

Assessment of Nurses' Role in Caring for Psychiatric Patients Receiving Electro-Convulsive Therapy

Mervat Hossny Shalaby*, Zeinab Loutfi**, Omayma Abou Baker Othman*, Nahed Mohamed Ahmed Morsy**

Abstract: Psychiatric nurses have an important and active role to play in insuring safety for patients undergoing ECT, (Electric-convulsive treatment) and receive accurate information about the treatment. The role of psychiatric nurses in monitoring and preventing complications of ECT is very important, since they provide quality patient care which has become an important factor in success of such management method. This study aimed at assessing the role of nurses caring for the psychiatric patients who receive electro-convulsive therapy. This study followed a descriptive design. The study was carried out at "Psychiatric Department in Tanta University Hospital" and "Psychiatric and Mental Health Hospital" in Tanta. The subjects of the study encompassed all nurses working in the previous settings, (n = 50 nurses). Two tools were used to collect the necessary data: the first was the nurses' knowledge questionnaire, developed by the researchers and divided into two parts: general characteristics of nurses and nurses' Knowledge about ECT. The second was an Observation check list to identify quality of clinical care of patients receiving ECT. The main results revealed that the majority of the study subjects have acceptable level of knowledge about different aspects of ECT but their observed performance was below the expected standardized level. Such level needs to be upgraded using multiple approaches since it proved to be insensitive to years of experiences.

INTRODUCTION:

Electroconvulsive therapy (ECT) is one of the most effective psychiatric treatment for treating mood disorders, catatonia, and may also be indicated for patients with psychotic illnesses whose symptoms have not responded to other

treatment approaches⁽¹⁾ Thus, ECT plays an important role in the clinical and teaching missions of psychiatric hospital. Also, ECT service offers treatment to individuals on both inpatient and out-patient bases. Most patients receive a series of treatment

*Psychiatric and Mental Health Nursing, Faculty of Nursing, Tanta University.

**Psychiatric and Mental Health Nursing, Faculty of Nursing, Ain Shames University

sessions, 2-3 times each week over a 2-3 – week period^(1,2).

ECT is a highly technical procedure requiring a team that consists of an anesthetist, a psychiatrist, a clinical nurse specialist, and recovery nurses. Traditionally, nursing education and training in the context of providing a safe and high standard of care has not been addressed⁽²⁾. Hence, the American Nurses Association (ANA 1994), has developed protocols for ECT. Overall, the various ECT protocols emphasize the significance of nurses in teaching, insuring safety and providing emotional support for the patients undergoing ECT⁽³⁾.

From this point of view, psychiatric nursing care for patients undergoing ECT has evolved from the traditional supportive and adjunctive practice to the current practice of independent and

collaborative nursing actions.

The nurse's multifaceted role is enacted by providing education and support, performing pre-treatment assessments, monitoring the procedure, and observing and interpreting post treatment patient responses^(4,5).

Additional responsibilities include monitoring of vital signs, pulse oximetry, ECG, mental status, administering oxygen and intravenous fluids, provision of suctioning and management of postical disorientation, and agitation^(6,7).

Psychiatric nurses can have an impact on the quality of care of their patients in areas of altered comfort, anxiety, knowledge deficits, and change in self-care⁽⁵⁾.

The relationship between the nurse and the patient is usually close. The nature of nursing means that nurses spend more hours with patients than

other health care professionals⁽⁸⁾. Therefore, psychiatric nurses can allay fears and anxiety of the patient and family by providing environments that encourage expression of feelings, thoughts, and fear regarding the procedure. Various educational media are useful in describing the ECT process including tours of the facility, discussion of the responsibilities of the ECT team and illustrating and describe the treatment, side effects, and indication for ECT was obtained to assist nursing staff in providing information to patients and their families⁽⁹⁾. Therefore, the nurse has a very important and vital role in managing patients undergoing ECT.

Aim of the study:-

The aim of the study was to assess the role of nurses caring for the psychiatric patients who receive ECT.

