Discussion

DISSCUSSION

Stroke is a medical emergency, which represents a sudden and catastrophic event, carrying a significant risk of death. Appropriate initial management through recognizing and responding immediately to the warning signs of stroke within three hours of the onset of symptoms can reduce disability and mortality resulting from stroke. Educating the ENs to deal with stroke as a brain attack is crucial. (**Panagos, 2012**).

Emergency nurses are usually the first clinicians to assess these patients and to identify signs and symptoms of ischemic stroke. Emergency nurses are in the forefront of providing interventions to preserve ischemic cerebral tissue and prevent further neurological deficits. Emergency nurses play a critical role in reducing the disability that may result from ischemic stroke through their prompt recognition of stroke signs and symptoms, initiation of appropriate response efforts, and provision of interventions and education for preventing subsequent stroke. As the continuum of ischemic stroke care begins in the emergency department, detailed recommendations for evidence-based emergency nursing care should be included in all multidisciplinary guidelines for the management of acute ischemic stroke (**Westneat, 2011).**

Evidence-based stroke information needs to be disseminated to nurses caring for these patients to ensure a positive clinical outcome. Evidence-based stroke interventions have reduced the morbidity and mortality associated with stroke. Often, nurses feel that they are using "evidence" to guide practice, but their sources of evidence are not research-based. Nurses most used resources of knowledge were experience or advice from their nursing colleagues or doctors.

The discussion of the findings of the study covered three main parts: the first part concerned with socio-demographic data of the nurses under the study, the second part concerned with the nurses' level of knowledge about evidence-based nursing practice of ischemic stroke patients. Finally the third part discussed the relation between nurses' knowledge about evidence-based nursing practice of ischemic stroke patients and their demographic data.

Part I: Socio-demographic data of the nurses under the study

Regarding demographic characteristics of the studied nurses, the result of the current study revealed that all the study nurses were females, this result was consistent with **Ali (2010)** and **Ibrahim (2012),** who mentioned that the majority of study nurses were females. Moreover, this result was in accordance with **Victor et al,(2012)** who reported in his study about knowledge and behavior of nurses toward caring of elderly stroke patients that about two thirds of the study nurses were females. All of these results may suggest that there is a gender bias toward the nursing profession.

In relation to age of the studied nurses, the results of the current study revealed that about two thirds of nurses was between the age of 31 to 40 years this may suggest that nurses may have more experience and knowledge that can be reflected on their practice. This was not in agreement with **Ibrahim (2012)** who found that slightly less than three quarters of nurses were between the age of 20-30 years old. In addition **Victor et al,(2012)** reported that about two thirds of nurses were between 20-30 years old.

Concerning the level of education of the studied nurses, the result of the current study showed that the majority of nurses (90%) were

technical nurses while small percentage of them were specialist nurses. This may have a notable effect on the quality of care delivered to patients in emergency because specialist nurses compared with technical nurses have good knowledge , professional nursing skills, can provide high quality nursing care for patients. The result of the current study was congruent with **Nader (2000)** who found that technical nurses constitute the largest number of nursing staff in Egypt. Also Ali **(2010)** stated that the majority of nurses were recruited as technical nurses in the majority of the clinical nursing positions in hospitals. In addition this result was supported by **Salama (2002)** and **Wilson (2007)** who commented that more than half of nurses had got diploma in nursing comparing with few number of nurses had got bacholar degree in nursing science. However these results was not on the same line with **Harper (2007)** who reported that more than two thirds of nurses in his study was specialist nurses. Also **Victor et al,(2012)** documented that half of nurses who participated in his study was specialist nurses.

As regard years of experience in emergency, the result of the present study showed that about three quarters of nurses had more than 11 years of experience. Clinically expert nurses are distinguished from their colleagues by their ability to make critical decisions efficiently while evaluating the whole nature of a critical situation. Experience develops when nurses integrate both theoretical and practical knowledge in actual clinical situations which consequently influences nurses' clinical judgment and quality of care. For example, in a study that used the patient care unit as the level of analysis, researchers found that a higher proportion of nurses with ≥ 5 years of experience was associated with fewer medication errors and lower patient fall rates **(Blegen 2001)**. Similarly, **Clark (2002)** examined the effect of mean nurse experience

at the hospital on nurse needle stick injuries; he concluded that a low mean experience level was associated with more miss needle stick incidents. But **Aiken (2003)** assessed the influence of the mean years of experience among nurses on surgical patient mortality in 168 hospitals, he found that the mean experience level was not a significant predictor of mortality.

