



## Orthopaedics

## A STUDY OF INTENSIVE CARE CHALLENGES IN THE MANAGEMENT OF ORTHOPAEDIC EMERGENCY AND ELECTIVE PATIENTS

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**ABSTRACT** **Aim:** The purpose of this study is to evaluate the causes, numbers, outcomes of Orthopaedic patients requiring intensive care. **Methods:** A retrospective and prospective study of patients admitted as in patients, under orthopaedic care, in SBHGMC, and who required intensive medical care were included in this study. **Conclusion:** With increasing trauma and polytrauma cases, coupled with increasing geriatric population, intensive care has becoming more and more common in orthopaedic patients. Mortality rate is higher in the trauma group. Elderly patients are more likely to develop complications due to associated comorbidities. This emphasizes the importance of pre operative and postoperative monitoring of these vulnerable patients.

**KEYWORDS :** Intensive care challenges, orthopaedic patients, Pelvic bone, femur intertrochanteric fracture.

## INTRODUCTION

Orthopaedic patients, both trauma and elective orthopaedic surgery patients form a significant proportion of patients requiring intensive care and are vulnerable to a wide range of complications, especially the geriatric age group. Management of these complications require understanding of preoperative conditions, intraoperative managements and early recognition of any signs and symptoms of any postoperative complications, very few Indian studies have been made about the life-threatening medical emergencies in the orthopaedic patients requiring intensive care. With increase in geriatric population in India, patients requiring a surgical management like arthroplasties for degenerative disorders is also on the increase. This geriatric population is vulnerable to perioperative and postoperative complications due to their comorbidities. Also due to high velocity polytrauma injuries on the increase the number, the incidence of ICU admissions are also increasing. This study will help in a better understanding of such conditions and will help in a better outcome for these patients.

## MATERIALS AND METHODS

A retrospective and prospective study of patients admitted as in patients, under orthopaedic care, in SBHGMC, and who required intensive medical care were included in this study. 70 patients who were admitted under orthopaedic care and subsequently developed problems leading to intensive care were studied. Out of this 43 were male patients and 27 were female patients. The patients were categorized as trauma patients, polytrauma patients, and elective orthopaedic patients.

The study inputs included demographics, reason for admission and orthopaedic procedure, problems leading to ICU admissions, and mortality.

## RESULTS

The largest group of ICU admissions were from the trauma and polytrauma group. They accounted for 44 patients—which is about 63%. In this Pelvic rim fractures accounted for 5, Neck of femur fracture and Intertrochanteric femur fracture, Diaphyseal femur fracture and tibial fractures accounted for the majority-13 patients. 12 patients were of Crushed injuries, 05 patients were upper limb fracture, 9 patients were of polytrauma group including Chest trauma.

In the reasons for ICU admissions, pelvic bone fracture more may causes internal organ and vessels damage leading to massive internal bleeding causing hypovolemic shock, Crushed injuries of lower and upper limb may causes massive blood loss and leading Hypovolemic shock and muscle damage causes Myoglobinuria leading Renal failure, Polytrauma including Chest trauma causes Flail chest causing Hemo/Pneumothorax. in which 10 were admitted for close monitoring due to hypovolemic shock and electrolyte imbalances, 5 patients due to acute kidney injury, 10 patients due to respiratory failure, 15 due to need of inotropic support in fat embolism and 4 patients required ICD insertion.

Age wise the average age was 58 years, thus indicating that older

trauma patients were more vulnerable due to associated comorbidities and decreased reserve.

In the elective surgery group of 26 patients, largest was from those requiring femur fracture surgeries 14, spine surgeries 7 and total hip replacement surgeries 5

In the reasons for ICU admissions, femur fracture causes pulmonary embolism, Spinal fracture causes Spinal Sock, total hip replacement pt need ICU admission in presence of comorbidities like sickle cell anaemia crisis in which 4 were admitted for close monitoring due to electrolyte imbalances, 3 patients due to acute kidney injury, 8 patients due to respiratory failure, 11 due to need of inotropic support in fat embolism and DVT.

Age wise, the average age was 67, again showing that the elderly are vulnerable for developing complications.

In both the groups, electrolyte Imbalance, hyponatremia -12 patients, hypokalemia-4 and hyperkalaemia -2 accounted were recorded.

## DISCUSSION

The study was done to analyse the cause for intensive care in orthopaedic patients. The study showed that trauma and polytrauma patients were more likely to get complications leading to ICU care. This is due to the acute disturbance in the metabolic, respiratory and cardiac and renal functions leading to rapid decompensation. The average age was 64 showing that geriatric population were more likely to develop life threatening complications due to associated comorbidities and decreased cardiac and respiratory reserve.

