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Knowledge, attitude and practice regarding people with epilepsy among nurses

Wiedza, postawa i zasady postępowania pielęgniarek wobec chorych na padaczkę

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Abstract

Background: This work handled three aspects: to assess the nurses' knowledge and practice with regard to patients with epilepsy, to study the outcome of training of nurses regarding epilepsy. **Material and methods:** The study conducted at the Department of Neurology at Assiut University Hospital. Data collected from all nurses ($n = 35$) working at the Department of Neurology. The following tools were used for data collection; a pre-/post-test questionnaire sheet for the assessment of the nurses' knowledge of epilepsy, an observation checklist sheet for nurses, and the patient's assessment sheet to assess the nurses' practice. The work involved nine sessions, each about 30 minutes long, applied to teach nurses about all data necessary for the patients with epilepsy. **Results:** A good improvement in the mean knowledge and practice scores observed following the implementation of the designed nursing protocol. A significant decrease in complication rate which resulted from bad practice during fit following the implementation of the designed nursing protocol. A reduction in seizure-related complications reported after the training of nurses with the designed nursing protocol which acts as an additional advantage. **Conclusion:** Improving the nurses' knowledge and practice with regard to patients with epilepsy will lead to the improvement the health and social conditions of patients with epilepsy.

Słowa kluczowe: epilepsy, knowledge, nurse protocol, practice, Egypt

Streszczenie

Wprowadzenie: Autorzy opracowania przeanalizowali stan wiedzy i praktykę pielęgniarek w odniesieniu do pacjentów z padaczką, a także wyniki odbytego przez pielęgniarki szkolenia na temat padaczki. **Materiał i metody:** Badanie przeprowadzono na Oddziale Neurologii Szpitala Uniwersyteckiego w Assiut. Dane zebrano od wszystkich pielęgniarek ($n = 35$) pracujących na oddziale. Do zbierania danych wykorzystano następujące narzędzia: kwestionariusz przed i po wprowadzeniu programu edukacyjnego służący do oceny stanu wiedzy pielęgniarek na temat padaczki, listę obserwacyjną dla pielęgniarek, formularz oceny stanu pacjenta w celu oceny praktyki pielęgniarek. Szkolenie przeprowadzono w dziewięciu 30-minutowych sesjach, w trakcie których pielęgniarki uzyskały wszelkie informacje potrzebne do opieki nad chorymi z padaczką. **Wyniki:** Zaobserwowano wyraźną poprawę średniej stanu wiedzy i wyników praktyki pielęgniarskiej po wdrożeniu programu opieki pielęgniarskiej, jak również znaczny spadek liczby powikłań spowodowanych nieprawidłowym postępowaniem z pacjentem podczas napadów padaczkowych. Ponadto stwierdzono zmniejszenie liczby zgłaszanych powikłań ponapadowych po wdrożeniu programu opieki pielęgniarskiej, co stanowi dodatkową jego zaletę. **Wnioski:** Poprawa stanu wiedzy oraz praktyki pielęgniarek w odniesieniu do chorych na padaczkę doprowadzi do poprawy stanu zdrowia i warunków życia osób z padaczką.

Key words: padaczka, wiedza, program opieki pielęgniarskiej, praktyka, Egipt

INTRODUCTION

Epilepsy is a common neurological disorder affecting people of all races, communities, ages, and genders (Aydemir, 2008). Among Egyptian populations the prevalence is 6.98/1,000 (El Tallawy *et al.*, 2010).

Uncontrolled seizures affect a variety of aspects of life including social, work and leisure activities. Rates of injury, cognitive impairment, psychiatric morbidity and mortality are greater than those observed in the general population (Cockerell *et al.*, 1994; Fisher, 2000; Shehata and Bateh, 2009).

