

Developing standards of post-operative nursing interventions for lower limb amputated patients

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Abstract

Limb amputation usually refers to the removal of part of or the entire upper or lower limb with a defined surgical approach. In the united states there is an estimated 1,7 million people living with an amputation in 2008 and approximately 135,000 new amputations occurring each year. **The aim of this study** was to develop standards of post-operative nursing interventions for lower limb amputated patient. **Subjects and method: research design** descriptive exploratory study was utilized. **Setting** the study was carried out at trauma unit and vascular surgery department at Assiut University Hospital. The study sample divided into two groups: Group I: It includes all baccalaureate nurses (4) who working in vascular surgery department and trauma unit. Group II: It includes all diploma nurses (60) who working in vascular surgery department and trauma unit. **Tools** It utilized for data collection were **Tool I** post operative cognitive assessment sheet, **Tool II** post operative competencies opinionnaire sheet, **Tool III** standards of post operative practice sheet. **Results** showed that; more than half of nurses had fair knowledge regarding standards of post operative interventions for lower limb amputated patients. The majority of nurses had agreed as regarding prepare the trauma unit and vascular surgery with the necessary equipment, prepare the car/ table with basic instruments according to patient's condition, ensure that continuous monitoring and recording are followed for post operative patients, ensure that all infection control measures are properly followed in all procedures, ensure that all health team are properly attired for patient care, ensure that safety for each patient during transportation from operating room to unit, ensure that all staff members follow ethics and patient rights in the trauma unit and vascular surgery department.. Nurses showed inadequacy in their practice about standards of post operative interventions for lower limb amputated patients. **Conclusion:** Formulation of standards is the first step toward evaluating nursing care delivery. **Recommendation:** Implementation of standards of post operative nursing interventions for lower limb amputated patient is necessary for trauma unit and vascular surgery.

Key Words: Amputation , standards of nursing intervention, patients

Introduction

Amputation is the surgical removal of part or all of a body part, except for organs in the body (Wong, 2004). The vast majority of amputations are performed because the arteries of the legs have become blocked due to hardening of the arteries (atherosclerosis). Because diabetes can cause hardening of the arteries, about 30-40% of amputations are performed in patients with diabetes (Moxey et al., 2010).

Prevalence of amputations internationally has been reported as 17-30 per 100,000 persons. Non industrialized countries generally have a higher incidence due to a higher rate of war, trauma, and less developed medical systems. Trauma is the most common cause of amputations in non industrialized countries. The continued high levels of conflict worldwide, including continued use of land mines and increased use of motorized transportation, will

result in an increasing prevalence of persons with an amputation globally, equating to an increase in the number of persons with chronic disabling conditions. It is estimated that more than 170 million people are suffering from diabetes globally and this number is expected to double by 2030. (Derker, 2005)

Limb amputation results in significant changes in body structures and functions. There is the physical loss of a body part as well as the closely related effects of the underlying disease, co-morbidities, and concurrent injuries. Persons with amputations may also experience a wide range of activity limitations and participation restrictions (Kohler et al., 2009).

Recognition of signs and symptoms of early post-operative complications is important and will require consultation with appropriate health care providers. Potential complications that occur during the acute care hospital stay that would increase morbidity/mortality (Aulivola, 2004). Cardiac complications including arrhythmia, congestive heart

failure (CHF), and myocardial infarction (MI). Systemic complications including pneumonia, renal failure, stroke, and sepsis. Complications at the surgical site include hemorrhage or hematoma, wound infection, and failure to heal requiring additional operative interventions such as split-thickness skin grafting (STSG), hematoma evacuation, soft tissue debridement, stump revision, and conversion to above knee amputation(AKA) after below knee amputation(BKA). If a patient presents during the first few days post-operatively with increased pain, excessive swelling, decreased muscle strength or sensation along a motor and/or sensory nerve distribution, sudden shortness of breath and decreased oxygen saturation along with increased resting heart rate, physical therapy interventions must be stopped, and the medical team consulted (Aulivola,2004)

Standards of practice are essential because they serve as guidelines for providing and evaluating nursing care. Amputee care standards has been developed to assist clinician in the management of people who have experienced amputation of limb deficiency. It includes care from pre-operative through to long term community care (Zidarov et al., 2009)

Significance of the study

In Assiut University Hospitals nurses are trained informally by physicians to perform their role, and in reviewing the post operative care undergraduate medical-surgical course, Moreover, analysis of surgical department record at the hospital indicate a lack of nursing evaluation tools , as well as adequate standards ,Therefore, the present study will attempt to establish standards of post-operative nursing interventions for patients' with lower limb amputation and to develop a reliable and valid assessment tools that can be used in appraising basic post-operative nursing competencies.

110 patients with lower limb amputation were reported in vascular surgery department at Assiut university hospital in 2009.

Aim of the study:

The aim of this study is to develop standards of post-operative nursing interventions for patients with lower limb amputation.

