

Effect of designed nursing guidelines on anxiety level of patients undergoing Electroencephalogram"

Faten Shawky Mohamed, Ghaydaa Ahmed Shehata & Asmaa Sayed abdAlmageed.

Head nurse in Assiut University student's Hospital, Assiut university, Egypt.

Assistant Professor of Neurology, Faculty of Medicine, Neurology and Psychiatry Department, Assiut University, Egypt.

Lecturer of Medical Surgical Nursing , Faculty of Nursing , Adult Nursing Department Assiut university, Egypt.

Abstract

Aim of the study was to evaluate effectiveness of designed nursing guidelines on anxiety level for patient undergoing EEG procedure **Patients and Methods** Quasi-experimental study design was utilized in this study; hypothesis were formulated : The knowledge score for patients whom take designed nursing guidelines was higher than who didn't take. (2)The anxiety level for patients whom take guideline will be better than patient's who didn't take **the sample** was (60) adult patients from both sex who were admitted in electroencephalogram unit at hospital . Two Tools were used interview Patients assessment questionnaire, and anxiety scale. **Results** showed a significant difference was found between the two groups as regard patient's knowledge about EEG procedure in all items. A significant difference was found between the two groups regarding level of anxiety It was **concluded** that, level of knowledge for patients whom take designed nursing guidelines was higher than who didn't take any designed nursing guidelines also level of anxiety was lower in patients whom take designed nursing guidelines about EEG procedure. **Recommendation** each patient is given booklet included nursing guidelines about EEG procedure, preparation before and during procedure and illustrate after procedure.

key words: *nursing guidelines, level of anxiety & Electroencephalogram(EEG).*

Introduction

An electroencephalogram (EEG) is the examination which records the spontaneous electrical activity of neurons in the brain. The plot thus obtained is called electroencephalogram. The electroencephalogram has been used for many purposes; it can help to diagnose seizures disorders, head injury, headaches, brain abscess, comatose states, attention problem, drug or alcohol abuse, monitor brain during brain surgery, and sleep problem. (Krumholz., 2007 & www.telemex.com).

Patient undergoing (EEG) needs special preparation before procedure such as wash and dry hair but not use any hair styling products, certain medication may stop before the procedure such as (sedative and tranquilizers, muscles relaxants sleeping aids or medicines used to treat seizures) this medicine can affect the brain's usual electrical activity and cause abnormal procedure result. don't eat or drink foods that have caffeine (such as coffee, tea, cola and chocolate) for 8 hours before the procedure and avoid fasting the night before or day of the procedure, since low blood sugar may influence the results of EEG. (Krumholz, 2007).

During the routine (EEG) procedure patient is asked to lie on back on bed or relax in chair, the technologist will attach several a small and flat metal disks (electrodes) to different place on the scalp, usually with especial conducting past ,each electrode

is attached by wire to machine. Patient may be asked to perform certain tasks, such as breathing exercises or closing eyes, or be subjected to stimuli such as flashing lights or noise. (Adams, 2007) .

After the procedure is complete, the technician will remove the electrodes and remove any remaining glue, the patient will be instructed when to resume any medications, the patient generally will be ready to go home immediately after procedure. E.E.G is painless procedure that takes "30 to 45 minutes" Some specialized types for electroencephalogram as strobe lighting, sleep electroencephalogram, sleep deprived, ambulatory electroencephalogram and video telemetry electroencephalogram . (Fitzpatrick W, 2007) .

If a patient's typical seizure pattern changes, should notify the doctor. If patient experiences any changes in mental status or any new weakness numbness, new onset seizures, or increase in the usual number of seizures, an altered mental status should go to the nearest emergency department for treatment. Some factors affecting E.E.G interpretation such as age, medication, pathological brain condition environment, head movement, eye movement, sweating and electrode paste. (Diamond Vrocher, 2008).

The nurse should have a role in E.E.G procedure, such as review the patient clinical record to determine

the reason for E.E.G , what the patient has been told about procedure, check the patient medication history for drugs, determine patient's knowledge of purpose of E.E.G, tell the patient that E.E.G is safe, painless and no radiation or X-ray involved procedure, explain to the patient events which will occur prior to E.E.G and explain events that will occur during procedure and events after procedure (David, 2006).

