Evaluation of Nursing Practices for Patients with Burns in Emergency Units

تقويم الممارسات التمريضية لمرضى الحروق في وحدات الطوارئ

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الخلاصة:

الهدف : تهدف الدراسة الى تقييم الممارسات التمريضية لمرضى الحروق في ردهات الطوارى وايجاد العلاقة بين ممارسة الممرضات مع سنوات الخبرة ، ومستوى التعليم و الدورات التدريبية، والنسب المئوية للحروق.

المنهجية:- دراسة منهجية وصفية اجريت في ردهات الطوارى في مستشفى مدينة الطب وم. اليرموك التعليمي في مدينة بغداد وتم اعداد استبانه لجمع العينات والبالغ عددها 40 عينة للفترة ما بين (الاول من تشرين الاول 2012 الى الأول من نيسان 2013). وتم تحليل المعلومات باستخدام النسب المئوية والوسائل التحليلية.

النتائج:- أشارت نتائج البحث بأن معظم افراد العينة هم من الذكور بنسبة 75% ، 50% من العينات تقع ضمن الفئة العمرية 25-29 سنه و منهم 55% من خريجي المعهد الطبي. و 62.5% لديهم سنوات خبرة اكثر من 15 سنة. ومعظم الممرضات لديهم خبرة في مجال الطوارى من 5-10 سنوات والاغلبية العظمى لديهم 1-5 دورات تدريبية في مجال الرعاية في ردهات الطوارى والمقيمة داخل العراق و اظهرت النتائج بوجود فرق معنوي كبير بين التداخل التمريضي لمرضى الحروق والجنس (($P \leq 0.05$).

الاستنتاجات :- استنتجت الدراسة بان النسبة الاكبر من فقرات التداخل التمريضي الخاص بمرضى الحروق قد حصلت على مستوى عالي من التطبيق من قبل الممرضين ماعدا التداخل التمريضي المتعلق بتوفير مجرى تنفسي ملائم والعناية بالجلد قد حصلت على مستوى متوسط في العناية

التوصيات:- نوصي الدراسة بتوفير كافة التسهيلات للتداخل التمريضي لمرضى الحروق كالادوية والاجهزة الحديثة والمستلزمات المعقمة والعمل على زيادة الوعي للاسر حول استعمال تدابير الحماية كالتلفاز والملصقات.

Abstract:-

Objectives: presented study aimed to evaluate the practice of nursing for patients with burns in the emergency units and to find out any relationship between the practices of nurses on years of experience, and level of education and training courses, and the percentages of burns.

Methodology: descriptive design study was conducted in the emergency units in the medical city and AL-Yarmouk Teaching hospital in Baghdad. Data was gathered by using a questionnaire to 40 cases for the period (the first of October 2012 to the first of April 2013).data was analyzed by using descriptive and Inferential data analysis

Results: the results shows that the higher percentage of the sample (75%) were males, 50% of the samples fall in the age group 25-29 years and 55% of them are graduates from the Institute of medical technology. And 62.5% have experience of year more than 15 years. Most of the nurses have experience in the emergency units from 5-10 years, and the majority have 1-5 training courses in the field of care in emergency units was held inside Iraq, and the results showed that the highly significant difference between nursing intervention for patients with burns and gender ($P \leq 0.05$).

Conclusion: Observational checklist for nursing intervention which provided to burn patients were high level in total means except the domains for maintain patients airway and adequate airway clearance intervention were have moderate levels in total mean and the intervention related to improved skin integrity for burn patients which have moderate levels in total means.

Recommendation: The study recommends to providing all facilities of nursing intervention for burn patients like medications, advanced machines and equipments and increased awareness of families toward protective measures to avoid burns like T.V, posters.

