carter & Farhaan, (2017), Turco, (2017) and Ibrahim, (2014)**, modified by the

researcher and divided into two parts as the following:

Part I (Nurses' knowledge assessment regarding care of patients with stroke in the first 24 hours consisted of 82 questions

❖ **Scoring system:**

• ≥ 80% was considered knowledge satisfactory (>66 grades).
• <80% was considered knowledge unsatisfactory (< 66 grades).

Part II (Neurologists and ICU physicians' knowledge assessment regarding care of patient with stroke in the first 24 hours and consisted of 53 questions.

❖ **Scoring system:**

• ≥80% was considered knowledge satisfactory (<42 grades).
• <80% was considered knowledge unsatisfactory (>42 grades).

II- Tool II: Observational checklist (Appendix II). This tool used to assess practice of health team regarding patient with stroke in the first 24hrs. This tool quoted from **Lillis & (2011), Wellwood et al**, **(2011) & Ibrahim, (2014),** modified by the researcher and included 2 parts as following:

Part I (Nurses' performance observational checklist consisted of 110 steps

❖ **Scoring system:**

• ≥80% was considering satisfactory (> 88 degrees).

• <80% was considering unsatisfactory (<88 degrees).

Part II (Neurologists and ICU physicians' performance observational checklist consisted of 73 steps.

• ≥80% was considering satisfactory (> 58 degrees).
• <80% was considering unsatisfactory (< 58 degrees).

Tool III: Health team self-administered form (attitude scale) (Appendix III): It was developed by the researcher after reviewing the relevant literature **(Lillis et al., (2011), (Wellwood et al, 2011), (Thapa et al, 2016)** and **(Egyptian Journal of Neurology, psychiatry and Neurosurgery, 2016).** It used to assess health team attitude regarding care of patients with stroke in the first 24 hours and consisted two parts as following:

Part I (Nurses' attitude assessment regarding care of patients with stroke in the first 24 hours included 17 through a likert scale **(Wikipedia, 2016), (Shehata et al., (2016), (Mia et al., 2017)** and **(Gibbon, 1991).**

❖ **Scoring system:**

• ≥80% had a positive attitude (>40grades).
• <80% had a negative attitude (<40grades).

Part II (Neurologists and ICU physicians' attitude assessment regarding care of patients with stroke in the first 24 hours included 18 statements through a likert scale **(Min et al., 2014, Wikipedia, 2016 and Shehata et al., 2016).**

❖ **Scoring system:**

• ≥80% had a positive attitude (>43grades).
• <80% had a negative attitude (<43grades).

Operational design:

The operational design includes preparatory phase, validity, reliability, pilot study and field work.

Preparatory phase:

It included reviewing of related literature, and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop the theoretical part of the study and data collection tools.

Validity and reliability: Content validity was done by 9 experts in medical-Surgical nursing specialist .The expertise reviewed the tools for clarity, relevance, comprehensiveness, and simplicity; minor modifications were done. **Reliability** of the study tools was done by alpha Cronbach test (0.98**).**

Pilot study

A pilot study was conducted to test feasibility and applicability of the tools used in this study. It was carried out on 10 patients (10% of total study subjects). The patients who were included in the pilot study were included to the sample because no modification was done after conducting pilot study.

Field work:

The purpose of the study was simply explained to health team's members (Nurses, Neurologists and ICU physicians) who agreed to participate in the study prior to data collection. The actual work of this study started and completed within five months from January 2019 and was

completed by the end of May 2019. Data were collected by the researcher at three days per week (Saturdays, Sundays & Mondays), at morning, afternoon and night shift (from 9am to 1am, from 2pm to 6pm and from 7pm to 10 pm) at stroke ICU, Neuro-surgical ICU and the emergency and neurosurgery department at Nasr Institute Hospital for Research and Treatment. The time needed for completing the tools was about 30 - 45 minutes for every health team member. The health team members assured that the information collected would be treated confidential and that it would be used only for the purpose of the study (verbal consent was taken from them).

Administrative Design:

To carry out this study, the necessary approval was obtained from the director of Nasr Institute Hospital for Research and Treatment. A letter was issued to them from the faculty of nursing, Ain Shams University explaining the aim of the study to obtain the permission for conducting this study.

