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Research paper

Infection control: effect of nursing teaching protocol on nurses' knowledge and practice regarding kidney transplantation patients

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Abstract

Aims: Assess nurses' knowledge & practice about infection control regarding kidney transplantation patients, design and implement of nursing teaching protocol regarding kidney transplantation patients, & assess the effect of nursing teaching protocol on nurses knowledge and practice about infection control regarding kidney transplantation patients. The study was conducted in the kidney transplantation unit of Assiut Nephrology Hospital; data were collected from all nurses working in Kidney Transplantation Unit (30 nurses). Three **tools** used for data collection; Pre-posttest interview questionnaire sheet & observation checklist sheet, & Nursing teaching protocol**.**
Results: all the nurses were female, most of them their ages were from 18 - 25 years, single, living in the rural area, had a high degree in nursing. Most of them had previous infection-control training. An improvement in the mean knowledge & practice scores were found after the application of the teaching protocol (1st hypothesis). A positive correlation between nurse's knowledge and practice scores after application of the nursing teaching protocol (2nd hypothesis).
Conclusions: Improving nurse's knowledge and practice can favorable affect the incidence and outcome of kidney transplantation patients.
Recommendations: There is a need for continued and written standards training programs about infection control regarding kidney transplantation patients and should be available.

Keywords: *Infection Control; Kidney Transplantation; & Nursing Teaching Protocol.*

1. Introduction

Kidney transplantation was the ideal treatment option for many patients with ESRD because of; a better quality of life, a greater freedom from dependence upon a machine, freedom from fluid and dietary restriction, return of sexual function and fertility with the possibility of parenthood. It had been estimated that the cost of continuing to care for the transplanted patient was one-fifth of the cost of dialysis per year (Saad et al., 2011).
Kidney transplant operations should be attempted only after a period of study and preparation. Therefore, careful pre-transplant evaluation and teaching were necessary to prepare the patient for surgery and postoperative course, and also to provide a greater chance of long-term success. The patient undergoing kidney transplantation requires aggressive medical care and expert nurses for educating the patient and family, meeting care needs, and for close monitoring and management. (El-Gharabawy et al., 2011).
Medical-Surgical Nursing practice requires complex combinations of knowledge, performance, skills and attitudes, a holistic definition of competence. This could facilitate greater acceptance of the concept and development of competency standards. The Standards of Care gives an overview of how the nurse will collect and analyze the data, identify the problems, and plan of care. Implementation of the plan, coordination of the care using all resources available, and reinforcing with teaching and health promotion covers the general nephrology nurse standards. (Ibrahim et al., 2014).
Knowledge of the nurse of post-operative care of kidney transplantation was of crucial importance and had an impact on nurse's practice. The main goal of care was to maintain homeostasis until the transplanted kidney functioning well. Furthermore, there were several complications related to transplanting such as rejection, infection and those related to immunosuppressive. So, the success of the kidney transplant depends on the maintenance of functioning graft (Nakashima et al., 2012).
The nurses who will gain more information about infection control that may decrease post-operative infection for kidney transplantation patients. Therefore, strengthening and integrating universal precaution with the routine services through the provision of training and preparing and introducing health-care workers infection prevention standard of practice, protocol, rules, regulation and opportunities to promote the desired team sprit at all health facility levels were recommended. (Hussen and Shehata, 2016).

1.1. Significance of the study

Kidney transplantation is considered the main decision strategy for renal replacement therapy for end-stage renal disease patients who had no physical or psychological contraindications; healthcare-associated infection (HAI) prevalence survey found that there were an estimated 157,500 surgical site infections associated with

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inpatient surgeries in 2013. Applying universal precautions are very important for decreasing the risk of infection (CDC, 2017 & van, 2014). According to experience of researchers, it was noted that the nurse's knowledge about that measures insufficient and requirement for improvement.