As for training courses of the studied nurses, the result of the present study showed that small percentage (8%) of nurses received training courses regarding care of ischemic stroke patients. This may be due to lack of in-service training programs which is very important in improving quality of care, achieve better therapeutic outcome and prevent ischemic stroke complications. This result was in harmony with **Harper (2007),** who found that only 15% of emergency nurses reported that they had participated in continuing education on evidence-based ischemic stroke care. In contrast to **Tyranils (2012)** who found that about three quarters of emergency nurses reported that they had completed stroke specific continuing education program.

In Egypt, **Refai (2006)** reported in his study about emergency nursing care for critically ill patient: impact of a designed teaching protocol on nurses knowledge and practices at intensive care units of Benha university; that the mean knowledge and practice scores of emergency nurses increased after implementation of a teaching program. In addition the importance of continuous in-service training programs was supported by **Taha (2007)** who documented that need for continuous in-service training programs is very important for the purpose of refreshing and updating the knowledge and performance of nurses working with critically ill patient and should be followed by continuous evaluation.

The lack of training courses may be due to a manager's decision to fund training that may be determined by cost or number of staff in every shift because staff shortages made it difficult to undertake training. Also duration of training, skill deficit and knowledge acquisition required by medical and nursing staff factors that contribute to lack of training courses. Stroke education was seen as pivotal to improve patient care and job performance. In addition the nursing staff spend the most time with the patient and must have excellent knowledge about evidence-based nursing practice of ischemic stroke patients to provide competent care and work collaboratively with the physician and other team members.

Part II: Nurses' knowledge about evidence-based nursing practice of ischemic stroke patients

Because of the narrow therapeutic windows for treatment of acute ischemic stroke, timely ED evaluation and diagnosis of ischemic stroke are paramount. Hospitals should create efficient pathways based on evidence based practice to be able to manage stroke patients in the ED and inpatient settings effectively. This should include the ability to receive, identify, evaluate, treat, and/or refer patients with suspected stroke, as well as to obtain access to stroke expertise when necessary for diagnostic or treatment purposes.

From the view of **McKenna, (2007)** who emphasized that nurses who had knowledge based on scientific evidence, have been able to make better decisions, give higher quality care, shorten patient's hospital stay, reduce costs, and bring better cost effectiveness for the patient. Similarly **Oh et al., (2010)** reported that the use of evidence-based education on nursing students resulted in high performance and good results. On the same line **Carlson (2010)** reported that the use of evidence-based care for

reducing anxiety in cancer patients beginning chemotherapy is highly effective.

In this respect **Kenari (2014),** in his study about Effect of Evidence Based Method Clinical Education on Patients Care Quality and their Satisfaction; mentioned that the use of evidence based practice leads to improved critical thinking, independent clinical decisions and ultimately improve the quality of nursing care. Also, Kenari added that the major obstacles in using evidence-based approach in his study were lack of practical nursing research, lack of skills to access and evaluate research evidence, lack of institutional support and insufficient time.

Concerning the nurses' total knowledge about evidence-based nursing practice of ischemic stroke patients, the findings of the current study stated that more than three quarters of nurses had un satisfactory knowledge about evidence-based nursing practice of ischemic stroke patients. This lack of knowledge can be reflected on nurses' performance. In this behave **Ali (2010)** reported that nurses knowledge about stroke care was below average grade in half of nurses. This may be due to few training courses that were conducted in hospitals, also all of nurses may not be included, shortage of high qualified nurses and lack of close supervision. The same result was found in the study of **Ibrahim (2012)** who mentioned that about two thirds of nurses at intensive care unit had unsatisfactory knowledge about care of cerebrovascular stroke.

Meanwhile, **Harper (2007)** reported that mean test scores of ENs was 53% on multiple choice questions designed to assess knowledge of evidence-based ischemic stroke care. Similarly, **Westneat (2011)** reported that mean test scores of emergency nurses was 58% on a scale of 0 to 100%. Westneat referred this to reading ischemic stroke care

literature or attending continuous stroke-specific education programs. Furthermore this result was not on the same line with **victor et.al, (2012)** who reported that less than one third (29%) of nurses had poor knowledge. He found also that near one third (32%) had excellent knowledge, he also added that the remaining 39% had a moderate level of knowledge about care of elderly stroke patient.