Cultural knowledge, beliefs and misconceptions regarding epilepsy have an effect on the care-seeking behaviour of people with epilepsy (PWE) (Bell and Sander, 2001; Fisher, 2000). These beliefs and inadequate human resources are considered responsible, among other factors, for the treatment gap in epilepsy in developing countries (Cockerell *et al.*, 1994). Knowledge, attitudes, beliefs, and practice surveys conducted in Africa, especially in Egypt (Shehata and Mahran, 2010, 2011), were directed to the public, students or teachers (Njamnshi *et al.*, 2009, 2010; Pandian *et al.*, 2006; Sanya *et al.*, 2005). The nurses' role in the care of epileptic patients was divided into three stages, namely their role before, during and after seizures (Caserta *et al.*, 2009; Morton *et al.*, 2005; Smeltzer *et al.*, 2008). Nurses in Egypt receive 3 years of clinical training after preparatory school, with a focus on caring for patients with the most common medical problems reported in the region (e.g. infections). There is little data about educating nurses on specific diseases such as epilepsy. Therefore, most of these nurses have gained their knowledge of epilepsy from surrounding cultures and experiences of senior colleagues. Nurses in Egypt are mainly trained for supportive care roles.

Literature suggests that the access to a nurse specialising in the care of an epileptic patient may help improve the patients' understanding and management of their condition, and in doing so, may decrease morbidity and mortality rates (Hosking *et al.*, 2002). Also, a structured epilepsy nursing program improves the quality of life of PWE (Helde *et al.*, 2005). However, based on data from rural regions of Egypt, many nurses and clinical officers working in primary care clinics have no physician available on site, and their patient population have insufficient resources to get an access to physician-level care (Abdrbo *et al.*, 2011; Abou El-Enein and El Mahdy, 2011; El Enein and Zaghloul, 2011). In addition to their professional role, healthcare professionals represent one of the most educated and influential groups.

In this study, our objective is to assess the knowledge, attitudes, and practices among Egyptian nurses, with respect to PWE, before and after applying a protocol for educating nurses on how to care for PWE.

MATERIAL AND METHODS

Study design

Quasi-experimental research applied in this study to explain relationships and clarify certain events that had happened, or both (Woodend, 2007).

Sitting

This study was carried out in the Department of Neurology of Assiut University Hospital. In this very hospital which is one of the Assiut University Hospitals group, the department comprises three specialisations, namely neurology, neurosurgery and psychiatry. Assiut University Hospitals are the largest educational and therapeutic hospitals in the Arab Republic of Egypt. These hospitals consist of 5 buildings and is located in the city of Assiut. Neurology is a key specialisations of the hospital. The total number of beds in the university hospitals has reached about 3.000, of which 92% are free of charge and 8% – for special or economical treatment, as well as for the contracts with both governmental and non-governmental organizations. The generated revenue is allocated to be spent on the needs of the public (free) section and the poorest patients. Outpatient clinics and an inpatient clinic are visited by about a million patients every year from all governorates of the Upper Egypt, from north (Beni Suef) to south (Aswan and Halaib, Shalatin). It also admits patients in the province of the New Valley and Red Sea. Epilepsy is managed in a large number of inpatient and outpatient clinics (AUN, 2014).

The university hospitals are responsible for training medical and nursing staff at the Ministry of Health; therefore, it offers training courses in all fields of medicine for doctors, technicians and nursing staff and the training has extended to doctors from the fraternal Arab countries (AUN, 2014).

Subjects

Two groups of participants were included in this study: (1) PWE and (2) all nurses working with those patients in inpatient clinics.

PATIENTS WITH EPILEPSY (PWE)

Thirty consecutive patients with epilepsy who were admitted in the period between December, 2010 and June, 2011 were included in the study. The inclusion criteria were; the age between 18 and 65 years, conscious, agree to take part in the study, no other medical conditions as renal, hepatic or cardiac. Those patients were admitted for correct diagnosis of the type of epilepsy, namely uncontrolled epilepsy, status epileptics, to check their epilepsy and optimize the treatment etc. We followed those patients up for three months.

Epilepsy was defined as the occurrence of two or more unprovoked seizures at least 24 h apart (Thurman *et al.*, 2011).

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Well-controlled epilepsy was defined as having at least 2 seizure-free years with or without the treatment before the medical interview, because there is no agreement upon the definition of the uncontrolled epilepsy, as defined here and according to Ohtsuka et al. (2001) this denotes the average seizure frequency of twenty-three seizures occurring once or more times per month during the last 6 months despite the optimal and suitable use of anti-epileptic drugs (AED). We used this definition to give a good opportunity to manage patients who were on inappropriate treatment and those who were misdiagnosed with psychogenic non-epileptic seizures (Farghaly et al., 2013). Seizure types were then clinically ascertained and classified according to the classification of the International League Against Epilepsy (Proposal for revised classification…, 1989; Proposal for revised clinical, 1981). Dr. Ghaydaa examined PWE, collected full history, and checked complications such as aspiration, fracture, bitten tongue.