Patient undergoing electroencephalogram may be exposed to anxiety. Anxiety is emotional and physiological response to known and unknown causes that may range from a normal reaction to extreme dysfunction in active of an anxiety disorder, affect decision making and adherence to treatment, and impair function and/or affect quality of life. The patient exposed to anxiety related to pain feeling of helplessness, loss of control, embarrassment, past negative experience and fear of epileptic convulsions. Some symptoms of anxiety include trouble sleeping the night before procedure , get increasingly nervous while the patient is in the waiting room. (Elverne, 2012).

So, nurse should have a role to decrease anxiety, the primary role of the nurse is pre procedure teaching. This process includes assessment of the patient's learning needs and their readiness to learn. Under ideal condition patient teaching should occur prior to the immediate pre procedure period. The teaching should be multimodality and should be reinforced throughout the pre procedure period , nurses also play a direct role in patient education they may describe a procedure , letting a patient know what to expect and what potential outcomes may be to try to reduce patient anxiety is pre procedure teaching this process includes assessment of patient knowledge about (E.E.G) procedure, throughout the procedure period, nurses also play a direct role in patient education they may describe a procedure, letting a patient know what to expect and what potential outcomes, may be to try to reduce patient anxiety. (Miaskowski B, 2005)

Significance of the study

From the experience of the researcher in electroencephalogram unit, patient undergoing electroencephalogram may expose to anxiety because fear of pain , feelings of helplessness and loss of control , negative past experience and fear of Epileptic convulsions so this study will help to improve patient knowledge about electroencephalogram procedure and minimize level of anxiety for patient in Assiut university student's hospital.

According to patient's record through years (2011) – (2013) it was found that there were 570 patients performed electroencephalogram procedure . For this reason study will be done to improve patient's

Knowledge about electroencephalogram procedure and minimize level of anxiety for patient's in Assiut University Student's Hospital.

Research design

Quasi-experimental study design was utilized in this study.

Setting of the study

The study conducted in Assiut university student's hospital at electroencephalogram unit.

Hypothesis

- 1- The knowledge score of patient who receiving knowledge and designed nursing guidelines about electroencephalogram procedure will be higher than patient who isn't receiving knowledge and designed nursing guidelines.
- 2- The anxiety score for patient who is receiving knowledge and guidelines about electroencephalogram procedure will be better than patient's who not receiving knowledge and guidelines.

Study variables

The independent variable in this study was the designed nursing guidelines for patients undergoing E.E.G procedure. The dependent variables were the improving of patient knowledge and anxiety level.

Sample

Sample of (60) adult students patients from both sexes who were admitted in electroencephalogram unit .Those 60 students patients were equally divided into random sample study and control groups (30 for each).

Random sample (one from study sample and one from control sample)

-Study group were the patients who exposed to the designed nursing guidelines about EEG procedure.

-Control group were the patients who came to do EEG procedure and didn't exposed to the designed nursing guidelines about EEG procedure.

Inclusion Criteria

- 1-Student Adult conscious patients.
- 2-Both sexes (male and female).
- 3-First time electroencephalogram

Tools of data collection

Data collected through using the following tools:

1-Structured interview questionnaire sheet

Part I: socio-demographic characteristics e.g (name, age, gender, address, marital status, level of education.)

Part II: patient information about preparation and EEG procedure to assess patient's knowledge about pre procedure preparation before, and during procedure and assess patient's knowledge as regard to EEG information (e.g how to prepare the patient before procedure, if necessary wash hair and not put oil or cream before procedure ,if necessary stop

treatment before procedure and after doctor advice ,if necessary fasting before procedure, food & drink must stop before procedure, if necessary close eyes during procedure, is it procedure cause pain or not ,is it possible to speak or participate in dialogue during procedure or no , definition of EEG, indication of EEG as a general, reason of EEG for patient , information about EEG procedure, duration of procedure .)

Scoring system

Each right answer was given one score and zero for wrong answer, definition given two score because it is divided into two parts. Indication for EEG procedure given five score because it is divided into five parts. Preparation before EEG procedure given five score because it is divided into five parts. Food must be avoided before EEG procedure given four score because it is divided into four parts. The total score of questionnaires was 26 degree. The questionnaire sheet was developed in Arabic language to assess patient's knowledge about EEG procedure. The researchers developed this tool (Annex A)

Tool II: "anxiety scale" (Humphris, 2000)

To determine the level of anxiety. Total score is a sum of all five items range from 5 to 25.