MATERIAL AND METHODS:

- Study design: a descriptive design
- Setting: the study was conducted at the psychiatric department in Tanta University Hospital and Tanta Psychiatric and Mental Health Hospital, the latter is affiliated to the Ministry of Health and Population (MOHP).
- Subjects: the study subjects encompassed all nurses working in the previous settings (n=50 nurses).
- Tools: two tools were used to collect the study data :-
 - I- Nurses' knowledge questionnaire: the questionnaire sheet was developed by the researchers after thorough review of literature^(3,6,10,11) about ECT. The questionnaire is composed of 2 parts:

- Part 1: included questions to elicit data about the general characteristics of nurses e.g., age, education, years of experience in the psychiatric field,.....etc.

- Part 2: included 10 questions that assess nurses' knowledge about ECT, e.g., definition, indications and contra-indications, side effects, types, preparation of equipment, patients care before; during; and after ECT and its complication.

II-Observation check-list: a check-list was constructed to identify the quality of nursing care provided to patients receiving ECT. The check list was the outcome of a thorough survey and a review of literature on the subject. This included nursing management before, during, and after the ECT procedure.

- Each item on the check list was observed and checked as done or not done. A score of "one" was given when the item was done and a score of "zero" was given when the item was not done or done incorrectly.

Methods:-

1. A permission was taken from the authorized personnel to conduct this study.
2. The tools were revised by 5 experts in the field of psychiatric nursing to test content validity. Necessary modifications were done accordingly
3. A pilot study was done on five nurses who were not included in the study to test the clarity and feasibility.
4. Informed consent was obtained from the study subjects.

5. Each nurse was observed (directly & indirectly) once during her day shift (time of conducting ECT) because of the limited number of patients receiving ECT, to identify nurses' performance while caring for a patient receiving ECT using tool (II)

6. Assessment of the nurses' knowledge was done using tool (I).

The questionnaire was administered to the nurses on small group basis and they were asked to respond in the presence of one of the researchers.

Statistical analysis:-

Data were coded, computerized and the Statistical Package for Social Sciences (SPSS) was utilized for statistical analysis of these data. Descriptive measures, including

frequency and percentage were presented. Statistical correlation test, including Chi-square, was used for analysis of qualitative variables. level of significance selected for this study was ($P<0.05$).

RESULTS

The subjects of the present study consisted of 50 nurses, with a mean age of 29 years. The majority of (78%) had a secondary school nursing diploma, while 10% had diploma of Technical Nursing Institute. Eighty percent of the studied nurses had less than 10 years of experience in psychiatric nursing, while 70% of them had the chance to attend ECT sessions and actually participated in more than 15 sessions.

Table (1) shows that the majority of the study subjects (80%) defined ECT as the use of electric current to treat

psychiatric illness. Meanwhile, 16% defined it as a form of punishment to psychiatric patients. As regards the indications of ECT, 82% of the study subjects thought it is used for psychotic disorders, while only 18% thought that it is used for neurotic disorders.

As for contraindications, cardiovascular problems was mentioned by 66% of the nurses and only 16% mentioned musculoskeletal disease. As regards nurses' knowledge about the side effects of ECT, 76% of them mentioned neurological disturbances. Meanwhile, the majority of the study subjects (82%) knew about bilateral type of ECT, but only 18% of them knew about the unilateral type.

Table (2) shows that all nurses in the present study reported knowing the importance of having consent from patients' relatives before ECT and

assessing and recording vital signs (72%). Meanwhile, 40% and 38% of the nurses reported knowing the necessity of removing metallic objects from patient's clothes and giving brief information about ECT, respectively. Fasting patients and proper positioning of the patients were known by only 12% and 4%, respectively.

In relation to nurses' knowledge and their role about equipment preparation and patient's care during ECT, 60% reported preparing the suction apparatus, ECT electrodes and soaking them with saline. Nurses who reported knowledge of preparing oxygen during ECT procedure, recording time of seizures, and supporting patient's shoulder & pelvis were 24%, 28%, and 44%, respectively.

Table (3) illustrates the relationship between nurses' knowledge about ECT

procedures and their years of experience in the psychiatric nursing field. There was no significant relation between knowledge of the study subjects and years of experience, except for patient's care during ECT ($\chi^2 = 5.692, p < 0.05$). Those nurses who had experience of 5 years or more were more knowledgeable about their role in this respect.

Table (4) shows statistically significant relationships between most of the nurses' knowledge aspects about ECT indications, contraindications, patient's preparation, and equipment needed for ECT and their number of attended sessions of ECT. Those who attended more sessions were significantly more knowledgeable.