Statistical Design:

The collected data were organized, tabulated and statistical analyzed using the statistical package for social science (SPSS). The statistical analysis was done using percentage; range; chi square (X^2) ; T- test and ANOVA. **The observed differences and associations were considered as follow:**

- ♦ Non-significant at P>0.05
- ♦ Significant at P ≤ 0.05
- ♦ Highly significant at P ≤0.001

Results

Table (1): shows the demographic characteristics of the studied nurses. The mean was 34.5±8.28. 83% of them were female. 30% of them were having nursing

diploma, nursing bachelor and technical institute respectively. 43.3% of them had experience lower than 5 years and 60% of them didn't take training courses

Figure (1): shows that, 60% of the studied nurses had an unsatisfactory level of knowledge.

Figure (2): shows that, 51.7% of the studied nurses had unsatisfactory level of practices in first 24 hours regarding patients with stroke.

Figure (3): shows that, 55.0% of the studied nurses had a negative attitude in the first 24 hours regarding patients with stroke.

Table (2): reveals that, there was a positive correlation between the total score of nurses' attitude, knowledge and practices (r= 0.427, 0.605 and 0.533 at p-value<0.001**).

Table (3): shows the demographic characteristics of the studied neurologists and ICU physicians. The mean age was 36.10±7.94. 67.5% and 60% respectively of them were postgraduate and take training courses. 37.5% of them had experience 5 to less than 10 years.

Figure (4): shows that, 65% of the studied neurologists and ICU physicians had an unsatisfactory level of knowledge.

Figure (5): shows that, 60% of the studied neurologists and ICU physicians had an unsatisfactory level of practices.
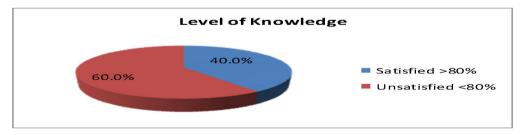
Figure (6): shows that, 55% of the studied neurologists and ICU physicians had positive attitude.

Table (4): this table reveals that, there was a positive correlation between the total score of neurologists and ICU physicians' attitude, knowledge and

practices at (r=0.456, 0.724 and 0.583 at p-value<0.001**).

Table (1): Number and percentage distribution for demographic characteristics of the studied nurses (n=60).

Demographic data items	N	%
Age (years)		
20- <30	26	43.3%
30- <40	16	46.7%
40- <50	13	21.7%
50 or more	5	8.3%
Mean± SD	34.5±8.28	
Gender		
Male	10	16.7%
Female	50	83.3%
Level of education		
Nursing Diploma	18	30%
Technical Institute	18	30%
Nursing Bachelor	18	30%
Postgraduate	6	10%
Years of experience		
<5	26	43.0%
5- <10	6	10.0%
10-<15	14	23.0%
≥15	14	23.0%
Mean±SD	9.77±3.32	
Training Courses		
Yes	24	40%
No	36	60%

Figure (1): Percentage distribution of total nurses' Knowledge regarding patients with stroke in the first 24 hours (n=60).
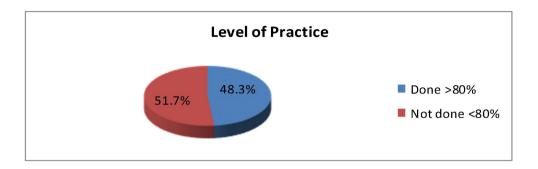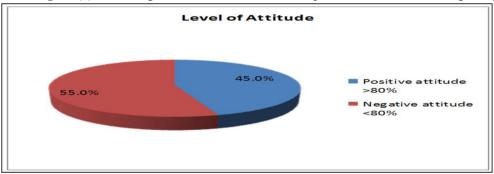
Figure (2): Percentage distribution of total nurses' practice in first 24hours regarding

patients with stroke (n=60).

Figure (3): Total percentage distribution of nurses' attitude in the first 24 hours regarding patients with stroke (n=60).
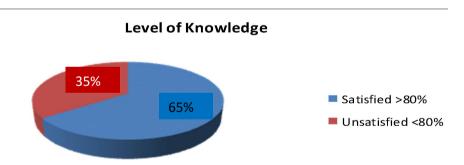
Table (2): Correlation between nurses' practices, attitude and knowledge in the first 24 hours regarding patients with stroke (n=40).