As regard to items of general knowledge about evidence-based nursing practice of ischemic stroke patients, it was found that more than half of the study nurses had unsatisfactory knowledge regarding definition, incidence. Also the study reveals that about three quarters of nurses had unsatisfactory knowledge concerning risk factors and causes & pathophysiology of ischemic stroke. This may be due to lack of their awareness about the importance of these aspects or thinking that doctors only are the persons who should know such theoretical parts. These results was in accordance with **victor et.al, (2012)** who supposed that nurses had insufficient knowledge about signs &symptoms and etiology of stroke but had sufficient knowledge about risk factors of stroke.

Assessment is an essential nursing skill that gathers different health information to strengthen nurses' decision about nursing interventions and prioritize nursing actions. Emergency nurses should have an excellent knowledge about assessment of patient with ischemic stroke in emergency because it is the corner stone for providing accurate nursing care for the patient. The detailed assessment may be conducted by the emergency physician, stroke expert or emergency nurse. The initial neurological examination should be brief but comprehensive.

Regarding nurses' knowledge about assessment of patient with ischemic stroke, the study results revealed that most of nurses had

unsatisfactory knowledge about assessment of patient with ischemic stroke. In addition more than half of nurses had unsatisfactory knowledge about clinical manifestations of ischemic stroke which constitutes a vital part in assessment of patient with ischemic stroke. These results was congruent with **Al-Haddad (1997)** who stated that the majority of nurses had unsatisfactory knowledge regarding signs and symptoms of stroke. Moreover, **Barkel (2007)** reported that more than half of emergency nurses didn't have knowledge about assessment of ischemic stroke patient in emergency. On the opposite side **Lorraine (2008)** found that paramedics' diagnosis of stroke was accurate in 72% of the 446 cases of stroke admitted to emergency department; this diagnostic accuracy may be the result of continuous education programs for the nursing staff.

According to the ASA, several diagnostic tests should be emergently performed as indicated for patients with suspected ischemic stroke, laboratory tests to consider in all patients include blood glucose, electrolytes with renal function studies, complete blood count with platelet count, cardiac markers, prothrombin time (PT), international normalized ratio (INR), and activated partial thromboplastin time (aPTT) platelet count.

As for nurses' knowledge about diagnostic tests for ischemic stroke patients, the results of the current study revealed that slightly less than three quarters of the study nurses had unsatisfactory knowledge regarding laboratory investigations for ischemic stroke patients. This may be due to their beliefs that these aspects should be acquainted by the physician. These results were supported by **Watts, Gibbons &Kurzweil (2011)** who found that less than one fifth of the study nurses had satisfactory knowledge regarding laboratory investigations of stroke. In the same line

Ibrahim (2012) mentioned that three quarters of the ICU nurses had unsatisfactory knowledge about laboratory investigations of stroke.

In relation to nurses' knowledge about emergency nursing care of ischemic stroke patients, the present study showed that majority of nurses had unsatisfactory knowledge regarding emergency nursing care of ischemic stroke patients. This may be due to lack of continuous training programs and majority of nurses were diploma nurses whose knowledge was poor. Those results was in agreement with **Ali (2010) and Ibrahim (2012),** who stated that more than two thirds of the ICU nurses had unsatisfactory knowledge about nursing care of patients with cerebrovascular stroke.

Intravenous fibrinolytic therapy for acute ischemic stroke is now widely used. Its use is associated with improved outcomes for a broad spectrum of patients who can be treated within 3 hours of ischemic stroke symptoms onset. The nurse is responsible for administration of rtPA to eligible patients. Concerning the nurses' knowledge about nursing care during tissue plasminogen activator administration, the current study results revealed almost all of nurses had unsatisfactory knowledge about nursing care during tissue plasminogen activator administration this may be due to absence of use of tissue plasminogen activator in Egyptian governmental hospitals as it is a very expensive drug furthermore it needs a high qualified health care team. Moreover during administration; it needs accurate observation from doctors and nurses to avoid incidence of intra cranial hemorrhage as the most serious complication of tissue plasminogen activator administration.