Subjects and method

Research design:

The research design in this study was descriptive exploratory that investigate the role of post-operative nurses and their knowledge.

Setting

This study was conducted in the vascular surgery department and trauma unit at Assiut University hospital.

Subjects

64 nurses (4 Baccalaureate degree -60 Diploma) who working in vascular surgery department and trauma unit.

Tools

Three tools were used in this study and developed by the researcher to collect the necessary data for this study.

Tool I: Post-operative cognitive assessment sheet for nurses (PCAS) (Annex I)

A structured written questionnaire addressed the basic nurses' knowledge for two groups. It include the following parts

Part I: Socio-demographic data

This part comprised nurse's age, Level of education, sex, years of experience, marital status, and qualifications

Part II: Assessment of nurses' knowledge about lower limb amputation

This part included definition of amputation, causes of amputation levels of amputation, symptoms of amputation, contraindication of amputation and complication of amputation.

Part III: Assessment of nurses' knowledge after lower limb amputation

This part included immediate nursing intervention after operation, routine post-operative intervention, guidelines that given to patients before discharge, signs and symptoms of stump infection, exercises. This part also includes 11 multiple choice questions to nurses about post-operative intervention for amputated patients guidelines that given to patients before discharge, signs and symptoms of stump infection.

Scoring system

The total number of questions was (29). The total scores were (100). Those who obtained less than 50% were considered having poor level. While those who obtained 50-70% were considered having fair level and those who obtained more than 70% were considered having good level.

Tool II: Post-operative competencies basic nursing opinionnaire sheet for nurses (PCOS) (Annex II)

It was developed by the researcher based on current national and international literature in order to elicit opinions of two groups as regard to the basic nursing competencies for post-operative amputated patients.

This tool covered 7 major broad competencies which were further subdivided into sub competencies

- 1 .Ensure that the trauma unit and vascular surgery department are ready to receive the amputated patient.
2. Ensure that the trauma unit and vascular surgery department environment are safe to receive amputated patient.
3. Ensure that continuous monitoring and recording are followed for post- operative amputated patients.

4. Ensure that all infection control measures are properly followed in all procedures.
 5. Ensure that all health team are properly attired for patient care.
 6. Ensure that safety for each patient during transportation from operating room to the unit.
 7. Ensure that all staff (health team) follows ethics and patient's rights in the trauma unit and vascular surgery department.
- The scoring system of the nurses' opinionnaire was as follow Competencies of care score Agree 1 Disagree 0

Tool III: Standards of Post-operative practice sheet for nurses (PPS) (Annex III)

This tool was developed by the researcher based on the current national and international literature to assess standards practice of nurses providing care for post-operative amputated patients. It consists of three parts

Part I: immediate post-operative nurses practice competencies

This part includes assessment patient's respiratory function, patient's circulatory function, thermoregulatory function, neurological function, gastrointestinal function, elimination function and level of comfort.

Part II: Routine post-operative nurses practice competencies.

This part includes the following: relieving pain, helping the patient to resolve grieving, enhancing body image, helping the patient to achieve physical mobility, promoting independent self care, monitoring and managing potential complications, maintaining skin integrity, emotional aspects of amputation.

Part III: Before discharge nurses practice competencies.

This part includes health education before discharge regarding stump care, ambulation, and prevention of contracture, recognition of complications, exercise and follow up care.

Scoring system

The total score of observation checklist sheet was 670 items, each item in checklist was scored as follow: two degree for each step that done correct (correctly, in time and with the required frequency) and one degree for each step done incorrect (incorrectly, not in time and without the required frequency) and zero for step that not done. Inapplicable means that the nurses were not able to apply the principles of the standard due to shortage in supplies and equipment, not due to shortage or negligence from the nurses.

Method

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 nurses and patients in vascular surgery department and trauma unit at Assiut University Hospital.

Content validity was established by panel of 5 expertises who reviewed the instruments for clarity, relevance, comprehensiveness, understanding, applicability and easiness for administrative minor modifications were required. The content validity of this tool was checked by expert professors in fields of medicine and nursing and correction was carried out accordingly.

A pilot study carried out in December 2011 to test the feasibility and practicability of the study tools on 10% of sample. It had also provided an estimate of time needed to fill out the tools.