1.2. Aims of the study

1) Assess nurses' knowledge & practice about infection control regarding kidney transplantation patients
2) Design and implement of nursing teaching protocol regarding kidney transplantation patients
3) Assess the effect of nursing teaching protocol on nurses knowledge and practice about infection control regarding kidney transplantation patients

1.3. Hypotheses

To fulfill the aim of the study, the following research hypotheses will be formulated:

1) The post mean knowledge and practice scores of nurses who will be exposed to a designed nursing teaching protocol will be higher than their pre mean scores.
2) A positive relationship will exist between knowledge and practice scores obtained by nurses receiving the designed nursing teaching protocol.

2. Patients and method

2.1. Research design

Quasi experimental (pre and posttest) research design was utilized throughout this study.

2.2. Setting

The study was conducted at kidney transplant unit of Nephrology University Hospital

2.3. Subjects

All nurses working at kidney transplant unit (30 nurses).

2.4. Tools

Data pertinent to the study were collected, using the following 3 tools:

2.4.1. Pre and posttest interview questionnaire sheet

This tool was to measure the exact knowledge level of nurses about infection control regarding kidney transplant. The researchers used it pre & post the intervention of the teaching protocol. It consisted of two parts: The total number of items (32).
A- Demographic data included 9 items about the nurses' code, age, gender etc…
B Nurse's knowledge included 9 items about kidney transplantation definition, causes, emergency care, & 14 items about universal precautions nursing care to post kidney transplant patients. The questionnaire sheet was filled by the researchers after asking the nurses.
Scoring system:
Correct answer = 2 & incorrect answer = 1. The total scores were 64. < 50 % unsatisfactory level of knowledge, 50 %: 70% satisfactory level of knowledge, & > 70 % good level of knowledge.

2.4.2. Observation checklist sheet

It was applied by the researchers to assess the nurse's practice as regard prevention of infection with post kidney transplant patients. It used before and immediately after the application of the teaching protocol. It consisted of:

1) General precautions for the care of kidney transplant patients who included 7 items.
2) Specific precautions. (Items from 8 to 14), as regards activities to minimize infection during the following procedures: cannula insertion, IV fluid infusion, blood transfusion, urinary catheter insertion, suctioning, naso- gastric tube insertion (Ryle), surgical wound care.
3) Infection-control measures. It includes 11 items (Items from 15 to 25) which includes universal precautions as: hand washing, wear gloves, change gloves, remove gloves promptly, wear gown, mask & eye protection, patient- care equipment, dealing with sharp objects, & blood, body secretions & fluids, maintain clean environment, safe injection practices, visitors precaution, patient dietary, & precautions.

Scoring system:
(2) For correct & complete step, (1) for correct & incomplete step, & (0) for incorrect step.
The total score for all items = 206, less than 50% were considered an unsatisfactory level of practice. From (50% to 70%) were considered a satisfactory level of practice. Above than (70%) were considered the good practice level.

2.4.3. Nursing teaching protocol

The nursing teaching protocol was developed based in simple Arabic language by the researcher based on nurse's needs assessment, literature review, opinion of nursing and medical expertise, and researcher experience to evaluate the effect of nursing teaching protocol on nurses' knowledge and practice regarding kidney transplantation patients and consists of three parts:
Part 1: information about kidney transplant (definition, indications, contraindication, & complications)
Part 2: information about infection control for a patient with kidney transplantation (definition of infection, chain of infection, & precaution to decrease infection.
Part 3: information about how to perform hand washing, gloves (wear, change, & remove), wear gown, mask & eye protection, care of equipment, dealing with sharp objects, blood, body secretions & fluids, maintain clean environment, safe injection practices, visitors precaution, patient dietary, & precautions.
Part 4: information about how to perform cannula insertion, IV fluid infusion, blood transfusion, urinary catheter insertion, suctioning, nasogastric tube insertion (Ryle), surgical wound care.

3. Methods of data collection

3.1. Administrative approval

Official permission was obtained from the head of the kidney transplant unit of Nephrology University Hospital to conduct the study, the aim of the study was explained to them to obtain their cooperation.

3.2. Pilot study

Three nurses (10%) to examine the feasibility and clarity of the study tools who included in the actual study. Analyses of the pilot study revealed that minimal modifications were required, these modifications were done.