. Not anxious = 1, Slightly anxious = 2, Fairly anxious = 3, Very anxious = 4, Extremely anxious = 5
19 or above which indicates a highly anxious patient. (Annex B).

Methods for data collection

Ethical approval

1-An official permission to conduct the study was obtained by the researcher from the director of Assuit University Student's Hospital. At initial interview, each patient was informed with the purpose of the study. The investigator emphasized that the participant is voluntary and confidentiality and anonymity of subjects will be assured through coding of all data.

2-This study approved by research ethical committee of faculty of nursing in Assiut University.

Data collection

1-A review of current and past, local and international related literature in the various aspects of the problems using books, articles, periodicals, and magazines was done. The proposed study setting was assessed for the numbers of patients in the electroencephalogram unit in Assuit University Student's Hospital.

2- A pilot study was conducted on 10% (6) patients to test the clarity and applicability of the tool. According the modification was done.

3- Confidentiality of the data was asserted. Explanation the aim and of the study was explained to patients by the researcher. The right

to refuse to participate in the study was emphasized to the patients.

4- The researcher collected the data from patients by applying tool (I & II). The study was carried out at morning shifts.

Content validity

It was established by panel of five expertise (3 Lecturer of Medical Surgical Nursing , Faculty of Nursing ,Adult Nursing Department Assiut university and 2 doctors in Neurology and Psychiatry Department in Assuit University Student's Hospital.) Who reviewed the instruments for clarity, relevance, comprehensiveness, understanding, applicability and easiness for administrative minor modifications were required. Expert professors in fields of medicine and nursing checked the content validity of two tools and corrections were carried out accordingly.

Pilot study

The purpose of this pilot study was of 2 folds: first to ensure the clarity of designated study tools. Second, to examine the utility of the designed tools and identify any difficulties or problems needed to be handled before applying it. Six patients in the pilot study 10% patients excluded from the actual study sample. Modification of the sheet were done to developed the final form that is most suitable.

Procedure

Once permission was granted to proceed with the proposed study, the investigator initiated data collection. numbers of patients who are admitted to Assuit University Student's Hospital. Who helped the researcher to accomplish this research were obtained verbal oral consent from the patients was granted .Then patients divided into both control group and study group.

-Study group (were the patients who exposed to the designed nursing guidelines about EEG procedure) .Control group (were the patients who came to do EEG procedure and didn't exposed to the designed nursing guidelines about EEG procedure) about all items listed in part two of tool number 1, The study and control groups were visited by investigator to initiate line of communication, explain the nature and purpose of the study and fill out the tool number (1) (pre procedure). Anxiety level were measured during procedure was done. The same tools were used to study & control group.

Statistical analysis

The data analysis was carried out using computer program SPSS (Version, 16.0) The collected data were tabulated and analyzed by using frequency, percentage, distribution, mean, range and standard deviation. The level of statistically significant was considered at $p < 0.05$.T test was used to determine the differences between study and control group in knowledge in relation to socio-demographic

characteristics of patients. Product correlation. Chi square for percentages differences for qualitative data.

Result

Table (1): Socio-demographic characteristics of patients in the study and control group (n=60).

Items	Control group (n=30)		Study group (n=30)		P-value
	No.	%	No.	%	
Age group					
Less than 20	14	46.7	12	40.0	0.553
Less than 30	16	53.3	17	56.7	
30 and over	0	0	1	3.3	
Gender					
Male	16	53.3	10	33.3	0.096
Female	14	46.7	20	66.7	
Marital status					
Married	1	3.3	1	3.3	0.754
Single	29	96.7	29	96.7	
Residence					
Village	15	50	15	50	0.602
City	15	50	15	50	

Statistically significant at $p \leq 0.05$

Table (2) Assessment of patient's knowledge in study and control group about EEG procedure(n=60).