Table (5) reflects results of observation of nurses' management of patients before ECT. It shows that all

nurses were keen to have patient's consent and inject him/her with atropine before the session. Keeping patient fasting and taking his/her vital signs were respectively done by 70% and 74% of nurses. Conversely, only 32% and 36% of studied nurses cared to give information for the patient or to ensure his/her head's cleanliness & dryness.

With regards to preparation of equipment, all nurses prepared the ECT device, the oxygen system and masks, the anesthetic agents, and anti cholinergic agent.

Less frequently, 74% of the nurses in the present study were observed to prepare the sphygmomanometer, the stethoscope, and suction apparatus.

On the other hand, 78% and 80% of nurses prepared rubber mouth guards and the muscle relaxant, respectively as essential equipment for ECT.

This table also shows that, all nurses in this study transferred the patient on a stretcher, put him/her in a flat position, kept his/her arms close to body sides, but less so with the sphygmomanometer cuff (66%) and socking the electrodes with saline (60%).

Table (6) illustrates that 58%, 56% and 30% of the study nurses used oxygen for the patient when needed, observed patient air way accurately and observed patient's level of consciousness before moving him/her back to his room, respectively. Meanwhile, only 22% of nurses in the present study, stayed beside the patient, checked his/her vital signs and blood pressure, provided frequent reassurance and reorientation and offered breakfast after 2 hours. Likewise, only 20% kept patient in

proper position during ECT procedure and/or provided mouth care.

Table (7) shows the relationship between tasks performed by nurses before ECT and their number of attended ECT sessions. As regards patients' preparation, there were no statistically significant relations between nurses' performance and their number of attended ECT sessions.

Meanwhile, there were statistical significant relations in only two items related to preparation of equipment and medical supplies, namely: preparing the drugs atropine and valium, where $p=0.016$ & 0.011 , respectively.

Table (8) shows the relation between nurses' management (before, during, and after the ECT procedure) and their number of attended ECT sessions. As regards, nurses' management before ECT, there were

statistical significant differences in two items only namely: "Ensuring patient's fasting" and "Ensuring patients' dry and clean hair " ($p=0.012$ & 0.022 , respectively). In both cases, those nurses who attended more ECT sessions provided better patient management in this respect. In relation to nurses' management during ECT, there was a significant difference in two items: "Using oxygen when needed " and " observing patient's air ways " ($p=0.04$ & 0.046 , respectively). Again, those who attended more ECT sessions proved significantly better. After ECT, nurses who attended more ECT sessions were doing more suctioning, ($p=0.033$). As regards the recovery care, the only significant difference was found in "observing the patient returning to consciousness" ($p=0.034$). Those nurses who attended more ECT

sessions were more frequently monitoring patient's level of consciousness.

DISCUSSION

Electro-convulsive therapy (ECT) is a relatively safe and cost effective treatment modality indicated for individuals with severe psychiatric disorders, such as major depression and bipolar disorders non-responsive to several medication trials, and/or behaviors in clients at imminent risk for suicide^(11,12).

Nurses have an important and active role to play in ensuring that patients receive accurate information about the treatment, to simplify and reinforce the explanation provided by the psychiatrist, and prevent complications through the enteric procedure of ECT⁽¹³⁾. This study focused on assessment of nurses'

knowledge about ECT and their role toward patient's undergoing ECT.

The present study revealed that the majority of the study subjects have an acceptable level of knowledge about different aspects of ECT. Nonetheless, there was observed incomplete role in relation to nurses' in patients preparation for ECT during and after care. This may be attributed to absence of practical demonstration and training under supervision, and lack of job prescription, where responsibilities are not clearly defined in the policy and procedure manual of the hospital. The present study findings coincide with and reaffirm the recommendations of the American Psychiatric Association that stress the importance of basic lectures, practical sessions, regular teaching, and training update sessions^(13, 14).

On the other hand, the previous observation is not in accordance with the frame of recommendations set by the Royal College of Psychiatrists and the American Psychiatric Association that ECT nurses should be appropriately trained in anesthetic and resuscitation techniques and modern ECT practice.^(14,16)

It is surprising that during observing the ECT room, there was lack of some essential life-saving equipment such as Electro-encephalographic (EEG), electro car diagram (ECG), pulse oximeter, I.V bag and infusion set, and crush cart. These deficiencies found in the ECT room were attributed to lack of standardized policies and procedures, with deficiencies in facilities, training, or education for staff. Nurses acquire their knowledge about ECT only by working with more experienced nurses who also

acquired their knowledge in the same way without any scientific knowledge base. This fact was reported by Pippord (1992), who found that most nurses acquire their knowledge by working with more experienced staff ⁽¹⁵⁾.