3.3. Ethical consideration

The study will be approved by the Faculty ethics committee; an oral approval was obtained from the enrolled patients to participate in the study after explaining the nature and purpose of the study. The researchers explained that participation is voluntary, and their participation status will not affect the care they will receive.

3.5. Data collection

The data were collected over a period of 6 months starting from January 2017 till the end of June 2017. The data collection was done in the following phases:

3.5.1. The preparatory phase

The researchers designed the protocol and assessed nurse's knowledge and practice (using tool I and II) and content feasibility and reliability tools was assessed by three experts in nursing and nephrology field. Researchers prepared the training places, teaching aids and media (pictures, videotapes, Power Point presentation and handouts).

3.5.2. The implementation phase

Nursing teaching protocol sessions:
The researchers filled out the pre - test interview questioner sheet. The teaching protocol was implemented during their shift hours. Three sessions were varied according to nurse's understanding and availability. There were a total three sessions were conducted for nurses, each session ranged between (20 - 30) minutes except for the session for discharge instruction, which took 60 minutes. Each session usually started by a summary of what was taught during the previous session and the objectives of the new session. After each session, there was 5 minutes for discussion and gave feedback. Reinforcement of teaching was performed according to the nurse's ability to ensure their understanding. Each nurse obtains a copy of the nursing teaching protocol booklet. The researcher used pictures for illustration, diagram, and video to educate the nurse.
The first session it contains two parts:
Part 1: Information about the kidney transplant (definition, indications, contraindication, & complications)
Part 2: Information about the information about infection control for patient with kidney transplantation (definition of infection, chain of infection, & precaution to decrease infection.
The second session: Teach nurses how to perform hand washing, gloves (wear, change, & remove), wear gown, mask & eye protection, care of equipment, dealing with sharp objects, blood, body secretions & fluids, maintain clean environment, safe injection practices, visitor's precaution, patient dietary, & precautions.
The third session: Teach nurses how to perform cannula insertion, IV fluid infusion, blood transfusion, urinary catheter insertion, suctioning, naso gastric tube insertion (Ryle), surgical wound care.

3.5.3. The evaluation phase

The last phase nursing teaching protocol is the evaluation phase. In which the nurses was evaluated immediately after implementation of teaching protocol by the researcher. In this phase the nurse's knowledge and practices were evaluated after protocol implementation (tool I and II).

4. Results

Table 1 Showed that all of the nurses (100%) were female, most of them (76.7%) their age were from 18 - 25 years, (80%) single, (60%) living in rural area, (100%) had high degree in nursing, (86.7%%) their experiences from 1-3 years, most of them (80%) had previous infection control training.
Table 2 and Fig, 1. Illustrates that a highly statistical significance difference was between pre & post knowledge, which was very low before the teaching protocol (93.3 unsatisfactory). Furthermore, the mean nurses' knowledge scores increased after the application of the teaching protocol (93.3 Satisfactory).
Table 3 and Fig. 2. Showed that the nurses' practice scores improved after the application of the teaching protocol.
Fig. 3. Showed a positive correlation between nurse's knowledge and practice scores.
Table 4. Show that there was highly statistical significance between pre & post- nurses' practice. A sharp improvement in the practice scores in post - test (90.0%, 90.0%, and 86.7% respectively). Results showed that demographic characteristics not affect nurse's pre- knowledge.

Table 1: Distribution of the Demographic Characteristics for Nurses and Attending the Training Program for Nurses. (N=30)

Items	N. =30.	%
1. Gender:		
- Male	0	0.0
- Female	30	100.0
2. Address:		
- Urban	18	60.0
- City	12	30.0
3. Age:		
- 16 – 25	23	76.7
- 26 – 40	6	20.0
- > 40	1	3.3
Mean ± SD	24.73 ± 4.6	
Range	22 – 48	
4. Education level:		
- High education	30	100.0
- Technical institute	-	-
- Diploma degree	-	-
5. Experience level:		
- 1 to > 3 years	26	86.7
- 5 to < 10 years	3	10.0
- >= 10 years	1	3.3
6. Marital status:		
- Single	24	80.0
- Married	6	20.0
7. Attending training:		
- Yes	24	80.0
- No	6	20.0
A. If yes: Numbers of training:		
- One	23	76.7
- Two	1	3.3
- More than two	-	-