Nurses group

All nurses working in the Department of Neurology ($n = 35$) agreed to take part in this study.

Study tools

The tools used in the study were developed by the researchers*. A pilot study was carried out to test the feasibility and practicability of the study tools on a 10% sample. It had also provided an estimate of time needed to fill out the tools. The purpose of the pilot study was to ascertain the relevance of the tools, detect any problems relative to the statements clarity that might interfere with the process of data collection and to estimate the time needed to complete the interview schedule.

Tool I:
Pre-/post-test questionnaire sheet for nurses

This questionnaire was based on the national and international literature on how to assess the nurses' knowledge of dealing with epileptic patients (Abou El-Enein and El Mahdy, 2011; Ab Rahman, 2005; El Enein and Zaghloul, 2011). Pre-test questionnaire sheet was filled before the implementation of the designed nursing protocol. The same tool was also applied following the implementation of the designed nursing protocol (post-test). It consisted of two parts. The first part comprised sociodemographic variables including age, sex, marital status, qualifications and years of experience of nurses. It included 6 items (questions from 1 to 6). The second part consisted of 9 items. It assessed the nurses' knowledge of epilepsy, types of epilepsy, causes of epilepsy, signs and symptoms, complications and treatments; it

included 8 questions. One researcher (investigator; Marrwa) prepared the questionnaire sheet, which was done under supervision of other co-authors. She distributed the questionnaire to the nurses and then collected it once all components were answered to by the nurses without any help. Each correct answer was graded 1, and each wrong answer was graded 0, with the total possible score being 75.

Tool II:
Observation checklist sheet for nurses

This tool was developed based on the review of literature regarding the assessment of nursing practices (Abdrbo et al., 2011; Bradley and Lindsay, 2001; El Enein and Zaghloul, 2011). It was used before and after the implementation of the designed nursing protocol to test the effect of the designed nursing protocol on the nurses' practice. Before implementation of the designed nursing program, the researchers had noticed the work of nurses without interference and had assessed 30 patients. This tool consisted of 23 items divided into 3 parts. First, nursing intervention before epileptic fits – this included 6 items. Second, nursing intervention during epileptic fits – this included 13 items. Third, nursing intervention after epileptic fits – this included 4 items. The total possible score of the observation checklist sheet was 23 points, and each item in the checklist was scored as follows: 1 point for each step that was adequately completed and 0 for each step that was inadequately completed or not completed at all.

Tool III:
Patient's assessment sheet

The researchers developed this sheet to check possible complications that might develop among PWE admitted to the Department of Neurology 3 months after the discharge. The researcher (Dr. Ghaydaa) examined and checked the patients twice. The first check-up was before the implementation of the designed nursing protocol. The second check-up was after the implementation of the designed nursing protocol. It included 4 parts covering the following areas; sociodemographic data, general assessment, assessment of body systems, and a detailed assessment of possible complications.

Tool IV:
Construction of the designed nursing protocol

The researchers designed a training program following the first assessment of the nurses' needs determined on the basis of a personal interview between the researchers and the nurses as well as a review of the findings from pre-/post-test questionnaire sheets. It was based on previous training courses applied worldwide and modified according to the needs of the nurses. Then a training program aimed to

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* From the Editor: Tools I–IV developed by the Authors available with the online version of the paper, to be downloaded from: www.neurologia.com.pl.

deliver on-site teaching (in the clinical setting) was conducted, as well as 9 × 30-minute classroom sessions delivered over the course of 3 weeks. It also focused on individualised needs of the nurses. The content included in the designed learning book was: introduction and notes about central nervous system, definition of epilepsy, causes of epilepsy, types of convulsions, symptoms and signs of epilepsy, complications that result from epileptic seizures, cases that need medical help, methods to diagnosis of epilepsy, ways to treat epilepsy, precautions with PWE, nursing care before, during and after epileptic seizures, and role of the nurse in educating the patient and his or her family.