In addition, results of this study revealed that there was no statistically significant relation between nurses' knowledge about ECT management and their years of experience in the psychiatric field. This finding may indicate that duration of work did not mean that the nurse was involved actively in ECT during the whole period of her work in the psychiatric field.

In agreement, Lutchman *et al.* (2001) found that the level of knowledge among graduated psychiatric residents in the USA was not related to practical experience ^(12, 17).

Similarly, the only relationship between nurses' knowledge and years of experience in the present study was found in patient care during ECT. To the contrary, Byrne *et al.*, (2006),⁽¹⁸⁾ found that increased knowledge correlates significantly with more years of experience in mental health, a finding confirmed by Gass (1998)⁽¹⁹⁾ who reported difference in mean total knowledge between experienced and less experienced nurses .

Regarding the nurses' knowledge about different aspects of ECT and number of attended sessions, there was statistically significant differences between nurses who attended less than 15 sessions and those who attended 15 and more sessions, the latter were found to be more knowledgeable. This may indicate that more & better information about ECT was gained by active

participation in more practical aspects of ECT. This is supported by Wood *et al.*, (2007) who mentioned that if nurses are to provide appropriate management to patients undergoing ECT, they need to gain knowledge and experience of the therapy early in their careers.⁽⁸⁾

Concerning the nurse's role in patient's pre-treatment preparation, the present study revealed that all nurses were keen to have patient's consent and given atropine injection. But only about one third of them provided information about the procedure in preparation of the patient before ECT.

These findings were in partial agreement with Alhamed and AL-Haider (1999) who found that the audit of 127 patients receiving ECT at King Khalid University Hospital in Riyadh, Saudi Arabia, showed important problems in nurses' performance; where no seizures

were monitored and no training or education for staff was done⁽²⁰⁾.

The present study revealed that there was no statistically significant relation between nurses' performance and the number of attended ECT sessions. All and/or the majority of nurses who attended less than 15 sessions and attended 15 sessions or more were doing almost all patients' preparation keen to "help patient on stretcher," "put patient in flat position" and "keep patient's arms close to body sides." This may indicate that due to degree of contact with treatment routine and involvement with patients receiving ECT. These results are in accordance with the findings of Janicak *et al.*,⁽²¹⁾ and Gass⁽¹⁹⁾. However, there was statistical significant relation in only two items related to medical supplies, namely preparing the drugs atropine and

valium. Those nurses who attended 15 sessions and more were significantly using the drug atropine and valium as a pre-medication. Again, this may be due to the degree of contact with treatment routine, those nurses become more aware about the importance of these drugs as a primary anesthetic agent, primary muscle relaxant and an anticholinergic agent and used it for all patients. Such findings agree with those of Al-hamed and AL-Haider (1999).⁽²⁰⁾.

The present study also revealed that the nurses who attended 15 sessions or more performed nursing care during and after care of ECT better than nurses who attended less than 15 sessions. Meanwhile, in relation to after care, most of the nurses from either group were equally neglecting to perform certain tasks such as providing oxygen, continuously taking vital signs,

and offering breakfast after two hours. This may be due to inconsistency of care provided by the psychiatric treatment nurses and lack of written procedural duties of the psychiatric treatment nurse.

Finally, the present study findings are in agreement with those of Trnobranski (1993) who reported that nurses have had difficulty in applying knowledge from lectures to the practical situations⁽²²⁾

CONCIUSION&RECOMMENDATIONS:

From this study one may conclude that psychiatric nurses' knowledge about ECT, their role before, during and after conducting ECT in relation to the patient and equipment, as well as their observed performance are below the expected standardized level. Such level needs to be upgraded, using multiple approaches, since it was proved to be

insensitive to years of experiences. From the foregoing conclusion, the following recommendations are suggested:

1. Education about ECT to psychiatric nurses should be featured in the local academic programmers.
2. Hospital set-up for ECT conduction should, be supplemented with the basic standardized equipment for the procedure, and nurses be trained on their use.
3. In-service training and continuing education should be established as integral parts of any hospital system to compensate for and complement psychiatric nurses' deficient skills.
4. A procedure book can be developed to guide nurses to the required pre, during, and post ECT patient care.