- None	6	20.0
B. Training Name:		
- Infection control	24	80.0
- Other	-	-
- None	6	20.0
C. Duration:		
• One week	24	80.0
• More	-	-
• None	6	20.0
D. Time:		
• From 1 year	12	40.0
• From 2 years	1	3.3
• From 3 years	11	36.7
• None	6	20.0

Table 2: Distribution of Samples According to Level Nurses' Knowledge. (N=30)

Nurses' knowledge	Pre - test		Post - test		p-value
	N.	%	N.	%	
- Satisfactory	2	6.7	28	93.3	0.001 ***
- Unsatisfactory	28	93.3	2	6.7	
Total	30	100.0	30	100.0	

Independent sample T-test statistically significant at $p < 0.05$*.

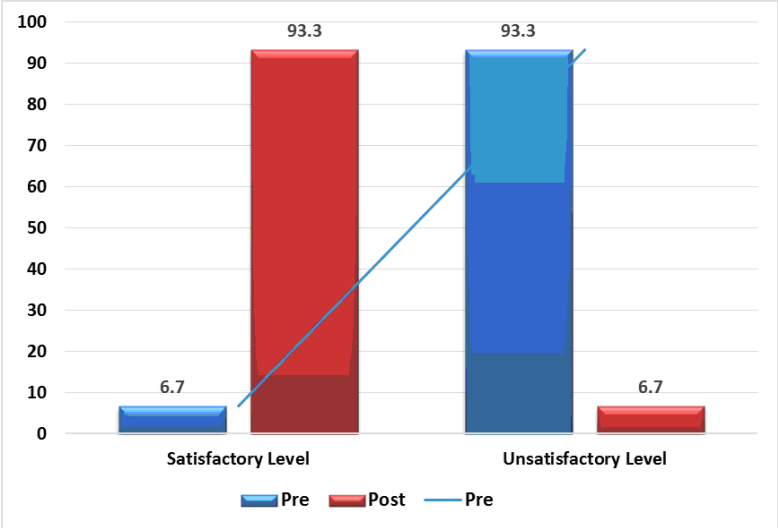

Fig. 1: Distribution of Samples According to Level Nurses' Knowledge.

Table 3: Distribution of Samples According to Level of Nurses' Practice (N= 30)

Nurses' Practice	Pre- test		Post - test		p-value
	N.	%	N.	%	
- Satisfactory	-	-	30	100.0	0.001 ***
- Unsatisfactory	30	100.0	-	-	
Total	30	100.0	30	100.0	

Independent sample T-test statistically significant at $p < 0.05$*.

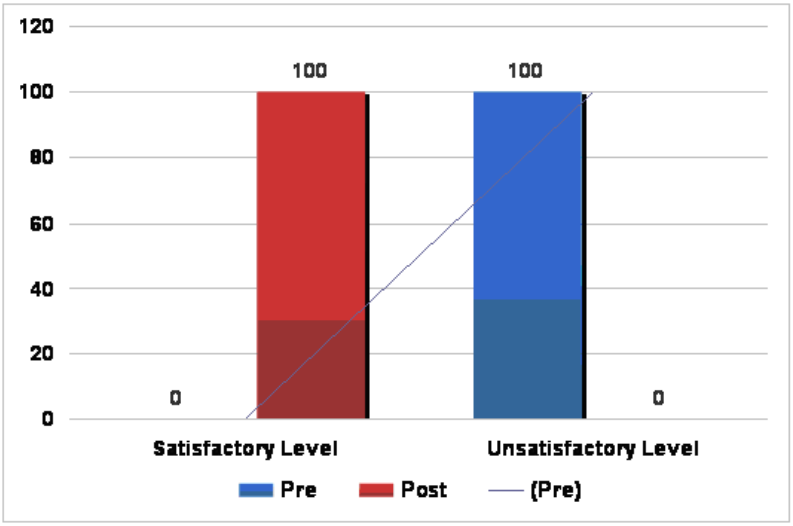

Fig. 2: Distribution of Samples According to Level of Nurses' Practice (N= 30).