Method of data collection

The researchers collected the data in the Department of Neurology (inpatient clinic) at Assiut University Hospital over a period of 6 months. The tools were filled during interviews with the nurses and patients. The purpose of the study was communicated to the nurses before answering the questions. During the first interview, one of the researchers introduced herself to the nurses to start a line of communication. Also, she explained the nature and the purpose of the training program and filled out the questionnaire sheet (Tool I) before the implementation of the training program to assess the theoretical knowledge needs of the nurses. Based on these results, the researcher determined the training program content to be given to them.

Also, the researcher scheduled with them the teaching sessions for both theoretical and practical parts. The nurses were divided into small groups, with each group containing 4 to 5 nurses. The designed nursing protocol for the nurses conducted in sessions and on-site teaching, during their official working hours. There were 9 sessions in total, and each lasted for 30 minutes. That training course was carried out over a period of 3 weeks in the inpatient department by the Author (investigator; Marrwa). The number of nurses in each session ranged from 4 to 5 persons. Each session started by a summary of what had been taught during the previous one and the goals of the new topics. Feedback and reinforcement of the designed nursing protocol was performed according to the nurses needs to make sure that they understand. Giving praise and/or recognition to the interested nurses was the emphasis for the sake of motivation during the designed nursing protocol implementation.

The researchers assessed the nurses by using observation checklist (Tool II) before and after the implementation of the training program. Before applying the training program, the researchers had assessed the nurses to see the way the nurses dealt with PWE without the interference from the researches. The assessment was conducted over a period of 3 months and on 30 patients. That protocol was applied for generalised tonic colonic convulsion. After the training course, the nurses were reassessed with the observation checklist. The assessment involved the practical skills for each nurse. The practical content was constructed based on

the observation checklist results. Also, it was applied for another 3 months after the training. The observation was made at any times patients' admission and during nurse shifts.

The researchers also explained the nature and the purpose of the designed nursing protocol to the selected patients who are willing to take part in the study and fill out the patient assessment sheet (Tool III). Each nurse obtained a copy of the designed nursing protocol booklet that included all the training content. Each nurse after training was presented with the correct methods of dealing with PWE to their relatives (guardians). In addition, corrected data regarding epilepsy was explained to PWE caregivers. The first assessment took place during the admission of PWE to the inpatient neurology department. The second assessment (at epilepsy outpatient clinic) was taken for each PWE within 3 months following their discharge from hospital.

The whole period for the designed nursing protocol implementation was 6 months.

Ethical considerations

The Regional Ethics Committee of Assiut University approved this study. Informed written consent was obtained from the Health Institute and from each patient or their guardians.

Data analysis

We analysed the data by using SPSS software package version 17. The quantitative variables were presented as means and standard deviation, the qualitative variables were described in the form of frequency and percentage. We analysed all factors separately for univariate comparisons. We used standard tests of significance, such as chi-squared, Fisher's exact text, Student's t-test and paired t-test and $p < 0.05$ was considered significant. Pearson correlation was used to study the relation between different variables as knowledge and practise of nurses.

RESULTS

More than half of the nurses (54.3%) were aged from 20–30 years. Their seniority was ≥10 years. The majority of them were females, they were holders of a diploma in nursing and did not attend any previous training programs (Tab. 1). The mean age of the patients was 37.98 ± 14.77 and most of them had generally the status of epileptics as in Tab. 2.

The mean scores for total knowledge and practice were significantly low before the implementation the designed nursing protocol, as shown in Tab. 3.

We performed a series of Pearson correlations to study the relations between the nurses' knowledge and good practice with different sociodemographic factors as age, sex, marital state, level of education and years of experience. Tab. 4 shows positive correlation (not significant) between the nurses' knowledge or good practice and age or years

Variable	No.	%
Age		
<20 years	1	2.9
20–30 years	19	54.3
≥30 years	15	42.9
Sex		
Male	5	14.3
Female	30	85.7
Marital status		
Single	6	17.1
Married	29	82.9
Level of education		
Diploma in nursing (3 years)	31	88.6
Nursing Technical Institute	2	5.7
Baccalaureate of nursing	2	5.7
Years of experience		
<5	6	17.1
5–10	11	31.4
≥10	18	51.4
History of previous training		
Yes	6	17.1
No	29	82.9
Data expressed as number and percentage.		

