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Assessment of Skin Damage Appearance and Its Causes after Open Heart Surgery in Khatam-ol-Anbia Hospital during Second Half of the Year 1379

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Abstract

To evaluate the quality of services in hospitals can rely on mortality rate and side effects rate. According to performed studies, side effects rate is a better indicator to evaluate the quality of hospital services, therefore decreasing of side effects is one of the main objectives in hospital management.
A side effect of open-heart surgery is the skin damage. Some of Iranian patients who were operated on this kind of surgery have appeared some skin damages that medical articles haven't pointed this matter.
This study was performed to assess the appearance rate and also causes of skin damages to promote the services quality of Khatam-ol-Anbia Hospital in Tehran. During 6 months particulars of patients, who were operated on the open-heart surgery were considered. The data regarding the patients from their medical files and the data about skin damages rate from
Nursing reports was collected. The skin damages were divided four groups on the basis of damage intensity: without damage; with skin redness; blustery; and intense phlogestic (inflamed). 102 patients (%28.2) somewhat suffered from skin damages. Among these 102 patients, 88 patients (%87.1) were affected with slight skin redness; 5 patients (%5) with intense skin redness; 5 patients (%5) with blister; and 3 cases with intense burn like damages. Generally, %1.4 of patients suffered from blister and %0.8 of cases from intense burn like damages; it means one case among every 50 patients needed special attention.
In this study, the factors of weight, gender, diabetes, narcotics addiction, and function of one of the first aid of surgeon influenced the skin damage.
It deserves to pay attention to the rate of patients' losses and compensation amount, which must be, paid the patients by hospitals. It seems if the above mentioned matters are considered the importance of this study will be cleared more.

Key words: Open heart – Complications – Burn

Introduction:

There are two main indicators for assessing hospital services quality, namely mortality rate and side effect rate (6). The former has been shown that perform better in measuring hospital services quality (2) and because of this finding one of the main objectives of hospital managers is the reduce this problem. During the recent years, there had been a signification rise in open heart surgery operations in Iran which has resulted to an increase in untoward effects including some dermatological Lesion in a number of patients, a side effect which has not been mentioned in papers (1,3,5,6). Since these lesions are disturbing for patients and their families, they are very trouble some for surgical and ward staff, despite the quality services they had delivered.
There are some unreported studies from the beginning of the year 1379 (2000 AD) on those lesions from both university affiliated and nonaffiliated hospital which unfortunately have not received the full attention they deserved and there has been no effort to find their etiology and starting the relevant activities. The main aim of this study was the estimation of this side effect and some reson that performe it.

Materials and Methods

All these patients who has undergone open heart surgery at the khatam –ol- anbia hospital in Tehran in the second half of the year 1379 (late 2000 and early 2001 AD) comprise the study participants. There were 364 cases with a mean age of 59.4 year (SD 9.6), ranging from 35 to 82 years old, of whom 274 case (75.3%) were male and the other 90 case (24.7%) were female. The dermatological problems of these cases have been classifying four groups from " no lesion" to "redness","blisters", and finally "intense phlogestic" according to their medical and nursing reports it worths mentioning that in some cases of the last category there were some cases with full dermal damage. Because of the nature of skin lesions and the dual etiologic, pathways to them, namely, bunting and bed sores, we preferred not define exect etiology because of the high probability for misclassification and dubbed then" burn-like lesions".
According to the classic and well-known classification of burn lesions from the first to the fourth grade burns, and based on clinical examinations and descriptions we considered the following definitions for skin lesions (4).
Skin Redness: It includes hyperemia, redness and tenderness at the site of lesion, like first grade burns.
A blister: it includes skin redness and damages which begins with redness and progresses to blisters or other secreting lesions just like bedsores.
Data were analyzed using SPSS for Winds we have used mean and standard deviation and frequency and percentage to describe continuous and nominal variables respectively. To compare between different groups, we have used chi square and fisher exact test, students T-test, one way ANOVA and also nonparametric tests.