Table 1: Nurses' knowledge about definition, indications, contra indications, side effects, and types of electro-convulsive therapy (ECT)

Nurses' knowledge	n=50	
	No.	%
- Definition:		
▪ Electrical current to punish psychiatric patients.	8	16
▪ Electrical current applied to treat psychiatric illness.	40	80
▪ Electrical current to treat incontinence	2	4
- Indications:		
▪ Neurotic disorders	9	18
▪ Psychotic disorders	41	82
- contraindications:	33	66
▪ Cardiovascular problems		
▪ Children under six years.	9	18
▪ Musculoskeletal disease.	8	16
- Side effects:		
▪ Neurological disturbance	38	76
▪ Memory disturbance.	10	20
▪ Musculoskeletal problems.	2	4
- Types of ECT:		
▪ Unilateral	9	18
▪ Bilateral	41	82

Table 2: Nurses' knowledge about their role in relation to patient's preparation, equipment, and patient's care during ECT

Items of nurses' knowledge about their role.	n=50	
	No.	%
- patients' preparation:		
▪ have consent from patients relatives	50	100
▪ Give brief information	19	38
▪ Ensure patient's fasting	6	12
▪ Asses vital sign and recording them.	36	72
▪ Proper positioning of the patient	2	4
▪ Remove any metallic object from patients' cloths.	20	40
- Equipment preparation:		
▪ Suction apparatus	30	60
▪ ECT device & electrodes.	30	60
- patient's care during ECT:		
▪ Support shoulders and pelvis	22	44
▪ Soaking electrodes with saline	30	60
▪ Use of oxygen.	12	24
▪ Recording time of seizures	14	28

*Answers are not mutually exclusive.

Table 3: Relationship between nurses' knowledge about ECT procedures and their years of experience.

Nurses' knowledge about ECT procedures	Experience in years				p-value
	Less than 5 years		5 years and more		
	Correct		Correct		
	N=27		n=23		
	No.	%	No.	%	
- Definition.	19	70.37	21	91.30	0.091
- Indications.	20	74.07	21	91.30	0.021*
- Contraindications.	19	70.37	22	95.65	0.09
- Side effects.	18	66.67	20	86.96	0.11
- Preparation of patient	18	66.67	19	82.61	0.16
- Needed equipment.	18	66.67	18	78.26	0.38
- Patients' care during ECT	11	40.74	17	73.91	0.022*

*significant values at 5% level.

Table 4: Relations between nurses' knowledge about different aspects of ECT and their number of attended sessions.

Nurses' knowledge about different aspects of ECT	Number of attended sessions				p-value
	Less than 15 sessions		15 and more sessions		
	Correct		Correct		
	N=15		n=35		
	No.	%	No.	%	
- Definition.	10	66.67	3.	85.71	0.103
- Indications.	6	40.00	35	100	0.001*
- Contraindications.	9	60	33	44.29	0.021*
- Side effects	10	66.67	28	80.00	0.34
- Preparation of patient for ECT	7	46.67	30	85.71	0.021*
- Needed equipment	5	33.33	25	71.43	0.012*
- Patients' care during ECT.	6	40.00	24	68.57	0.09

*significant values at 5% level

Table 5: Observed nurses' management of patients receiving ECT (before the procedure)

Observed nurses' management	N=50	
	No.	%
- Patient's preparation:		
▪ Having consent	50	100
▪ Giving information about the procedure	16	32
▪ Keeping patient fasting before ECT	35	70
▪ Assessing vital signs and recording it	37	74
▪ Ensuring patients dry and clean hair	18	36
▪ Atropine injection given before session	50	100
- Equipment and other medical supplies' preparation :		
▪ ECT device	50	100
▪ Sphygmomanometer & stethoscope	37	74
▪ Suction apparatus	37	74
▪ Oxygen system and masks	50	100
▪ Rubber mouth guards (bites blocks)	39	78
▪ Alcohol	35	70
▪ Gauze pads and tape	30	60
▪ Anesthetic agent (brevital)	50	100
▪ Anti-cholinergic agent (atropine)	50	100
▪ Muscle relaxant	40	80
▪ Diazepam (valium)	35	70
- Positioning of patient for ECT		
▪ Help patient on stretcher	50	100
▪ Put patient in flat position	50	100
▪ Place sphygmomanometer cuff	33	66
▪ Soak electrodes with saline and put on patient's temples	30	60
▪ Keep patient's arms close to body sides	50	100
- Mechanical control:		
▪ Supporting shoulder	50	100
▪ Supporting pelvis	50	100