Keywords: emergency, training, burn, unit, gathered, questionnaire, nurse, experience, intervention, facilities

INTRODUCTION:

A burn is a type of injury to flesh caused by heat, electricity, chemicals, light, radiation or friction. Most burns affect only the skin (epidermal tissue). Rarely, deeper tissues, such as muscle, bone, and blood vessels can also be injured. Burns may be treated with first aid, in an out-of-hospital setting, or may require more specialized treatment such as those available at specialized burn centers[(1)] .

Over 1.2 million people are burned in the United States every year, most of which are minor and treated in the outpatient setting. However, approximately 60,000 burns in the USA are moderate to severe and require hospitalization for appropriate treatment. Of these, it is estimated that 5,000 die, each year from complications related to the burn Improved patient care in those that sustained severe burns has also improved survival[(2)].

Burns can be classified by mechanism of injury, depth, extent and associated injuries and co morbidities, burn injury results in a local inflammatory response [(3)]. In larger burns

there is a systemic inflammatory response. The lungs may be doubly compromised by smoke inhalation and the venous affluent returning from circulation through the burned skin [4]. Following a major burn injury, heart rate and peripheral vascular resistance increase. This is due to the release of catecholamine's from injured tissues, and the relative hypovolemia that occurs from fluid volume shifts. Initially cardiac output decreases [5] .At approximately 24 hours after burn injuries, cardiac output returns to normal if adequate fluid resuscitation is given. Following this, cardiac output increases to meet the hyper- metabolic needs of the body. Infection is a major complication of burns. The managing of burn injuries properly is important because they are common, painful and can result in disfiguring and disabling scarring, amputation of affected parts or death in severe cases[6]. Many complications may occur such as: shock, infection, multiple organ dysfunction syndrome, electrolyte imbalance, and respiratory distress may occur[2]. The treatment of burns may include the removal of dead tissue (debridement), applying dressings to the wound, fluid resuscitation, administering antibiotics, and skin grafting [7]. Burns have significant short- and long-term consequences for patients and their families, and are one of the most serious injuries to mankind [8]. Although the outcome for burn patients has improved dramatically over the past years, burns still cause substantial morbidity and mortality[9]. Adequate and effective emergency management of the burn patient during the first few hours post burn can prevent the burn wound from becoming more deeply burnt, minimize possible bacterial infection, lessen pain, facilitate faster healing and rehabilitation and long-term functionality, as well as improve the cosmetic appearance of the area that was burnt [10].

OBJECTIVES OF THE STUDY:-

The study aims to:

1- Identify the nurses' practices for burns patient.
2- Find out the relationship between nurses practices regarding the year of experiences, level of education, training course, percentage of burns.

METHODOLOGY

1. **Design of the Study**: - Descriptive study conducted on nurses starting from October 1st 2012 to the 1st April 2013.
2. **Setting of the Study: -** the present study was carried out in the emergency unit at Medical City, and Al-Yarmook Teaching Hospital.
3. **The Sample of the Study: -** a non- probability (purposive) sample of 40 nurses who works at two hospitals in emergency unit.
4. **The Study Instrument: -** instruments were constructed through the following:
   - Review of available literature.
   - Review of patient's assessment recorded card.

   The questionnaire was composed of two parts and an introductory page that invites the subjects to participate in the study.

   4-1 Socio- Demographic Information Sheet

   It consisted of (10) items which included: age, gender, marital status, level of education, income, number of training course, housing, setting of training course, year of experiences, and years of experiences in emergency unit

   4-2 Nursing Intervention Items

   It was consisted of (45) items, which included all interventional action provided by nurses to burn Patients

5- Methods of Data Collection

Data was collected by using two methods, which included:

1- Self report technique used by nurses for socio-demographic data items
2- Observational checklist technique used by researchers.

6-Statistical Analysis: - used the appropriate statistical methods in the data analysis which include the following:

A: Descriptive data analysis: this approach was performed through the determination of: (Frequencies (F), Percentage (%), Standard Deviation (S.D).
B: Inferential data analysis: this approach performed through the determination of (Comparisons between nursing interventions were performed by Independent sample t tests with gender at $p \leq 0.05$ levels, Analysis of Variance test: It was used to determine the significant differences between nursing interventions for burn patients with their demographic characteristics.