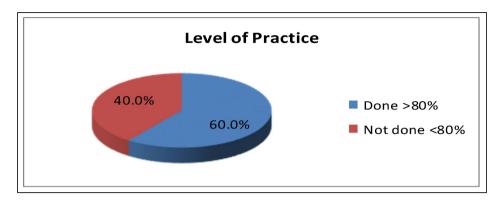|		Total score of Attitude	Total score of Knowledge	Total score of Practice
Total score of Attitude	R		0.427	0.605
	p-value		<0.001**	<0.001**
Total score of Knowledge	R	0.427		0.533
	p-value	<0.001**		<0.001**
Total score of Practice	R	0.605	0.533	
	p-value	<0.001**	<0.001**	

**p-value <0.001 HS

Table (3): Number and percentage distribution for demographic characteristics of the studied neurologists and ICU physicians (n=40).
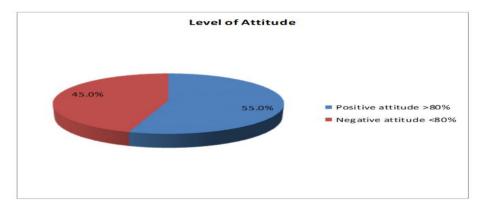
Demographic data items	N	%
Age (years)		
20- <30	12	30.0%
30- <40	16	40.0%
40- <50	8	20.0%
50 or more	4	10.0%
Mean± SD	36.10±7.94	
Gender		
Male	32	80.0%
Female	8	20.0%
Level of education		
Bachelor	13	32.5%
Postgraduate	27	67.6%
Years of experience		
<5	13	32.5%
5- <10	15	37.5%
10-<15	8	20.0%
≥15	4	10.0%
Mean±SD	8.38±2.68	
Training Courses		
Yes	24	60%
No	16	40%

Level of Knowledge

Figure (4): Total percentage distribution of neurologists and ICU physicians' knowledge in the first 24 hours regarding patients with stroke patients (n=40).

Figure (5): Total percentage distribution of neurologists and ICU physicians' practices in the first 24 hours regarding patients with stroke (n=40).

Figure (6): Percentage distribution of neurologists and ICU physicians' attitude in the first 24 hours regarding patients with stroke (n=40).

Table (4): Correlation between neurologists and ICU physicians' practice, attitude and knowledge in the first 24 hours regarding patients with stroke (n=40).

		Total score of Attitude	Total score of Knowledge	Total score of Practice
Total score of Attitude	R p-value		0.456 0.003*	0.724 <0.001**
Total score of Knowledge	R p-value	0.456 0.003*		0.583 <0.001**
Total score of Practice	R p-value	0.724 <0.001**	0.583 <0.001**	

*p-value <0.05 S; **p-value <0.001 HS

Discussion

The results of the present study revealed that, the **mean age** of nurses under the study was 34.5±8.28 year.

These findings "from the researcher point of view" could reflect the importance of young age of nurses in care in the first 24 hours regarding patients with stroke " This result was

similar with the result of study performed by **Abd El-Hay, Abed Allah, & Tag El-Din (2018)** which entiteled "effect of implementing designed educational training program for neurological nurses on clinical outcomes of stroke patients", who stated that more than two fifth of the studied nurses their age ranged from 30-<35 years with mean ± SD 31.4±1.05.

Regarding to **gender**, the present results showed that, the majority of the studied nurses were female. This result may be due to the relationship between nursing and female gender throughout the history of nursing. This result was accordance with the study done by **Das et al. (2016)** which entiteled "knowledge, attitude, and practice the health team in relation to stroke, which revealed that more than three quarters of nurses under the study were female.

Concerning **level of education,** the results reveled that, one third of them had nursing diploma. From the researcher's point of view "could be due to most of bedside nurses who work in governmental hospitals diploma nurses". The present study is consistent with the study done by **Abd-Allah et al. (2018)** which entitled "stroke burden in Egypt: data from five epidemiological studies", who reported that more than one third of nurses under the study had nursing diploma.

Related to **years of experience**, the finding of the current study revealed that, more than one third of the studied nurses had experience less than 5 years. These findings "from the researcher point of view" could reflect the importance of continuing education and encourage nurses to update their knowledge and practices, especially the majority of the studied sample was young adults who have the ability to acquire knowledge and change their behaviors.

This result approved with the study performed by **Liu & Xu (2019)** which entitled "cognition of nurses in neurology department on rehabilitation nursing", who revealed that the mean years of experience was less than five years. While the present study was inconsistent with **Islam (2018)** which entitled "factors influencing performance of stroke management among nurses in Bangladesh", who reported that the mean of years` experience was more than ten years.