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Results

Based on the operation theater lists a total number of 364 patients were included in the study whose dates of operation were between the first of mehr and the end of the year 1379 (from Sep. 22,2000 to 22 Mar. 2001). The mean age was 59.4 year (SD=9.6), ranged between 35 and 82 years. More than 75% (279 case) were male and 90 were female (24.7%). The frequency distribution of operations during the study period is shown in the figure which shows that during Esfand. The last month of study there was the peak of operations. The mean and SD of patient's weights were 71.8 and 11.4 kg. Respectively reneged between 36 to 120 kg. The mean operation time was 77 min (SD=23), ranged from 30 to 195 min and the mean pump use line was 63min (SD=22), ranged from 14 to 185 min.

There were 101 patients (28.2%) who have had some degrees of skin lesions. From this group of patients. 88 coses (87.1%) had only mild redness, five cases (5%) had sever redness, five cases (5%) had blistering lesions and three cases had sever burn like lesions. It means that 1.4% of all patients had blisters and 0.8% had burn like lesions translating to one case per every 50 patient needed special care.

To have a better comparison, we divided all patients to three groups, those without skin lesion (263 cases) those with redness (88 cases), and those with severe redness or blisters or sever burn (13 coses). As it is shown in the table 1,there was no significant difference between their ages (PV=0.8) or duration's of operation and duration of being on pump (p=0.9). But the mean weight differed significantly between the three groups (P=0.004), where the difference was between the first group and the other groups.

It worthies noting that all the severe burns were seen in male patients (P=0.02). Table 2 shows the distribution of patients in different months, where because of low number of cases in some cells. No statistical test was done.

Table 3 shows the distribution of the three groups of patients between different surgeons. Where it is evident that there were fewer skin complications in patients whose surgeon had been the surgeon No.3 (P=0.03). Table 4 shows the distribution of skin lesions according to different risk factors and table 5 depicts different abnormal blood tests between different groups. The men ICU residence times were 59 hours (SD=28) in the first group, 60 hours (SD=39) in the second group and 63 hours (SD=23) in third group which shows no difference (P=0.8).

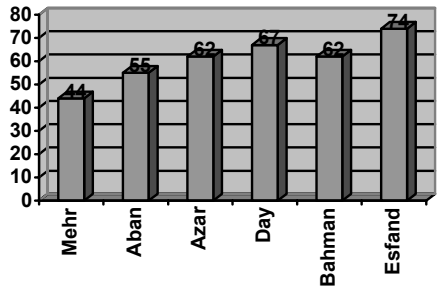

Fig. 1: Distribution of patient between mounths of study

Table1: Comparison between mean of age, weight, operation time and use of artificial pump

Factor	Without damage Mean(SD)	Skin Redness Mean(SD)	Burn like damage (blister) Mean(SD)	PV
age	59.3(9.7)	59.8(8.9)	58.4(11.2)	0.8
weghith	70.5(11.1)	74.7(12.1)	77.8(7.9)	.004
operation time	77(21.7)	78(27.0)	80(19.6)	0.9
use of artifitial pump	63(27.0)	64(27.0)	65(16.4)	0.9

Table2:Distribution of classified damages between mounths

Mounth	Without damage Number(%)	Skin Redness Number(%)	Burn like damage (blister) Number(%)	Sum Number(%)
MEHR	32(72.7)	11(25.0)	1(2.3)	44(100)
ABAN	36(65.5	19(34.5)	0	55(100)
AZAR	40(64.5)	20(32.3)	2(3.2)	62(100)
DEY	54(80.6)	11(16.4)	2(3.0)	67(100)
BAHMAN	42(67.7)	15(24.2)	5(8.1)	62(100)
ESFAND	59(79.7)	12(16.2)	3(4.1)	74(100)