Tab. 1. Sociodemographic data of the studied nurses (n = 35)

Variable	
Age: (years) (means ±SD)	37.98 ± 14.77
Sex: male/female (n and %)	
Male/Female	22 (73%)/8 (26.7%)
Marital status	
Single	12 (40%)
Married	18 (60%)
Level of education	
High education	3 (10%)
Secondary education	12 (40%)
Read and write	2 (6.7%)
Illiterate	13 (43.3%)
Occupation	
Office work	3 (10%)
No work	9 (30%)
Farmer	11 (36.7%)
Housewife	6 (20%)
Student	1 (3.3%)
Type of seizure	
Generalised	10 (33.3%)
Myoclonic	2 (6.7%)
Partial followed by generalised	6 (20%)
Status epileptics	10 (33.3%)
Uncontrolled epilepsy	2 (6.7%)
Length of stay (means ± SD) (days)	14.3 ± 5.4
Age at onset (means ± SD) (years)	28.1 ± 15.9
Frequency of epileptic fits	
Daily	16 (53.3%)
Weekly	14 (46.7%)
Monthly	0
Data expressed as means ±SD (standard deviation) or as number and % according to the need. No significant difference between two groups of patients as regards all items in Tab. 2.	

Tab. 2. Sociodemographic and clinical data of the studied patients (n = 30)

of experience before the implementation of the designed nursing protocol. Also, we found a significant correlation between a satisfactory knowledge of epilepsy and good practice of the nurses, as good knowledge was associated with good practice (*r*: 0.987; *P*: 0.0001; Fig. 1).

Tab. 5 revealed that the incidences of epileptic complications after the application of the designed nursing protocol were much decreased compared to the situation before the implementation of the protocol. We found that the majority of the studied sample suffered from aspiration, bitten tongue, bitten lip, bitten cheek, and falling from height or on the ground.

DISCUSSION

Nursing care for patients with epilepsy is a very important issue because such patients are exposed to many risks and complications. Nurses must take special care to decrease the risk. The most important nursing intervention is to keep up an adequate airway, breathing and circulation during seizures and to prevent any injury of the patients with epilepsy. Also, an oral airway suction apparatus should available at bedside at all times (Jamieson *et al.*, 2007).

Data collected before the implementation of the designed nursing protocol (pre-test) showed an unsatisfactory level of nurses' knowledge of epilepsy and care of patients with epilepsy. That led to bad management and care of epileptic patients. The implementation of the designed protocol showed an improvement in the nurses' level of knowledge of how to care for epileptic patients.

Also, the results in the present study revealed a great improvement in the practice score levels obtained by nurses after the application of designed nursing protocol. This finding

Variables	Pre-test	Post-test	*p*-value
Total score of nurses knowledge			
Mean ±SD	29.80 ± 6.77	69.34 ± 3.63	0.0001*
Median	30.0	69.0	
Range	16.0–46.0	57.0–74.0	
Knowledge of nurses about care of epileptic patients			
Mean ±SD	6.14 ± 3.75	26.6 ± 2.20	0.0001*
Median	6.0	27.0	
Range	0.0–15.0	21.0–30.0	
Knowledge of nurses about epilepsy			
Mean ±SD	23.66 ± 4.37	42.74 ± 2.42	0.0001*
Median	23.0	43.0	
Range	14.0–33.0	35.0–46.0	
Total practice scores obtained by nurses			
Mean ±SD	3.26 ± 2.19	20.31 ± 2.05	0.0001*
Median	3.0	20.0	
Range	0.0–9.0	16.0–23.0	
Data was expressed as mean ±SD; median and range. * Statistical significant difference (*p* < 0.05).			

Tab. 3. Total mean knowledge and practice scores obtained by nurses before and after the implementation of the designed nursing protocol (n = 35)

reflected that skills can easily improve, especially if they are synergised with their relevant scientific base of knowledge. Therefore, this study is in agreement with the study carried out by Locharernkul *et al.*, in the Bangkok area of Thailand, where they demonstrate that the total knowledge and attitude scores of two separate groups of physicians and nurses improved, with statistical significance, due to an educational course (Locharernkul *et al.*, 2010). In addition, Youssef *et al.* (2007) declared that there was an improvement in the nurse's practice after the continuation of attendance during learning sessions. Research findings indicated that continued educational nursing programs increase both knowledge and practice (Youssef *et al.*, 2007).