Regarding **training courses**, the finding of the current study illustrated that, two third of the studied nurses didn't receive training courses about stroke care. "from the researcher point of view" this results could reflect the importance of continuing education and encourage nurses training and courses". Approximately the same finding was indicated in the study done by **Hattachot (2017)** which entitled "effects of discharge planning program on knowledge and activities of daily living of stroke patients in stroke unit", who found that more than half of the studied sample did not receive training programs. This result "from the researcher point of view" could be due to nurses weren't motivated, interested or didn't have time to receive training programs about caring of patient with stroke.

Concerning nurses' **total knowledge** regarding patient with stroke in the first 24 hours, the finding of the current study revealed that, two thirds of the nurses under the study had unsatisfactory level of total knowledge regarding patients with stroke in the first 24 hours. This result may be due to due to lack of pre-employment orientation, deficiencies in training courses and increased work load which may hinder nurses' ability to read and upgrade their

knowledge regarding stroke care and management in the first 24 hours. This result approved with the study performed by **Gleeson (2019)** which entitled " knowledge of acute stroke guidelines amongst physicians and nursing staff in a university hospital" who found that less than two thirds of the studied sample had unsatisfactory level of total knowledge about acute stroke guidelines.

Concerning nurses' **total practices** regarding care for patient with stroke in the first 24 hours, the finding of the current study revealed that, about more than half of nurses under the study had unsatisfactory level of total practices regarding care for patient with stroke in the first 24 hours. From researcher point of view, this result may be due to unavailability of procedures book for the nurses at the unit, the training unit was based on theoretical training and lack of supplies & equipment that used during procedures in the first 24 hours. This result approved with the study performed by **Ugu, Sukhpal, Dheeraj, & Ashish (2019)** which entitled "development of a nursing care protocol for patients with stroke in the first 24 hours of thrombolysis" who found that more than half of the studied nurses were incompetence regarding to total practice for patient with stroke in the first 24 hours of Thrombolysis. Also, this result was agreement with the study done by **Singh et al. (2016)** which entitled "assessing knowledge and practice of nurses in emergency and outpatient department", which revealed that more than three quarter of the studied nurses were incompetent regard to emergency assessment

Concerning nurses' **total attitude** regarding care for patient with stroke in the first 24 hours, the finding of the current study revealed that, more than half of them had a negative attitude. This

results may be due to decrease the awareness of nurses about care of patient with stroke in the first 24 hours due to lack of continue training and instruction from supervisors. This results approved with the study performed by **Loft et al. (2017)** which entitled "nurses' beliefs, attitudes and actions related to role and function in an inpatient stroke unit —A qualitative study", who found that more than half of the studied nurses had a negative attitude related to the role and function in an inpatient stroke unit. While this results disagreement with the study done by **Das et al. (2016)** which entitled "knowledge, attitude, and practice of the health team in relation to stroke: A community-based study", who found that about more than half of the studied nurses had positive attitude regarding care for patient with stroke.

According to **the correlation** between total knowledge score of the studied nurses about care of patient with stroke in the first 24hrs and their practice and attitude, the present study indicated that, there was a positive correlation between level of knowledge and their level of practice and attitude. This could be explained as satisfactory level of knowledge among nurses was more encountered among those nurses with satisfactory level of practice and positive attitude. This results approved with the study performed by **Loft et al. (2017)** which entitled "nurses' beliefs, attitudes and actions related to role and function in an inpatient stroke unit —a qualitative study", who found that there was a positive correlation between level of knowledge and their level of practice. While this results disagreement with the study done by **Škodrić et al. (2019)** which entitled" assessment of nursing care-associated predictors of in-hospital mortality in the patients with acute ischemic stroke", who found that there was no correlation between level of

knowledge about acute ischemic stroke and their attitude.

According to **age** of the neurologists and ICU physicians under the study, the finding of the current study revealed that, the mean ± SD age of them was 36.10±7.94 year. from the researcher point of view" could reflect the importance of young age of the neurologists and ICU physicians in care regarding patients with stroke in the first 24 hours" This result similar with the result of study performed by **Robinson, M., & Holloway (2017)** which entitled "Emergency care in neurology", who found that less than one quarter of the studied sample their age ranged from 30-<40 years with mean ± SD 35.7±4.12.

Regarding **gender**, the results of the current study indicated that, the majority of the studied neurologists and ICU physicians were male. from the researcher point of view", this result may be due to the difficulty nature of this specialty". This result was accordance with the study done by **Baatiema et al. (2017)** which entitled "health professionals' views on the barriers and enablers to evidence-based practice for acute stroke care", which revealed that more than three quarters of neurologists and ICU physicians under the study were male.