Table3: Distribution of classified damages between surgeon

Surgeon	Without damage Number(%)	Skin Redness Number(%)	Burn like damage (blister) Number(%)	Sum Number(%)
1	103(68.7)	43(28.7)	4(2.7)	150(100)
2	76(67.3)	32(28.3)	5(4.4)	113(100)
3	65(81.3)	11(13.8)	4(5.0)	80(100)
4	19(90.5)	2(9.5)	0	21(100)

Table4: Distribution of classified damages between important factors

important factors	Without damage Number(%)	Skin Redness Number(%)	Burn like damage (blister) Number(%)	PV
High b.p	108(69.2)	45(28.8)	3(1.9)	0.15
Use of vasopresor drugs	10(90.9)	1(9.1)	0	0.25
Diabet	91(77.8)	20(17.1)	6(5.1)	0.054
Lung disease	17(81.0)	2(9.5)	2(9.5)	0.1
Kidney disease	20(74.1)	7(25.9)	0	0.5
Addiction	28(63.6)	12(27.3)	4(9.1)	0.07
Sigarret (over20/day)	65(67.0)	27(27.8)	5(5.2)	0.37

Table5: Distribution of classified damages between blood testes

teste	Without damage percent	Skin Redness percent	Burn like damage (blister) percent	PV
WBC	11.9	9.1	0	0.4
RBC	15.9	9.1	7.1	0.48
HBG	18.9	10.4	7.1	0.48
Platlate	4.3	3.9	7.1	0.7
Htg	22.0	11.7	14.3	0.4
MCV	6.6	5.3	0	0.67
MCH	10.9	10.7	0	0.4
MCHC	6.6	4.0	0	0.7

Discussion

The results of this study indicate that for every 50 cases that undergo open-heart surgery, a patient will acquire severe redness, blister or burn which requires special care obviously. These complication will negatively affect patient judgement toward the services he/she had received, alongside with the burder these complications will add to the pational and hospital.

This study which has used patients records and specially designed forms emphasizes on the importance of burn like lesions at the khatam hospital. While in a previous limited study about 12.4% of patients had blisters and severe skin lesions, in the present study only 2.2% of cases had such lesions. Nevertheless both studies 27.2% of coses had skin lesions, and the difference lies in the severity of skin redness a somehow difficult to measure subject, but in the present study we tried to improve the precision.

Patients weight, gender, diabetes, drug addiction mystery and one of the first aids of surgeons have affected the skin lesions occurrence in this study, while in the pilot study only age and diabetes were one possible agent and other things has not became measured.

It is true that we can not decide about the definite case(s) of burn like lesions based on this sole study, but we can conclude that a wide range of possible factors should be in mind and there is a need for a precise. Prospective study to learn about this complication and possible preventive measures. Also there is a need to calculate the financial and other losses due to this complication patients and hospital encounters, some information which would underscore the importance of this complication for the management.

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References

1. Borger MA, Rao V, et al (1998). Deep sternal wound infection : risk factors and outcomes. *Ann Thorac Surg*. 65 (4) : 1050 – 1056.
2. Hartz AJ, Kuhn EM(1994). Comparing hospitals that perform coronary artery bypass surgery : the effect of outcome measures and data sources. *Am J Public Health*. 84 : 1609 – 1614.
3. Mangano DT(1995). Cardiovascular morbidity and CABG surgery – a prospective study of epidemiology, costs and potential therapeutic solutions. *J Card Surg*. 10 (4Suppl) : 366 – 368.
4. Merk Manual (1995). Sixteenth Edition – Chap. Dermatology Disorders
5. Mesh CL, Cmolik BL, et al (1997). Coronary bypass in vascular patients. *Ann Vasc Surg*.11 (6) : 612 – 619.
6. Sliber Jeffrey H, et al (1995). Evaluation of the complication rates as a measure of quality of care in coronary artery bypass graft surgery. *JAMA*. ; 274 : 317 – 323.