RESULTS

Table 1: Distribution of Nurses by Socio- Demographic Characteristics.

Variable		Frequency	Percent
Gender	Male	30	75.0
	Female	10	25.0
	Total	40	100.0
Age (year)	20-24	5	12.5
	25-29	20	50.0
	30- 34	8	20.0
	35-39	4	10.0
	40- 35	3	7.5
	Total	40	100.0
Housing	Possession	25	62.5
	Rent	15	37.5
	Total	40	100.0
Year of Experiences	5- 10	15	37.5
	11- 15	14	35.0
	16-20	5	12.5
	21-25	2	5.0
	26-30	1	2.5
	31and over	3	7.5
	Total	40	100.0
Experiences in Emergency Unit	Non	6	15.0
	5- 10	24	60.0
	11- 15	7	17.5
	16-20	1	2.5
	21-25	0	0.0
	26-30	1	2.5
	31 and over	1	2.5
	Total	40	100.0
Training course in Nursing Emergency			
In Iraq Training Course	Non	11	27.5
	1-5 course	21	52.5
	6-10 course	6	15
	11-15 course	1	2.5
	16- 20 course	1	2.5
	Total	40	100.0
Out of Iraq Training Course	Non	33	82.5
	1-5 course	6	15
	6-10 course	1	2.5
	Total	40	100.0

Table 1 presented the nurses socio-demographic which revealed that majority of the study samples was males were of 75% at age 25-29 years ago, 60% of them was continuous married and graduated from medical Institute were of 55%, 42.5% were barely sufficient income, 37.5% of the nurses have 1-5 year in experiences 60% from them have 5-10 years in experiences at emergency unit, 52.5% of nurses have 1-5 Iraqi training course related there emergency care and 15% of them have out of Iraq training course.

Table 2: Means and Standard Deviations and Grade for Observed Nursing Checklist Intervention

Nursing Observational Checklist	Mean	SD.	Level
Maintenance of adequate tissue oxygenation			
Provide humidified oxygen	1.05	.2207	ML
Assess breath sounds, and respiratory (rate, rhythm, depth)	1.47	.5057	HL
Monitor patient for signs of hypoxia	1.32	.4743	HL
Observe for Erythema or blistering of lips or buccal mucosa	1.57	.5006	HL
Observe for Singed nostrils	1.67	.4743	HL
Observe for Burns of face, neck, or chest	1.52	1.601	HL
Observe for Increasing hoarseness	1.67	1.591	HL
Observe for Soot in sputum or tracheal tissue in respiratory secretions	1.47	.5057	HL
Monitor arterial blood gas values, pulse oximetry readings, and carboxyhemoglobin levels	1.45	.5038	HL
Report labored respirations, decreased depth of respirations	1.65	.4830	HL
Prepare to assist with intubation and escharotomies.	1.25	.4385	ML
Monitor mechanically ventilated patient closely.	1.22	.4229	ML
Total	17.3	3.813	HL
Maintain patient airway and adequate airway clearance			
removal secretion	1.12	.3349	ML
Provide humidified oxygen.	1.00	.000	ML
Provide section	1.12	.3349	ML
artificial airway	1.72	.4522	HL
use incentive spirometry	1.70	.4641	HL
Total	6.67	.9442	ML
Restoration of optimal fluid and electrolyte balance and perfusion of vital organs			
Observe vital signs (including central venous pressure or pulmonary artery pressure	1.40	.4961	HL
observe urine output hourly	1.67	.4743	HL
alert for signs of hypovolemia or fluid overload	1.77	.4229	HL
weigh patient daily	1.97	.1581	HL
Maintain IV lines and regulate fluids at appropriate rates, as prescribed	1.65	.4830	HL
Observe for symptoms of deficiency or excess of serum sodium, potassium ,calcium, phosphorus, and bicarbonate	1.12	.3349	ML
Notify physician immediately of deceased urine output, blood pressure central venous, pulmonary artery or pulmonary artery wedge pressures, or increased pulse rate.	1.87	.3349	HL
Total	12.8	1.942	HL