Table 4: Distribution of Nurses' Practice Scores Pre & Post Application of Nursing Teaching Protocol (N=30)

Items	Pre - test								Post - test								P-value	F-test
	Done Correct		Incorrect		Not Done		Not Applicable		Done Correct		Incorrect		Not Done		Not Applicable			
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%		
1. General precautions	2	6.7	25	83.3	3	10.0	-	-	27	90.0	-	-	3	10	-	-	0.001	38.319
2. Specific precautions	-	-	19	63.3	11	36.7	-	-	27	90.0	-	-	3	10	-	-	0.001	66.651
3. Apply infection control measures	1	3.3	19	63.3	10	33.3	-	-	26	86.7	4	13.3	0	-	-	-	0.001	100.637

Statistically significant at $p<0.05$.

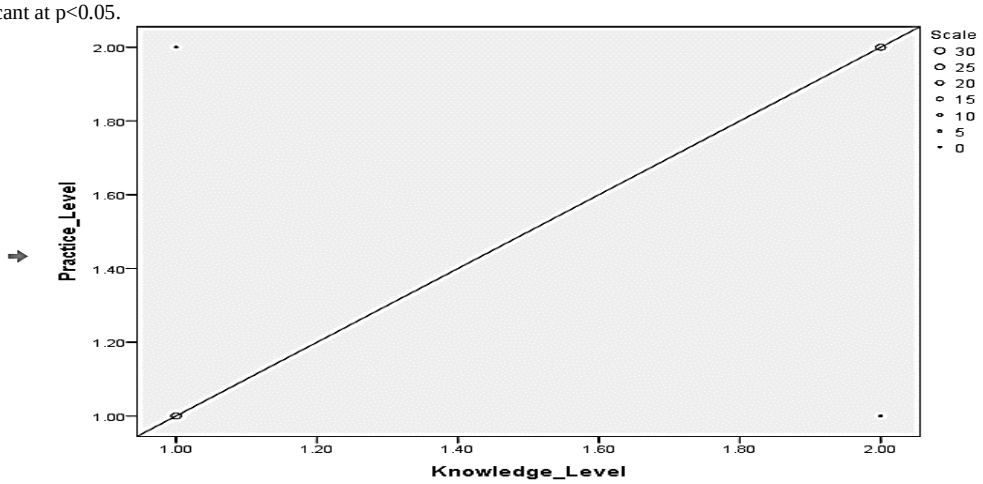

Fig. 3: Relation between Nurses' Knowledge and Practice (N=30).

5. Discussion

The results revealed that all of the nurses were female had a high degree in nursing, and their experiences from 1 to3 years, most of their ages were from 18 to 25 years, single, living in the rural area, take previous training about infection control.

Most of them had no in-serves training courses related to infection control so their knowledge regarding infection control before implementation of teaching protocol was inadequate.

This results in the same line with (Aydin & Karadağ, 2014) who emphasized that the intense need for educational interventions into the field of hospital-acquired infections/safety measures for health-care workers, especially among nurses.

In our research, there were lacked of all nurses' knowledge & practice about infection control measured regarding patients undergoing kidney transplantation before the application of teaching protocol. In these respects (Hussein & Shehata, 2016) specified that a report by the Hong Kong government noted that hospital infection control standards were inadequate, requiring development and implementation.

All nurses should have been energized for attending an educational training program, According to (Ayed et al., 2015 & Sayed et al., 2011) in their study knowledge and practice of standard precautions among health-care workers (nurses) emphasized that the intensive program was important to teach health-care workers in a different parts of standard precautions and infection-control training programs and strategies.