In relation to the **educational level** and **training courses** of the studied neurologists and ICU physicians under study, it was found that, more than two third and two third of them had postgraduate studies and receive training courses respectively. This may be due to the nature of this specialty which requires obtaining postgraduate studies. The results of the current study was consistent with the study done by **Alkharboush et al. (2018)** which entitled "assessment of patients' medical fitness to drive by

primary care physicians", who revealed that more than two third and about two third of the studied sample had postgraduate studies and receive training courses respectively.

Related to **years of experience**, the finding of the current study revealed that, more than one third of the studied neurologists and ICU physicians had had experience 5 to less than 10 years with mean 8.38±2.68. This may be due to more than one third of the studied neurologists and ICU physicians their age ranged from 30-<40 years. This result approved with the study performed by **Damkliang, Considine, Kent, & Street (2015)** which entitled "health teams' perceptions of using an evidence-based care bundle for initial emergency nursing management of patients with severe traumatic brain injury", who found that the mean years of experience was less than ten years.

Concerning neurologists and ICU physicians' **total knowledge** in the first 24 hours regarding care for patient with stroke, the finding of the current study revealed that, more than two third of neurologists and ICU physicians had satisfactory level of total knowledge. This result may be due to their experience and knowledge background about care for patient with stroke in the first 24 hours and attending training courses. This results approved with the study performed by **Yan et al. (2016)** which entitled "prevention, management, and rehabilitation of stroke in low-and middle-income countries", who found that about two third of the studied sample had satisfactory level of total knowledge regarding care for patient with stroke.

Concerning neurologists and ICU physicians' **total practice** in the first 24 hours regarding care for patient with stroke, the finding of the current study

revealed that, two third of the studied neurologists and ICU physicians had satisfactory level of total practice. This result may be due to their experience and practice background about care for patient with stroke in the first 24 hours and attending training courses. This results approved with the study performed by **Robinson & Holloway (2016)** which entitled "emergency care in neurology in mayo clinic proceedings", who revealed that about more than two third of the studied sample were competent regarding to practice about care for patient with stroke.

Concerning neurologists and ICU physicians' **total attitude** in the first 24 hours regarding care for patient with stroke, the finding of the current study revealed that, more than half of the studied neurologists and ICU physicians had positive attitude. This high result may be due to increase the awareness and practice of neurologists and ICU physicians about care of stroke due to continue training and instruction from supervisors. This results approved with the study performed by **Trogrlić et al. (2017)** which entitled "attitudes, knowledge and practices concerning delirium", who found that about more than half of the studied sample had positive attitude regarding to care for patient with delirium.

According to **the correlation** between total knowledge score of the studied, their practice and attitude in the first 24hrs about care of patient with stroke, the present study indicated that, there was a positive correlation between level of knowledge and their level of practice and attitude. This result approved with the study performed by **Schaefer & Friedman (2017)** which entitled "initial assessment and triage of the stroke patient. progress in cardiovascular diseases", who found that there was a positive correlation

between level of knowledge of the studied sample and their level of practice. Also these results approved with the study performed by **Yan et al. (2016)** which entitled "prevention, management, and rehabilitation of stroke in low-and middle-income countries", who found that there was a positive correlation between level of knowledge of the studied sample and their level of attitude.

Conclusion

For nurses, the results of this study concluded that, there was a highly statistically significant relation between nurses' knowledge, practices and attitude, about two third of nurses had an unsatisfactory level of knowledge, about more than half of them had unsatisfactory level of practice, more than half of them had a negative attitude and a positive correlation between the total score of nurses' attitude, knowledge and practice.

For neurologists and ICU physicians, the results of this study concluded that, there was a highly statistically significant relation between neurologists and ICU physicians' knowledge, practice and attitude, more than two third of neurologists and ICU physicians had satisfactory level of knowledge, about two third of them had satisfactory level of practice, more than half of them had positive attitude and a positive correlation between the total score of neurologists and ICU physicians' attitude, knowledge and practice.

Recommendations

- Establish in- service educational and training programs for continuous updating health team's knowledge and practice especially nurses about stroke management.

- Provide illustrated available booklet for health team caring of patients with cerebrovascular stroke including comprehensive guide lines about CVS management.

- Develop a protocol for stroke management especially in the first 24 hours written in Arabic and English which contain intervention for stroke in the first 24hours, GCS, potential stroke complications and how to assess patient and health team during care of patient with stroke.

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