Patients suffering acute ischemic stroke are predisposed to a multiple complications, so the prevention of complications is fundamental to improve outcomes remains the responsibility of health

care team. Bleeding assessment after administration of rtPA is the responsibility of the nurse, who monitors the patient for major and minor bleeding complications in the first 24 to 36 hours after administration of rtPA. The potential for life-threatening deterioration highlights the need for close observation and assessment. To avoid complexity of severe stroke and potential complications; multidisciplinary care teams composed of neurologists, and neurosurgeons, as well as high qualified nursing staff, are required to optimally manage these patients and decrease their morbidity and mortality rates.

Concerning nurses' knowledge about complications of ischemic stroke, the results of the current study showed that slightly less than three quarters of the study nurses had unsatisfactory level of knowledge regarding complications of ischemic stroke .These results supported by **Ibrahim(2012)** and **Mohammed (2012)** who found that more than three quarters of nurses had un satisfactory knowledge regarding complications of stroke. This may be due to lack of nurses interest to know this part and think that their role is restricted to giving medication only.

Part III: Relation between the nurses' knowledge about evidence-based nursing practice of ischemic stroke patients and their demographic data.

As regard to nurses age and job title, the current study finding revealed that there was a significant relation between nurses' total knowledge about evidence-based nursing practice of ischemic stroke patients and both age and job title, which emphasizes the fact that the more increase in nurses age the more knowledge they had, also that means that the senior nurses of higher age category don't take administrative role only but also they are not away from the practical field. In contrast to **Taha (2007)** and **Ibrahim (2012)** who found that

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there was no statistically significant relation between nurses' performance (knowledge and practice) and age. On the same view of **Taha (2007)** and **Ibrahim (2012), victor et al, (2012)** concluded that there was no statistical relation between nurses knowledge and their age, gender, educational qualification.

The results of the current study showed that there was statistically significant relation between nurses' total knowledge about evidence-based nursing practice of ischemic stroke patients and nurses' educational level. The nurses who graduated from faculty of nursing take administrative role in emergency department beside their role in case management. In this respect, **Salah (1998)** reported that the nurses' level of education had a great impact on their knowledge and skills regarding patient care. This result was not in harmony with **Al Ahmadi (2009)** who showed that level of education is negatively correlated with job performance, indicating that the higher level of education, the lower job performance of nurses. Additionally this result was not supported by **Ibrahim (2012)** who stated that there was no statistically significant relation between nurses' knowledge regarding care of patient with cerebrovascular stroke and their educational level.

The results of the present study revealed that there was statistically significant relation between nurses' overall knowledge about evidence-based nursing practice of ischemic stroke patients and their years of experience in ED. This result was supported by **Harper (2007)** who documented that there was a significant relation between number of years worked in emergency nursing as a specialist nurse and test scores, nurses with more years experience in emergency nursing had higher test scores. In another study, **Bobay et.al,(2009)** found that years of experience were associated with expertise in five hospitals. In addition **Matthew (2011)**

reported that work experience influences nurses' performance. But this result was not in accordance with **Jones (2010)**, who demonstrated that there was no statistically significant relation between nurses' knowledge regarding care of patient with cerebrovascular stroke and their years of experience. Moreover **Traynelis (2012)** reported that there was no statistically significant relation between ENs' knowledge of evidence-based ischemic stroke care and their years of experience.

Finally, the result of present study showed that there was statistically significant relation between nurses' total knowledge about evidence-based nursing practice of ischemic stroke patients and attending workshops about nursing care of ischemic stroke patient. This results was in the same line with **Harper (2007)** and **Westneat (2011)** who reported that emergency nurses who attend training programs about evidence-based ischemic stroke care had a significantly higher mean test score than did respondents who did not attend training programs about evidence-based ischemic stroke care.

Although the generalizability of the survey findings is limited, the knowledge deficit among the emergency nurses regarding evidence-based ischemic stroke care is of concern. Nurse educators and hospital administrations must continue to identify learning needs and provide opportunities for evidence-based continuing education to close the research practice gap. Nurses are accountable for life-long learning and must take every advantage of educational offerings. Only when research evidence is utilized in practice this can provide high quality care for patients. Nurses should be provided with evidence-based education on ischemic stroke care and opportunities to participate in continuing education to ensure a positive clinical outcome.