*Low Level = ≥0.06
**Moderate Level = 0.07-1.2
***High Level = 1.3-2.0

Table 3: Means and Standard Deviations and Grade for Observed Nursing Checklist Intervention

Maintenance of adequate body temperature			
Provide a warm environment through use of heat shield, space	1.47	.5057	HL
blanket, heat lights or blankets	1.82	.3848	HL
Work quickly when wounds must be exposed	1.25	.4385	HL
Assess core body temperature frequently	1.25	.4385	HL
Total	5.80	1.181	HL
Control of pain			
Use pain intensity scale to assess pain level (ie, 1 to 10). Differentiate from hypoxia	1.90	.3038	HL
Administer intravenous opioid analgesics as prescribed	1.37	.4902	HL
Observe for respiratory depression	1.32	.4743	HL

Provide emotional support and reassurance	1.50	.5063	HL
Total	6.10	1.150	HL
Absence of localized or systemic infection			
Meticulous hand hygiene before and after patient car	1.34	.470	HL
Use clean or sterile gloves for wound care	1.45	.503	HL
Wear isolation gown or protective plastic apron for patient care	1.02	.158	ML
Wear mask and hair cover when wounds are exposed and during sterile procedures.	1.32	.474	HL
Change invasive lines and tubing's as recommended by CDC	1.20	.405	ML
Inspect wound for signs of infection, purulent drainage, or discoloration.	1.35	1.59	HL
Monitor white blood cell (WBC) count	1.47	.505	HL
Administer antibiotics as prescribed.	1.60	.496	HL
Report to physician decreased (bowel sounds, tachycardia, decreased blood pressure, decreased urine output, fever and flushing).	1.07	.266	ML
Administer fluids and vasoactive medication as prescribed	1.40	.496	HL
Total	11.9	2.52	HL
Improved skin integrity			
Clean wounds, body, and hair	1.15	.3616	ML
Provide wound care as prescribed	1.05	.2207	ML
Apply topical antibacterial agents and dressing as prescribed	1.02	.1581	ML
Total	3.22	.5304	ML

*Low Level = ≥0.06 **Moderate Level = 0.07-1.2 ***High Level = 1.3-2.0

Table 2 & 3 revealed that all observational checklist for nursing intervention which provided to burn patients were high level in total means except the domains for maintain patients airway and adequate airway clearance intervention were have moderate levels in total mean and the intervention related to improved skin integrity for burn patients which have moderate levels in total means.

Table 4: Statistical Differences between Nursing Intervention and gender of nurses

Variables	Paired Differences				
	Mean	SD.	df	t.test	Sig. P<0.05
Gender / Nursing Intervention	-6.177	9.21	39	-42.403	.000 H.S.

SD: stander deviation df: degree of freedom Sig: significant H.S: highly significant

Table 4 indicated that there were highly significant between nursing intervention for burn patients at emergency unit and gender of nurses at P≤0.05 level.

Table 5: Statistical Differences between Nurses level of education and Nursing intervention for Burn Patients Domains

Observational Checklist Intervention	df	Mean Square	P≤0.05	Sig.
Maintenance of adequate tissue oxygenation	39	10.301	.001	H.S

Maintain patent airway and adequate airway clearance	39	.853	.207	N.S.
Restoration of optimal fluid and electrolyte balance and perfusion of vital organs	39	20.572	.000	H.S.
Maintenance of adequate body temperature	39	.838	.631	N.S.
Control of pain	39	1.404	.375	N.S.
Absence of localized or systemic infection	39	20.251	.016	H.S.
Improved skin integrity	39	.201	.560	N.S.