Table 6: Observed nurses' management of patients receiving ECT (during and after the procedure)

Observed nurses' management	n=50	
	No.	%
- Observe indicators (markers) of receiving the shock	50	100
- Use of oxygen when needed	29	58
- Observing patient's airway	28	56
- Observing patient's color	15	30
- Monitoring patient's return to consciousness	15	30
- Proper positioning of patient	10	20
- Stayed beside patient	11	22
- Checking vital signs and blood pressure	11	22
- Suctioning	8	16
- Mouth care	10	20
- Frequent reassurance and reorientation	11	22
- Moving patient on wheel chair or stretcher back to his room after insuring that:		
▪ Patient is conscious.	20	40
▪ Vital signs and mental status are back to acceptable level	8	16
- Offering break-fast after two hours	11	22

Table 7: Relationship between observed patients' and equipment preparation performed by nurses (before ECT) and their number of attended ECT sessions

Preparation performed by nurses.	Number attended ECT sessions				p-value
	Less than 15sessions (n=15)		15sessions and more (n=35)		
	No.	%	No.	%	
- Patients' preparation :					
▪ Help patient on stretcher	15	100	35	100	1.0
▪ Put patient in flat position	15	100	35	100	1.0
▪ Place sphygmomanometer cuff around patient's arm	10	66.67	23	65.11	0.58
▪ Soak electrodes with saline and put on the temples	7	46.67	23	65.11	0.22
▪ Keep patient's arm close to body sides	15	100	35	100	1.0
- Equipment and other medical supplies' preparation:					
▪ ECT device	15	100	35	100	1.0
▪ Sphygmomanometer & stethoscope.	10	66.67	27	77.14	0.198
▪ Suction apparatus	10	66.67	27	77.14	0.198
▪ Oxygen system & masks	15	100	35	100	1.0
▪ Rubber mouth guards (bites blocks)	9	60.00	30	85.71	0.16
▪ Alcohol	10	66.67	25	11.43	0.29
▪ Gauze pads & tape	8	53.33	22	62.86	0.33
▪ Anti-cholinergic agent (atropine)	7	46.67	35	100	0.016*
▪ Anesthetic agent (brevital)	15	100	35	100	1.0
▪ Muscle relaxant	11	73.33	29	82.86	0.39
▪ Diazepam (valium)	5	33.33	30	85.71	0.011*

Table 8: Relationship between nurses' management (before, during and after ECT procedure) and their number of attended sessions.

Nurses' management items	Number of attended ECT sessions				p-value
	Less than 15sessions		15sessions & more		
	n=15		n=35		
	No.	%	No.	%	
- Before ECT:					
• Having consent	15	100	35	100	1.0
• Giving information about the procedure.	4	26.27	12	34.29	0.63
• Ensuring patient's fasting	9	57.11	35	100	0.012*
• Assessing patient's vital signs and recording them	15	100	35	100	1.0
• Ensuring patient dry and clean hair	8	28.33	10	53.57	0.022*
• Atropine injection given half an hour before sessions.	15	100	35	100	1.0
- During ECT:					
• Observe indicators (markers) of receiving the shock	15	100	35	100	1.0
• Using oxygen when needed	6	40.00	23	65.71	0.041*
• Observing patient's air ways	6	40.00	22	62.86	0.046*
• Observing patient's color	6	40.00	9	25.71	0.09
- After ECT:					
• Monitoring patient's Consciousness.	5	33.33	10	28.57	0.27
• Proper positioning of patient	4	26.61	6	17.14	0.30
• Stayed beside patient	2	13.33	9	25.11	0.25
• Checking vital sign and blood pressure	2	13.33	9	25.71	0.25
• Suctioning	1	6.67	7	20.00	0.033*
• Mouth dare	3	20.00	8	22.86	0.42
• Frequent reassurance and reorientation	4	26.67	7	20.00	0.21
- Recovery care:					
• Monitoring patient's consciousness	9	60.00	11	31.43	0.034*
• Checking vital signs and mental status return to acceptable level.	2	13.033	6	17.14	0.42
• Offering breakfast after two hours.	4	26.67	7	20.00	0.82