Items	Control group N=30	Study group N=30	P-value
Do you know what an EEG procedure is?	Yes 6 (20 %) No 24 (80 %)	Yes 30 (100 %) No 0 (0 %)	0.0001
If yes, what is it like?	Correct answer 0 (0 %) No correct 30 (100 %)	Correct answer 28 (93 %) No correct 2 (6.7 %)	0.0001
Have you seen the one make EEG before?	Yes 9 (30 %) No 21(70 %)	Yes 15 (30 %) No 15 (30 %)	0.094
Do you know what the indication of EEG procedure is?	Yes 8 (27 %) No 22 (73 %)	Yes 30 (100 %) No 0 (0 %)	0.0001
Do you have any idea about an EEG?	Yes 4 (13 %) No 26 (87 %)	Yes 30 (100 %) No 0 (0 %)	0.0001

Statistically significant at $p \leq 0.05$, Correct answers (yes), wrong answers (no) by chi square test

Table (3) Assessment of patient's knowledge regarding preparation before and during EEG procedure for two groups (n=60).

Items	Control group (N=30)	Study group (N=30)	P-value
Do you have any idea of how to prepare the patient prior to the EEG	Yes 4 (13%) No 26 (87%)	Yes 30 (100%) No 0 (0%)	0.0001
2-Is it necessary to wash hair thoroughly before you make EEG procedure?	Yes 8 (27%) No 22 (73%)	Yes 30 (100%) No 0 (0%)	0.0001
3- Is it necessary to stop any treatments that the patient take before EEG and after doctor advice?	Yes 0 (0%) No 30 (100%)	Yes 30 (100%) No 0 (0%)	0.0001
4-Is it not necessary to put cream or oil hair after washing & before procedure?	Yes 5 (17%) No 25 (83%)	Yes 30 (100%) No 0 (0%)	0.0001
5-Is it necessary to be fasting before EEG?	Yes 15 (50%) No 15 (50%)	Yes 0 (0%) No 30 (100%)	0.0001

Items	Control group (N=30)	Study group (N=30)	P-value
6-Did you know that there are some foods & drink must be refrained from taking them before EEG?	Yes 0 (0 %) No 30 (100 %)	Yes 30 (100 %) No 0 (0 %)	0.0001
7-Did you know that it's necessary to close eyes while EEG & not open unless asked to do so?	Yes 2 (7 %) No 28 (93 %)	Yes 30 (100 %) No 0 (0 %)	0.0001
8-Dose EEG procedures cause pain?	Yes 24 (80 %) No 6 (20 %)	Yes 0 (0 %) No 30 (100 %)	0.0001
9-is it possible to speak or participate in the dialogue while doing EEG?	Yes 22 (73 %) No 8 (27 %)	Yes 0 (0 %) No 30 (100 %)	0.0001

Statistically significant at $p \leq 0.05$

Table (4): Assessment level of anxiety for patients in the study and control groups (n=60).

Items	Control group (n=30)	Study group (n=30)	P-value
	Mean \pm SD	Mean \pm SD	
If you went to hospital to make EEG tomorrow how would you feel?	4.13 \pm 1.38	2.6000 \pm 1.42	0.0001
If you were sitting in the waiting room how would you feel?	4.2 \pm 1.31	1.83 \pm 1.11	0.0001
If you lie on bed to prepare for procedure how would you feel?	4.4 \pm 1.50	1.23 \pm .50	0.0001
If you were link a machine how would you feel?	4.3 \pm 1.31	1.3 \pm .6	0.0001
If you were during procedure how would you feel?	3.8 \pm 1.44	1.13 \pm .6	0.0001

Statistically significant at $p \leq 0.05$

Table (1): shows that the majority of the both study and control group were single. There were no significant statistical differences between study and control group.

Table (2): as regarded knowledge about EEG procedure for study and control group, it was found that there were significant differences between two groups as regarded [definition of EEG, reasons for EEG performance, if patients had idea about an EEG? 0.000, while no significant in one item [if patient saw previous EEG] (0.0943).

Table (3): Illustrated there were very high significant statistical differences between both study and control group in all question.

Table (4): the result showed that there were very highly statistically significant difference between two groups in all question. There were significantly higher score of anxiety in control group than patients in study group.

Discussion

According to our knowledge, this study was the first study evaluates knowledge and anxiety level of patients undergoing EEG through different status.

This study showed as regarded assessment of knowledge in study and control group about EEG procedure significant difference between two groups as regarded all items except (if patient see previous EEG or not). Besides This study showed as regarded reasons for doing EEG procedure among study & control group no significant difference between two groups.