As indicated by (Wallen et al., 2010, Hussen et al., 2009 & Rahim & Barnett, 2009) a continuous infection-control training is very important because infection considers the primary cause of inpatients' morbidity and mortality.

Nurses' knowledge regarding infection control was improved. This might be related to the fact that most of the nurses were young who had incredible status for adapting new things. They may have fewer obligations as they were single. These results were in line with those of (Ghanem & El-khayat, 2012 & Chen et al., 2013) who marked that young and newly graduated nurses' information were higher than older ones.

The researchers established that nurses' practice was enormously moved forward. These discovered that performance can be progress with knowledge increasing. In this regard, (Fry et al., 2009, Taylor, 2015) reported that the in benefit preparing the program had a useful impact in enhancing nurses' performance and follow up the audience's capacity to hold data and enhance their abilities.

These findings were in concurrence with those of (Sherwood, 2006 & Sayed et al., 2011) who expressed that a lot of studies revealed that changes in nursing practice occur following the participation of persistent nursing educational programs increase knowledge and skills and can likewise change attitudes.

According to (Yatin et al., 2014 & Janet, 2016), bolstered that in service program beneficially affected enhancing the nurses' performance. These researchers prescribed that educational programs should be organized according to the need of the nurses with constant evaluation.

This study revealed that no relationship between nurse's sex, years of experience and residence with their knowledge and practice scores, pre and posttest of implementation of the nursing teaching protocol. This result was concurred with (Ahmed et al., 2015 & Ahmed, 2015) who reported that, was no statistically significant relationship between nurse's knowledge and practice with the sex and residence of the nurses.

This result disagreed with that of (Navid et al., 2011, Meretoja et al, 2015 & Elewa and Elkattan, 2017) who mention that nurses's knowledge affected by their years of experience observed pretest, posttest furthermore, the subsequent tests. Furthermore, (Helmy et al., 2017, Santana et al, 2015 and Thompson & Barratt, 2017) expressed that, older nurses in one clinical specialty may require a direct measure of guidelines to secure through a training program.

At long last, the researchers condensed that, the nursing teaching protocol for nurses working with kidney transplantation patients achieved its objectives. (Sayed et al., 2011, Singh et al., 2011, Dezfouli et al., 2012, Ghanem and El-khayat, 2012, Khalil et al., 2015, Ahmed 2015, Emerson et al. and 2016, Hussein and Shehata, 2016) specified that nurse who had an extensive role in prevention/or reduction of infection.

6. Conclusion

Kidney transplantation patients were at high risk for infection also nurses who were dealing with those patients. Nurse's information and skills about control measures against infection in kidney

transplant unit at Assiut Nephrology Hospital were insufficient. Nurses were potentially ready to upgrade their knowledge and practice after receiving nursing teaching protocol in addition to have great effect in the patients' outcome.

7. Recommendations

- There is a need for continued education and training programs about require safety measures to diminish infection regarding kidney transplantation patients.
- Written standards for infection control should be available in all departments.

References

[1] Ahmed G. H., Mouhamed Z. A., Mahmoud K. A. and Ghanem H. M., (2015): Effect of a designed nursing protocol on nurses knowledge &practice regarding Coronary Artery Bypass Graft surgery, Assiut Scientific Nursing Journal, Vol. (3), No. (5), P.P.129:137.

[2] Ahmed N. M., (2015): Effect of Designed Nursing Protocol on Nurse's Knowledge and Practice Regarding Chemotherapy, Med. J. Cairo Univ., Vol. 83, No. 2, September: 209-216, www.medicaljournalofcairouniversity.net

[3] Aydın, B. and Karadağ, N., (2014): Mean platelet volume and uric acid levels in neonatal sepsis,The Indian Journal of Pediatrics, 81(12), P.P.1342:1346.

[4] Ayed, A., Eqtait, M., Fashafsheh, I., & Ali, G. (2015): Knowledge & Compliance of Nursing Staff towards Standard Precautions in the Palestinian Hospitals. Advances in Life Science and Technology, 36, 21-30.

