Original Article

Outcome of intubated post-surgical cases in intensive care unit in Tribhuvan university teaching hospital, Nepal

N.R. Sharma
Department of Anaesthesiology TU Teaching Hospital, Kathmandu, Nepal
Correspondence to: Dr. N. R. Sharma, Department of Anesthesiology, TU Teaching Hospital P.O. Box 3578, Maharajgunj, Kathmandu, Nepal, (e-mail: nilrajnp@yahoo.com)

A retrospective study was carried out for to evaluate the outcome in intubated post-surgical cases in Intensive Care Unit in T U Teaching hospital, Kathmandu, Nepal.

A total of 303 cases were admitted in Intensive Care Unit during the fiscal year 061-062 ,from 1st Shrawan 2061 to 31st Ashad 2062 (July, 2004 to July, 2005) . Among them, 177 (58.5%) were medical and non-surgical cases while 126 (41.5%) were post-surgical cases. Total mortality in the ICU was 26.2 % (p value > 0.05). Among the postsurgical cases, which includes all surgical subspecialties, the mortality was 15.9% (p value = 0.92). Surgical cases were admitted in ICU either on elective basis where ICU bed was preoccupied. Whereas other emergency surgical cases requiring ICU care were admitted in ICU in an unplanned way. A total of 37 post-surgical cases required mechanical ventilatory support. Maximum stay in ICU for a medical case was 4 months and 28 days with maximum support of mechanical ventilation was for 4 months and 21 days. In contrast, the maximum stay for the post-surgical cases in ICU as well as on mechanical ventilation was 60 days, while minimum stay was only one day. Regarding post-surgical cases on mechanical ventilation two cases (5%) left the hospital against medical advice (LAMA), while out of 35 patients on mechanical ventilation, 17 patients died, accounting for a mortality of 48.6%, and 18 cases were successfully weaned off and extubated (51.4%) and further discharged from ICU to Surgical Ward.

Introduction

Among the post-surgical cases whose haemodynamic status is unstable are placed in intensive care unit for both invasive as well as non-invasive monitoring. With the availability of intensive care unit even the most critically ill patients have achieved the good result.Intensive care unit accepts all those cases whose haemodynamic condition is unstable.As equipped and efficient the intensive care unit is so efficient the outcome of the patients will be.

Methods and Materials

A retrospective study on 126 post-surgical cases was carried out in intensive care unit, T U Teaching Hospital, Kathmandu, Nepal. All the cases from various surgical subspecialties that were admitted in intensive care unit post-operatively and on mechanical ventilation were selected for this study and the data were collected from the medical records from the Hospital Central Medical Record Section. Cases from all the surgical subspecialties were taken into consideration including Cardiac, Neurosurgical, Thoracic, General Surgery, Otorhinology, Gynae-obstretics and Urosurgery. Maximum and minimum days of hospital stay both in mechanical ventilation and ICU was recorded. Statistics of morbidity and mortality was calculated.

Results

A total of 126 (41.5%) post-surgical cases were admitted in intensive care unit, TU
Teaching Hospital over a period in one year. Among them, 37 cases needed mechanical ventilatory support, accounting for 29.4%. Total mortality in post- surgical cases in ICU was 16.7% while the mortality was much higher in intubated postsurgical patient population, which was calculated to be 48.6% (17/36). There were two patients who left against medical advice (LAMA, 5.4%), that was excluded from the principle study.

Days of mechanical ventilation

Patient remained in mechanical ventilation for maximum of

60 days during this study period. However successful weaning and extubation was achieved up to 42 days in mechanical ventilation. Longer the mechanical ventilation, worse the prognosis, which is clearly obvious as per table below *(Table 1).*

Table 1. Mechanical ventilation

Days on Mechanical Ventilation	Cases		
	Total	Extubated	Expired
1- 2	12	7	5
3- 5	9	5	4
6- 8	4	2	2
>/= 9	10	4	7
Total:	35	18	17

Median days for mechanical ventilation = 8.5 days.
Average days for mechanical ventilation = 14 days

Discussion

Intensive Care Unit accepts cases whose post-operative status is life threatening or hemodynamically unstable to the extent that he/she requires special monitoring like electrocardiogram, oxygen saturation, capnograph, and needs special equipments like mechanical ventilator, infusion pump, syringe pump etc. Transfer of cases in ICU may be planned or unplanned, most of the unplanned cases have high mortality.[6] Morbidity and mortality ratio varies with the severity of diseases, multi- organ failure, severity of sepsis, so on and so forth. Deborah, et al,[3] reported overall mortality of 17.2 % with standard management in intensive care unit. However, if the patients are in multi-organ failure, the mortality has been seen up to 65 %.

ICU is the major sources of nosocomial infection, especially with pseudomonas, klebsella, proteous and E. coli species. Some study showed that in ICU patients, mortality with these nosocomial organisms has been seen in 35 % of the cases. If the patient is on mechanical ventilation, the predicted mortality is 47 % as reported by Smith IE, et. al,[7] which is analogous to our observation (48.6 %) (p value>0.05).

Being in ICU is a very stressful condition with increase in neuroendocrine response. These cases have increase oxygen extraction ratio: therefore, these patients need more than normal oxygen delivery. Cellular hypoxia increases the ICU mortality. Further study shows that persistent hypoxia increases the mortality up to 33 %.[1] Inadequate ventilation, airway obstruction, bronchospasm, aspiration and hemodynamic instability are the other contributing factors for the outcome of post-surgical cases in ICU.[5] Longer the stay in ICU worse the prognosis. Pre-existing diseases like renal hepatic, cardiac, respiratory, metabolic and endocrine and major trauma like cervical spine, head injury, abdominal trauma, chest injury all lead to prolonged ICU stay and poor outcome of these patients.[4] Moreover, cervical spine injury is troublesome, which causes respiratory failure. Claxton, et al,[2] reported shows that 21 % died within first 3 months, 57 % remained on ventilator for more than 3 months. From the result of many studies, it has been concluded that outcome of post-surgical patient varies with patients preexisting disease pathology, severity of trauma, Type of surgery and quality of ICU management itself. In our study, post-surgical patients requiring mechanical ventilation (48.6 %) had three-fold mortality compared that of total postsurgical cases (16.7%)

Conclusion

Postsurgical mortality in ICU including all surgical subspecialities was 16.7 %. Postsurgical patients who required mechanical ventilation had higher mortality rate (48.6 %).

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