

Incidence Of Readmissions And Outcome In A Surgical Intensive Care Unit

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Citation

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Abstract

Background: Critical care services became one of most demanding specialties. They represent 20-30% of hospital costs. Surgical intensive care (SICU) readmissions will carry an extra burden in the service and typically have poor outcomes. The current study was conducted to determine the causes SICU readmission and the mortality rate.

Patients And Methods: The charts of the patients who were readmitted in SICU were reviewed retrospectively. The patients' clinical condition upon discharge and readmission to the SICU with special reference to conscious level, chest x-ray, ECG, creatinine level, thromboembolic prophylaxis and outcome were collected.

Results: The readmission rate was 2.6% with a mortality rate of 37%. Respiratory causes were the leading cause of readmission (41%). Other causes were redo-surgery, complications of surgery, cardiac causes, thromboembolic causes, and infection. Premature discharge was not a determinant factor in the current study.

Conclusion: Proper use of the vicinity of high dependency units should be encouraged. Since the respiratory causes were the leading that causes of readmissions, we believe that establishing guidelines for chest physiotherapy in the wards is essential.

Critical care services became one of most demanding specialties in medicine. The introduction of advanced technologies and increased frequency of older, more acutely ill patients has resulted in an increase in costs of care by 20-30% and use of the total hospital beds by 7% (1). Therefore, reduction of ICU utilization and length of stay (LOS) were among the aims of most hospitals. It is important to identify patients of high risk of readmissions to an ICU in order to improve outcome and decrease costs (2). Many studies were performed to evaluate ICU readmissions.

These studies showed different readmission percentages, risk factors and mortality rates with different recommendations (3). The aim of this study is to evaluate our experience regarding the profile of patients readmitted to a SICU which presents an opportunity for self audit to improve the service and patient outcomes.

PATIENTS AND METHODS

We retrospectively reviewed the charts of patients who were readmitted to the SICU between January 2000 and

December 2002. The following data were recorded: age, sex, duration of stay in SICU, duration needed to be readmitted, diagnosis at SICU admission and at readmission, level of consciousness at discharge from the SICU and readmission, chest x-ray at SICU discharge and readmission, ECG reading at SICU discharge and at readmission, creatinine level at SICU discharge and at readmission and use of thromboembolic prophylaxis. The etiology of readmission was divided into five categories: redo-surgery or complication of surgery, thromboembolic causes, cardiac causes, respiratory causes and infectious causes.

RESULTS

The total numbers of SICU readmissions were 27 out of 1061 patients. The incidence of SICU readmissions was 2.6%. The mortality rate of patients readmitted to ICU was 37% (13 out of 27 patients). The mean age of the patients was 52 ± 20 yr. The mean duration of stay in SICU was 11 ± 18.5 days, while the mean of number of days until readmitted was 9 ± 6.5 days with only 3 patients (11%) coming back within 48 hours. The primary diagnosis of

initial admission of all patients is shown in Table 1. The readmission diagnosis of all patients is shown in table 2. 40.7% of SICU readmission were due to respiratory causes (pneumonia, atelectasis and respiratory failure). Only one patient (4%) was discharged unconsciously with vegetative status, while 66% were discharged consciously and 30% semiconsciously. On readmission, 44% were labeled as conscious and 22% as semiconscious whereas 34% were unconscious.

Figure 1

Table 1: Diagnosis at ICU admission

Post.op craniotomy	7
Post thoracotomy	5
Head injury	4
Post vascular surgery	2
Post CVA	1
Post hip replacement	1
Post urological surgery	2
Pheocromocytoma	1
Burn	1
Mythenia gravis	1
Portal hypertension	1
Post hemicolectomy	1
Total no.	27

52% of the discharged patients had normal x-rays, whereas 78% of all readmitted patients had an abnormal x-ray. Only 41% of the discharged patients had a normal ECG whereas 67% had abnormal ECGs. When comparing creatinine function, 77% were discharged with normal function, 18% were had an impaired renal function and only one patient was on dialysis. On readmission, 60% came back with normal kidney function whereas the percentage of impaired function increased to 29% and 11% patients were readmitted with renal failure.

Figure 2

Table 2: Diagnosis at ICU readmission

Re surgery or complication of surgery	4
Thromboembolic causes	4
Cardiac causes	4
Respiratory (aspiration, atelectasis, pneumonia)	11
Infectious causes (other than chest infection)	4
Total no.	27

DISCUSSION

In one study, the average medical ICU (MICU) readmission rate was 7% (range of 4 to 14%) (3) compared to this study in which the incidence of readmission was 2.6%. That is due to the faster turnover in SICUs which deals with surgical and trauma patients compared to MICUs. Although the mortality rate of readmission in the current study was 37%, it was comparable to other studies where the mortality rate range was 13 -58 % (4, 5). Only 14.8% of patients were readmitted with the same problem, compared to other studies which ranged between 19-60 % (6). The majority of patients (40.7%) who were readmitted were readmitted due to respiratory causes, a finding that can be supported by other studies (7, 8).

Premature discharge (readmission within 48 hours) was a prominent in some studies (8, 9) while it was not a factor in the present study. In conclusion, the current study showed that there is increasing demand for more prospective studies regarding patient readmission into SICUs. We may need to increase the use of intermediate care units for particular patients (10). Guidelines for chest physiotherapy and breathing exercises on the floor should be established.

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