Table 5 shows that there were highly significant between level of education for nurses and nursing intervention at Maintenance of adequate tissue oxygenation, Restoration of optimal fluid and electrolyte balance and perfusion of vital organs, and Absence of localized or systemic infection domains at P≤0.05 level.

Table 6: Statistical Differences between Nurses Experiences at Emergency Unit and Nursing Intervention

Observational Checklist Intervention	df	Mean Square	P<0.05	Sig.
Maintenance of adequate tissue oxygenation	33	4.659	.773	N.S.
Maintain patent airway and adequate airway clearance	33	.602	.640	N.S.
Restoration of optimal fluid and electrolyte balance and perfusion of vital organs	33	2.839	.597	N.S.
Maintenance of adequate body temperature	33	.246	.959	N.S.
Control of pain	33	.517	.836	N.S.
Absence of localized or systemic infection	33	.606	.971	N.S.
Improved skin integrity	33	.910	.000	H.S.

Table 6 presented that there were statistical differences between nursing intervention and years of experiences for nurses at emergency unite for improved skin integrity domain at P≤0.05 level.

Table 7: Statistical Differences between Training Course and Nursing Intervention

Variable	Paired Differences				
	Mean	**SD.**	**df**	**t. test**	**Sig. P<0.05**
Training Course in Iraq / Nursing Intervention	4.27	3.75	29	-36.6	.37 N.S.
Training Course out of Iraq / Nursing Intervention	2.57	3.30	6	-16.5	.49 N.S

Table 7 shows that there were no significant differences between nurses training course in Iraq and out of Iraq with nursing intervention for burn patients in emergency unit at P≤0.05 level.

DISCUSSION

The socio-demographic of nurses revealed that majority of the study samples was males were of 75% at age 25-29 years ago, 60% of them was continuous married and graduated from medical Institute were of 55%, 42.5% were barely sufficient income, 37.5% of the nurses have 1-5 year in experiences 60% from them have 5-10 years in experiences at emergency unit, 52.5% of nurses have 1-5 Iraqi training course related there emergency care and 15% of them have out of Iraq training course. The results revealed that all observational checklist for nursing intervention which provided to burn patients were high level in total means except the domains for maintain patients airway and adequate airway clearance intervention were have moderate levels in total mean and the intervention related to improved skin integrity for burn patients which have moderate levels in total means. Shehan and Remo, (2010) [11] presented that the effective management of the burnt patient depends upon early and adequate fluid resuscitation, a high level of suspicion over the airway safety and continuous assessment of the whole patient.

Early transfer to a specialist centre is desirable. The findings indicated that there were highly significant between nursing intervention for burn patients at emergency unit and gender of nurses at $P \leq 0.05$ level. There were highly significant between level of education for nurses and nursing intervention at maintenance of adequate tissue oxygenation, Restoration of optimal fluid and electrolyte balance and perfusion of vital organs, and Absence of localized or systemic infection domains at $P \leq 0.05$ level. There were statistical differences between nursing intervention and years of experiences for nurses at emergency unite for improved skin integrity domain at $P \leq 0.05$ level. Kornhaber, et al., (2011) [1] stated during all phases of injury, assessment by the nurse must focus on early detection or prevention of complications associated with moderate to severe burn injury. Frequent monitoring is required to assess indices of essential organ function. A list of the more common actual or potential nursing diagnoses for patients with thermal injuries in the resuscitative, acute and rehabilitative phases of care is presented in The nurse's goal is to deliver patient-focused care using a holistic approach[12].

CONCLUSIONS

All nursing intervention which provided to burn patients were high level in total means except the domains for maintain patients airway and adequate airway clearance intervention were have moderate levels in total mean and the intervention related to improved skin integrity for burn patients which have moderate levels in total means.

RECOMMENDATIONS:-

1- Providing all facilities for nursing intervention for burn patients' like medications and sterilization and other things

2- Mass media uses for families to increase protective measures to avoid burns like T.V, posters.

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