Table (1): Sociodemographic characteristics of the studied nurse(N = 64)

	No. (n= 64)	%
Age: (years)		
< 20	6	9.4
20 - < 30	51	79.7
≥ 30	7	10.9
Marital status		
Single	28	43.8
Married	36	56.2
Level of education:		
Diploma of nursing	60	93.8
Bachelor of nursing	4	6.2
Years of experience		
< 5	17	26.6
5 – 10	35	54.7
> 10	12	18.8
Attending training courses		
Yes	12	18.8
No	52	81.2
Number of training courses		
One	9	75.0
More than one	3	25.0
Degree of benefits from training		
Good	5	41.7
Very good	7	58.3
Previously giving nursing care to patients		
Yes	52	81.2
No	12	18.8

Table (2): Nurses' Knowledge about nursing care for post-operative amputated patients (N = 64)

	No.	%
Poor	21	32.8
fair	40	62.5
Good	3	4.7
Total	64	100.0

Table (3) Percentage distribution to opinions of nurses ensure that continuous monitoring and recording are followed for post operative patients (No: 64)

Items	Agree		Disagree	
	No.	%	No.	%
Immediate post operative period:				
Recheck airway patency, vital signs and blood pressure frequently	49	76.6	15	23.4
Assess the patient's color and the level of consciousness frequently	60	93.8	4	6.3
Apply suction as needed	54	84.4	10	15.6
apply oxygen as needed	50	78.1	14	21.9
Recheck the positioning of the patient	56	87.5	8	12.5
Recheck all tubes and catheters attached to the patient's for any leaks or disconnections continuously	56	87.5	8	12.5
Check the site of wound for any bleeding	53	82.8	11	17.2
Assess the patients according to body systems	24	37.5	40	62.5
Attach the patient to the monitoring devices as needed and record its value	41	64.1	23	35.9
Administer IV infusion and medications as ordered	53	82.8	11	17.2
Routine post operative period				
Relieving pain	50	78.1	14	21.9
Helping the patient to resolve grieving	64	100.0	0	0.0
Enhancing body image	58	90.6	6	9.4
Promoting wound healing	54	84.4	10	15.6
Promoting independent self care	61	95.3	3	4.7
Monitoring and managing potential complications	53	82.8	11	17.2
Improving skin integrity	54	84.4	10	15.6
Emotional aspect of amputation	39	60.9	25	39.1
Improving skin integrity for stump wound	46	71.9	18	28.1
Early detection of post operative complications				
Wound infection	53	82.8	11	17.2
Tissue necrosis	59	92.2	5	7.8
Phantom limb pain	49	76.6	15	23.4
Hematoma	52	81.3	12	18.8
Stump edema	60	93.8	4	6.3
Flexion contractures	51	79.7	13	20.3
Hemorrhage	55	85.9	9	14.1
Skin breakdown	55	85.9	9	14.1
Discharge advice				
Residual limb care	38	59.4	26	40.6
Ambulation with assistive devices	57	89.1	7	10.9
Recognition of complications	52	81.3	12	18.8
Exercises	55	85.9	9	14.1
Follow up care	45	70.3	19	29.7
Pain management technique	52	81.3	12	18.8
Range of motion technique	47	73.4	17	26.6
Correct position for residual limb	47	73.4	17	26.6
Rehabilitation center	47	73.4	17	26.6

Table (1) shows that; the majority of nurses 79.7% their age ranged from 20- < 30 years. 56.2% of them were married. 54.7% of them had ranged from 5-10 years of experience. 93.8% of them had diploma of nursing. As regard to previously of attended training programs, it was found that 81.2% were not attending training program about lower limb amputation. As regard to other training course. It was found that 18.8% of nurses attending training course as infection control

Table (2) shows that; more than three fifth of nurses had fair knowledge about nursing care for post-operative amputated patients.

Table (3) shows that: the majority of nurses agreed as regarding ensure that continuous monitoring and recording are followed for postoperative patient

Conclusion

- More than three fifth of nurses had fair knowledge regarding standards of post operative interventions for lower limb amputated patients.
- Less than half of nurses had agreed as regarding prepare patient's room, components of trauma unit and vascular surgery department, ensure that the trauma unit and vascular surgery department are safe to receive amputated patients.
- Nurses showed inadequacy in their practice about standards of post operative interventions for lower limb amputated patients.

Recommendations

Based on the findings of the present study the following recommendations are suggested:

A. For the nurses

1. Application of the nursing care standards for post operative amputated patients
2. The nurse should be aware that the application of nursing care standards:
 - Facilitate achievement of established nursing goals.
 - Improves nurse's knowledge, attitude, skills and their ability to help those patients
 - Measures nursing competency and evaluate the quality of nursing services.
 - Helps in early detection and prevention of complication

B. For the administration

1. Plan periodical sessions of regular conferences, workshops for nurses to upgrade their level of experience.
2. Provision of adequate supervision of nurses during their practice.
3. Standards of nursing care should be distributed in form of pamphlets in Arabic language to all nurses

working in trauma unit and vascular surgery department.

4. Clear written job description for all nurses in caring for post operative amputated patient.
5. Established standards should be clear, applicable, revised and updated regularly.

C. For the government

1. Standard nursing care for post operative amputated patients should be included in the curriculum of nursing school and institutions as a minor specialty.
2. Nursing standards must be designed and communicated to all nursing staff in each hospital to improve of care rendered.

D. Further studies are needed to

Evaluate the effect (outcome) of nursing care standards of post operative amputated patients.

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