Hip fractures especially in the geriatric group were more prone to develop complications leading to ICU management. These patients should be monitored closely and proactive measures should be taken to avoid deterioration of function.

Electrolyte disturbances were common in both trauma and elective group, especially in the elderly. Hyponatremia was a common cause, especially in the elderly and may due to the poor nutrition in general

Respiratory complications were also common. Baseline respiratory function should be done in all vulnerable patients to predict and proactively manage complications, if any in these patients.

Inotropic support was needed in a significant proportion of polytrauma patients, especially due to neurogenic shock and cardiogenic shock.

## CONCLUSION

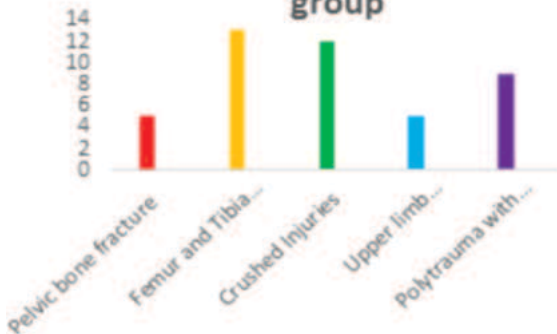
With increasing trauma and polytrauma cases, coupled with increasing geriatric population, intensive care has becoming more and more common in orthopaedic patients. Elderly patients are more likely to develop complications due to associated comorbidities. Awareness of these possible complications and a proactive approach will help in decreasing the mortality and morbidity associated with it. A thorough

understanding of comorbidities, possible intraoperative complications and early intervention is required. Such critical care may include-monitoring the patients closely, inotropic support, non-invasive and invasive ventilation.

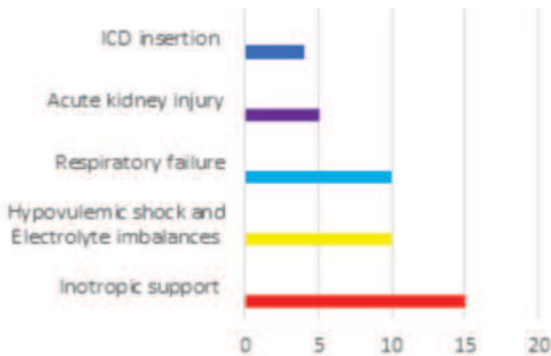
**Orthopaedic patients requiring ICU admissions**



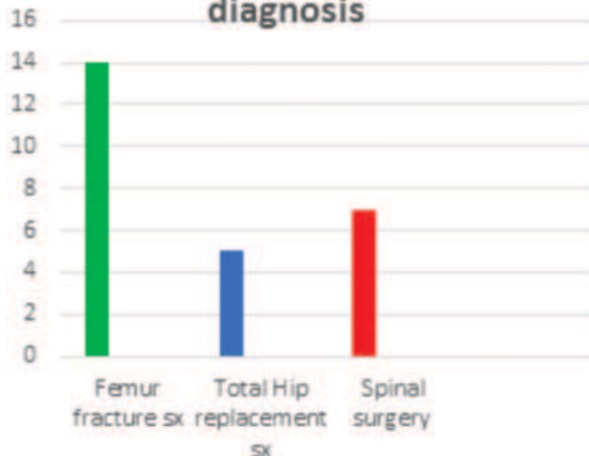
**Initial diagnosis in trauma group**



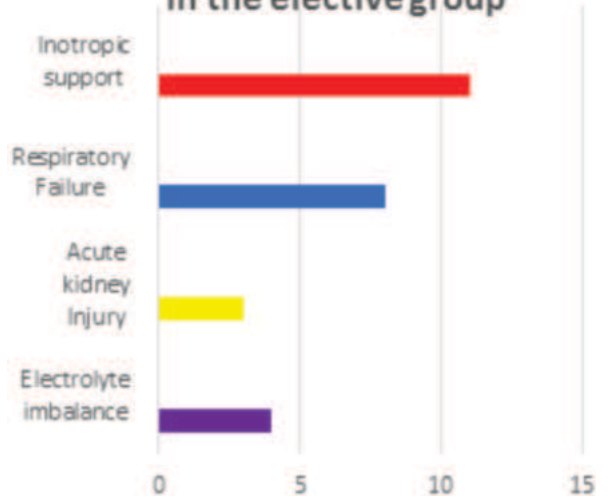
**Reasons for ICU admissions in trauma group**



**Elective cases initial diagnosis**



**Reason for ICU admissions in the elective group**



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