[5] CDC National and State Healthcare-Associated Infections Progress Report, published Junuary 2017, available from: https://www.cdc.gov/nhsn/pdfs/pscmanual/9pscssicurrent.pdf.

[6] Chen Y.R., Yang Y., Wang S.C., Chiu P.F., Chou W.Y., Lin C.Y., Chang J.M., Chen T.W., Ferng S.H., and Lin C.L. (2013): Effectiveness of multidisciplinary care for chronic kidney disease in Taiwan: a 3-year prospective cohort study. Nephrol Dial Transplant.;28(3):671-82 https://doi.org/10.1093/ndt/gfs469.

[7] Dezfouli M. R. M., Lotfollahzadeh S., Sadeghian S., Kojouri G. A., Eftekhari Z., Khadivar F., and Bashiri A., (2012): Blood electrolytes changes in peritonitis of cattle, international weekly Journal of science, Springer International Publishing AG. Part of Springer Nature. Comp Clin Pathol, 21:1445–1449, https://doi.org/10.1007/s00580-011-1312-6.

[8] Elewa Z. A., Elkattan B.E.A.,(2017): Effect of an Educational Program on Improving Quality of Nursing Care of Patients with Thalassemia Major as Regards Blood Transfusion American Journal of Nursing Research, Vol. 5, No. 1, 2017, P.P 13:-21. doi: 10.12691/ajnr-5-1-2,http://pubs.sciepub.com/ajnr/5/1/2/index.html. https://doi.org/10.12691/ajnr-5-1-2.

[9] El-Gharabawy, H. E.., Salwa A., Khaled F. E., Howida K. Z,. (2011): Assessment of Nurses Performance for Patient with Kidney Transplantation In Urology &Nephrology Center At Mansoura / Zagazig University. Faculty of Nursing. Medical-Surgical Nursing.

[10] Emerson, C., Lipke, V., Kapata, N., Mwananyambe, N., Mwinga, A., Garekwe, M., & Miller, B. (2016). Evaluation of a TB infection control implementation initiative in out-patient HIV clinics in Zambia and Botswana. The International Journal of Tuberculosis and Lung Disease, 20(7), P.P.941:947.

[11] Fry H., Ketteridge S. and Marshall M., (2009): A Handbook for Teaching and Learning in Higher Education, Enhancing Academic Practice, Part 2 Teaching in the disciplines, 3rd edition, Taylor & Francis or Routledge's, PP. 203.

[12] Ghanem H. M. and and El-khayatR.E., (2012): Chronic Subdural Hematoma: Effect of Developing and Implementing Postoperative Nursing Care Standards on Nurses Performance for Reduction or Prevention Postoperative Complications., Journal of American Science, 2012;8(2).

[13] Helmy A., Farag F., Abd El-Fattah N. and Sheta T.,(2017): Endocan as a Novel Biomarker Versus Alphafetoprotein in Hepatitis C Virus Related Cirrhosis with Hepatocellular Carcinoma, Life Science Journal, Volume 14 - Number 8 (Cumulated No. 79), 25, http://www.lifesciencesite.com. 1. doi:10.7537/marslsj140817.01.

[14] Hussein A.H. and Shehata G. A. (2016): Effect of Nursing Teaching Protocol on quality of life for Patients with Parkinson's Disease, Life Science Journal 2016;13(4).

[15] Hussen S.H., Estifanos W.M., Melese E. S. and Moga F.E., (2009): Knowledge, Attitude and Practice of Infection Prevention Measures among Health Care Workers in Wolaitta Sodo Otona Teaching and Referral Hospital, Volume 6, Issue 4, 1000416.

[16] Ibrahim, A. S., Khaled, H. M., Mikhail, N. N., Baraka, H., & Kamel, H. (2014). Cancer incidence in Egypt: results of the national population-based cancer registry program. Journal of cancer epidemiology, volume 2014. https://doi.org/10.1155/2014/437971.

[17] Janet B., (2016): Nurse Consultant NHSN Training NHSN Surgical Site Infection Surveillance, National Center for Emerging and Zoonotic Infectious Diseases Division of Healthcare Quality Promotion.