- significant values at 5% level of significance

REFERENCES

1. Fochtman L, Francis A. Electroconvulsive therapy service. Psychiatry and Behavioral Science, School of Medicine, <http://www.hsc.stonybrook.edu/som/Psychiatry/ect.cfm.30/4/2007>.
2. Munday J, Deans C, Little J. Effectiveness of a training program for ECT nurses. J Psychosoc Nurs Ment Health Serv. 2003; 41 (11):20-6.
3. Antia-Otang B, Kongable G. Somatic and Behavioral therapy. Psychiatric Nursing: Biological and Behavioral concept, 1st edition. London: WB Saunders Company: 1995. PP.569-87.
4. Burns M, Stuart W. Nursing care in electroconvulsive therapy. Psychiatric clinics of North America. 1991;14,(4): 971-88.
5. Fitzsimmons L. Electroconvulsive therapy: what nurses need to Know. Journal of Psychosocial Nursing, 1995; 33 (12): 14-7.
6. New York State Office of Mental Health. Electroconvulsive therapy Review Guide lines.<http://www.omh.state.ny.us/omhweb/ECT/guideline.Htm>. 20/1/2004.
7. Harrison B, Kaarsemaker B. Continuous quality Improvement to an electroconvulsive therapy. Journal of Psychosocial Nursing. 2000; 38(3): 27-35.
8. Wood, H, J Mary, C, Jane W. Nurses' knowledge of and attitude to Electroconvulsive Therapy. Journal of ECT. 2007;23 (4): 251-4.
9. Clothier J, Freeman T, Snow L. Medical student attitudes and knowledge about ECT. Journal of ECT.2001;17 (2): 99-101.
10. Keltener N, Schwecke H, Bastron H. Biological therapies. Psychiatric nursing, 2nd edition . London: Mosby company; 1995,PP.477-482.
11. Gold C. Electro-convulsive therapy and other biological therapies. Philadelphia Contemporary psychiatric mental health nursing: the Brain Behavior Connection. Philadelphia: F. A. Davis Company; 1998; (4), 221-30.
12. Haber J, Leach A, Schudy S. Electroconvulsive therapy. Comprehensive psychiatric nursing. 2nd edition. New York: Mc Graw Hill company; 1982, 500-10.
13. Fitzsimons L, Ramos F. Electroconvulsive therapy. In : Lego S. Psychiatric nursing. A comprehensive reference. 2nd edition. New York: Lippincott company; 1996,PP. 477-483.
14. American Psychiatric Association. The practice of ECT, recommendations for treatment, training and privileging. Washington: APA Press;1990.
15. Pippard J. Audit of ECT in two national health service regions. British Journal of Psychiatry. 1992; 160: 621-37.
16. Royal College of Psychiatrists. The practical administration of ECT. London: Gaskell; 1989.
17. Lutchman R, Stevens T, Bashir A, *et al.* mental health professionals' attitudes towards and knowledge of

- electroconvulsive therapy. *Journal of Mental Health*. 2001;10(2): 141-50.
18. Byrne P, Cassidy B, Higgins P. Knowledge and attitudes towards electroconvulsive therapy among health care professionals and students. *Journal of ECT*. 2006; 22 (2): 133-8.
19. Gass J. The knowledge and attitudes of mental health nurses to electroconvulsive therapy. *Journal of Advanced Nursing*. 1998; 2 (27) : 83-90.
20. Alhamad M, Haidar. Al. A retrospective audit of electroconvulsive therapy at King Khalid University hospital, Saudi Arabia. *Eastern Mediterranean Health Journal*. 1999; 5 (2): 255-61.
21. Janicak PG, Mask J, Tremakas KA. ECT: an assessment of mental health professionals' knowledge and attitudes. *Journal of Clinical Psychiatry*. 1985; 46: 262-6.
22. Trnopranski P. Biological sciences and the nursing curriculum: A challenge for educationalists. *Journal of Advanced Nursing*. 1993; 2 (18): 493-9.