In this respect, Adamolekun *et al.* (2000) found that the service training program had a beneficial effect in the improvement of the nurses' knowledge and skills. In addition, we recommended that educational programs should be organize according to the needs of nurses with continuous evaluation and adoption of proper checklists for work monitoring to enhance patient and staff awareness. This led to a reduction in procedural errors, mitigation of overall risks, and eventually – an effective patient care.

The results in the present study showed no significant difference, although positive correlation, between the nurses' knowledge and practice scores with age and years of experience during the pre-test. This was attributed to the transfer of inappropriate knowledge and practice from older to younger nurses, which in turn led to repetition of the same mistakes in caring for patients. This may be attributed to the lack of continuous education and on-site training program.

As regards complications related to epilepsy, in the present study the incidence of epilepsy complications after the application of the designed nursing protocol was reduced compared to the period prior to the implementation of designed nursing protocol. The most common complications which had happened prior to this implementation were aspiration, bitten tongue, bitten lip, bitten cheek and falling from height or on ground. Therefore, the application of the designed nursing protocol decreased such complications as falling leading to traumas to tongue. It also helped decrease the occurrence of traumas. Thus, improving the nurses' knowledge and practice was considered as an additional advantage of improving PWE condition and preventing complications of epilepsy which resulted from bad practice of the surrounding during fit. Goodwin *et al.* (2004), and Bradley and Lindsay (2001) supported these finding as teaching the nurses led to the improvement of PWE general assessment. Also Cole *et al.* (2010) offered interventions for the caregivers of people with learning disability, including PWE. These caregivers were not qualified nurses and they highlighted the main role of specialist nurses in the management of epilepsy, such as assisting in the follow-up care of patients with epilepsy and reduction of epilepsy-related complications.

Finally, we concluded that the designed nursing protocol for nurses working with PWE achieved its goals in improving the nurses' knowledge and practice with regard to PWE. The professional nurses had a role in decreasing epilepsy-related complications. Therefore, this work provides a basis for planning future training programs for community healthcare nurses in the control of epilepsy complications.

Items	Knowledge		Practice score	
	r-value	*p*-value	*r*-value	*p*-value
Age	0.195	0.262	0.107	0.541
Years of experience	0.104	0.550	0.019	0.913
Pearson correlation coefficient was used.				

Tab. 4. *Correlation between the nurses' knowledge or good practice and their age group or years of experience before and after the implementation of the designed nursing protocol (n = 35)*
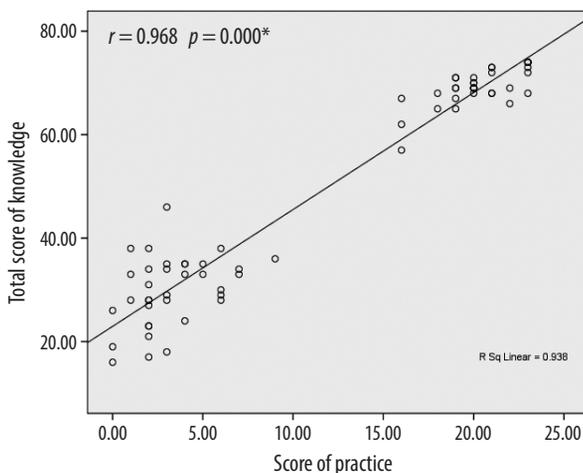

Fig. 1. *Correlation between score of knowledge and practices*

Items	First assessment (*n* = 30)		Second assessment (*n* = 30)		*p*-value
	No.	%	No.	%	
Aspiration	28	93.3	0	0.0	-
Fractured skull	0	0.0	0	0.0	-
Fractured spine	0	0.0	0	0.0	-
Fractured limbs	1	3.3	0	0.0	-
Shoulder dislocation	0	0.0	0	0.0	-
Bitten tongue	30	100.0	2	6.7	0.0001*
Bitten lip	30	100.0	2	6.7	0.0001*
Bitten cheek	30	100.0	3	10.0	0.0001*
Falling from height or on ground	29	96.7	3	10.0	0.0001*
Data were expressed as number and percentage; chi-square test was used to compare between the first and the second assessments. * Statistical significant difference (*p* < 0.05).					

Tab. 5. *Percentage and distribution of epilepsy complications of the studied patients, before and after the implementation (the first and the second assessment) of the designed nursing protocol (n = 30)*

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