[18] Khalil S.S., Youssef M. K. E., Mekkawy M.M. and Abdelmalek, M. O., (2015): Liver Cirrhosis: Impact Of Nutritional Regimen on Patients Outcome, IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN: 2320–1959.p- ISSN: 2320–1940 Volume 4, Issue 2 Ver. III (Mar.-Apr. 2015), PP 22-35 www.iosrjournals.org.

[19] Meretoja R., Numminen O., Isoaho H., and Leino Kilpi H. (2015): Nurse Competence between three generational nurse cohorts: A cross sectional study. International journal of nursing practice, 21(4), PP.350:358. https://doi.org/10.1111/ijn.12297.

[20] Nakashima JP, Koifman RJ, Koifman S. Incidência de câncer na Amazônia ocidental: estimativa de base populacional de Rio Branco, Acre, Brasil, (2012): 2007-2009. Cad Saúde Pública. 28(11):2125–2132. https://doi.org/10.1590/S0102-311X2012001100012.

[21] Navid M., Abbas A. & Rasoul M. M. (2011) Percutaneous exposure incidents in nurses: Knowledge, practice and exposure to hepatitis B infection, Hepat Mon, 11(3):186-190

[22] Rahim H.j., AR and Barnett, A.P., (2009): Reducing nosocomial infection in neonatal intensive care: An intervention study, International Journal of Nursing Practice, 15, (6) pp. 580-584. ISSN 1322-7114. [Refereed Article], https://doi.org/10.1111/j.1440-172X.2009.01800.x.

[23] Saad, S. M., Ola A. A. & Abd Elrahman A., (2011) :Assessment Performance of Nurses Caring for Patients with Kidney Transplantation, Ain Shams University. Faculty of Nursing. Nursing Science department.

[24] Santana M.J., Hadrman L., Absolom K., Takeuchi E., Feeny D., Grootenhuis M., & Velikova G. (2015): Training clinicians in how to use patient-reported outcome measures in routine clinical practice. Qual Life Res.; 24(7):1707-18. https://doi.org/10.1007/s11136-014-0903-5.

[25] Sayed S.Y., Ghanem H.M. , Mohamed W.Y. and. El-Gamal T. A.,(2011): Micro Vascular Free Tissue Transfer Surgeries : Impact of a Designed Teaching Protocol on Nurse'sPerformance for Reduction or Prevention of Post-Operative Flap Failure, Life Science Journal,;8(2)

[26] Sherwood G. (2006), Nursing Aminstrator Perception of the impact of continuing nursing education in underservedwereas J Cont Edu Nurs; 27(3), 129-133.

[27] Singh B., Purohit B. M., Bhambal A., Saxena S., Singh A. and Gupta A.,(2011): Knowledge, Attitudes, and Practice Regarding Infection Control Measures Among Dental Students in Central India, Journal of Dental Education, Volume 75, Number.

[28] Taylor, S. (2015): Pediatric Nurses' Perceptions of Continuing Professional Development Opportunities. Vol.558.

[29] Thompson, S., Moorley, C., & Barratt, J. (2017): A comparative study on the clinical decision making processes of nurse practitioners vs. medical doctors using scenarios in a secondary care environment. Journal of advanced nursing, 73(5), 1097-1110. https://doi.org/10.1111/jan.13206.

[30] Van H., M. (2014). EUT Congress News, 29th Annual Congress of the European Association of Urology, 1st edition.

[31] Wallen G.R., Mitchell SA., Melnyk B., Fineout-Overholt E., Miller-Davis C., Yates J. & Hadtings C. (2010): Implementing evidence-based practice: effectiveness of a structured multifaceted mentorship program. Journal of Advanced Nursing 66(12), PP. 2761:2771.

[32] Yatin M., Abhinav G., Subhadh T., Myatra S.N. Samaddar D. P., Vijaya P., Pradip k., Bhattacharya, & Ramasubban S., (2014): Guidelines for prevention of hospital acquired infections, Indian J Crit Care Med.; 18(3),PP. 149:163.