Thorne (2006), reported that EEG very important to detect brain activity. It can help diagnose seizure, confusion, head injuries, tumours, infections, evaluate problem with sleep, investigate periods of unconsciousness, monitor the brain during the brain surgery, drug or alcohol abuse, migraines, and this agree with current study.

This study showed as regarded assessment of knowledge in study & control groups regarding the indication of doing EEG procedure mean \pm SD for control group low but mean \pm SD of study group high it means study group have good knowledge about EEG procedure.

This study showed as regarded assessment of knowledge in study & control groups regarding the duration of EEG procedure, list of food must be avoided before procedure number of student with

correct answer 30 patient's while correct answer in control group no one .it related positive knowledge to study group.

This study showed as regarded assessment of knowledge in study & control groups regarding the preparation before & during EEG procedure significant difference between two groups as regarded all items related to positive knowledge about EEG procedure in study group.

The improvement of knowledge of patient's as well as giving them the designed nursing guidelines was very apparent in this study. Thus returned to improvement in their knowledge as they first time do this procedure.

This matched with **Narayanan (2008)**. reported that the patient will be give designed nursing guidelines when the EEG is scheduled .if the patient routinely takes seizure medication to prevent seizures, anti depressant, or stimulants, he/she may be asked to stop taking these medication 1to2 days before procedure ,the patient may be told not to consume caffeine before the procedure ,the patient should avoid using hair style products on the days before the procedure ,it is prudent to have some one take the patient to the EEG location , especially if he/she has been asked to stop taking seizure medication. This agrees with current study.

This study showed significant difference between two groups related to comparison about knowledge about what's preparation before EEG procedure between two groups, it means study group have higher score in correct answer than control group related to positive knowledge pre procedure about preparation.

This study sought to evaluate the effectiveness of a psycho-educational through the designed guideline in reducing procedural anxiety related to EEG and to demonstrate the feasibility and utility of this intervention for extended medical procedures such as EEG. Based on previous research, it was hypothesized that patients who experienced psycho-education interventions would exhibit significantly less procedural anxiety prior to and during an EEG procedure.

That was matched with **Benore and Enlow, (2013)**. reported that psycho-education, intervention, involves providing specific information about what will happen during a medical procedure. This new information about an upcoming procedure may be provided either explicitly (e.g., through an information booklet or designed nursing guidelines). This study showed as regarded assessment of level of anxiety significant difference between two groups as regarded all items it means higher score of anxiety scale in control group related to negative knowledge.

Low (2009). research on line for control group higher score of anxiety scale because haven't knowledge and

afraid of procedure and machine. And this agrees with my result.

Davidandkew (2005). reported that etiology of anxiety negative experiences conducting theory and theories on phobia onset suggest that disproportionate anxiety results from exposure to negative life events fear of pain the main factors contributing to anxiety, predisposing personality characteristics and other. And this agrees with current study.

This study showed as regarded relation between patient knowledge of EEG procedure and anxiety scale there were significant statistical difference between study and control group and there were negative correlation anxiety scale and knowledge of patient about EEG procedure for study and control group (means low knowledge & high anxiety for control group) but positive correlation in study group (high knowledge & low anxiety).

Joanie Roy (2011). research on line for patient with designed nursing guidelines pre procedure have low score in anxiety scale than patient with out designed nursing guidelines .and this agree with current study.

Anna frydend (2012). reported that performed an interview before procedure very important for progression it is important to emphasize the need for making the anxiety treatment apart of the general treatment plan and used great designed nursing guidelines and building a trustful relation and providing the patient with control is essential and can prevent anxiety . And this agrees with current study.

Finally , it seen logic to say that, application of designed nursing guidelines and guide line is very important for patient under going EEG procedure based on the result of the present study , which indicated applicability of patient to improve knowledge and anxiety scale .

Conclusion

Based on the results of the present study, it can be concluded that, level of knowledge for patients whom take designed nursing guidelines and guidelines was higher than who didn't take any designed nursing guidelines and guideline. Level of anxiety was lower in patients who took designed nursing guidelines and guidelines about EEG procedure.

Recommendations

1. Pre procedure teaching and designed nursing guidelines should be an integral part of the nurses' duty in all hospitals.
2. Each patient is given booklet include designed nursing guidelines about EEG procedure, preparation before and during procedure and illustrate after procedure.

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