

Assessment of complications for long bone fractures treatment in tertiary care hospital

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Abstract

Background: Musculoskeletal trauma represents a considerable global health burden. Pain is a complex, subjective personal experience. Patients with Postoperative complications have a prolonged stay in the hospital. Increase in hospital stay because of intraoperative and postoperative complications have still not found the clear role in the study. So the purpose of the study was to assess the complications intra and post operative for long bone fractures operative procedure treatment in tertiary care hospital. **Methods:** 74 cases got operated. Complications during post operative period are noted and it was correlated with the hospital stay of the patient. Post discharge quality of life was assessed by assessing the status of ambulation, physiotherapy and ability to resume daily work by the patients through telephone after 1st 3rd and 6th months in all operated patients and the patients discharged with conservative management. **Results:** Higher proportion of cases having post-op Complications had relatively higher hospital stay compared to the cases who did not have post-op complications. 74 got operated, 23 cases (31.1.0%) had post-op complications and 51 cases (68.9.0%) did not have post-op complications. **Conclusion:** Patients with Postoperative complications have a prolonged stay in the hospital. Increase in hospital stay because of intraoperative and postoperative complications have a lesser role in reducing length of hospital stay. Physiotherapy has an important role in the postoperative period.

Key Words: Post -op complications , Long bone fractures , Tertiary care hospital

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INTRODUCTION

Musculoskeletal trauma represents a considerable global health burden. Extremity fractures are commonly seen in prehospital care. They demonstrate a wide variety of injury patterns which depend on the patient's age, mechanism of injury and premorbid pathology.¹ Road traffic collisions are associated with a number of common fracture patterns. For example, front seat occupants may sustain patella fractures, femoral shaft fractures, and posterior hip dislocations following impact with the dashboard. When struck by a car, pedestrians have

injuries that reflect whether they were struck from the front or the side, for example, tibial plateau fractures on the side of impact.² Patients at risk of pathological fractures, for example secondary carcinoma or myeloma may suffer fractures with minimal or no trauma.

Long bone lower limb fractures include fractures of femur, tibia and fibula and they are commonly seen at a tertiary care hospital. Mode of injury in these cases include fall while walking, fall from heights, road traffic accidents (RTA), sporting injuries and assault. Prompt action is required at all stages of management as it has a very significant bearing on the morbidity and in some cases on the mortality of these patients. Compound fractures have an additional comorbidity in the form of infection. Early mobilization after surgery helps to achieve good range of movements and also ensures a good quality of life.^{3,4} Fracture femur includes fractures of the hip, shaft and distal femur. The term "hip fracture" is commonly used to refer to fractures of the proximal end of femur, which include neck of femur (intracapsular), intertrochantric (extra-capsular) and subtrochantric fractures. In geriatric age group, it is mainly due to a fall or minor trauma in persons with

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osteoporotic bones. Most hip fractures in young people with normal bones are a result of high-energy trauma such as car accidents, falling from heights, or sporting activities.⁵ In the UK, the mortality following a fractured neck of femur is 80% in women in the age group of 82, \pm 7 years.⁶ Hip fractures are a common injury in the United States; approximately 280,000 occurred in 1998. The number of annual hip fractures has been projected to surpass 500,000 annually by the year 2040. The fracture of a hip can lead to morbidity, a change in living arrangements, or death. One-year mortality rates of 12% to 36% have been reported. Approximately, 22% of patients require an increased level of care 1 year after hip fracture. Consequently, hip fractures are feared by the elderly. Intertrochanteric femoral fractures mostly occur in patients older than 70 years. They are classified based on classification suggested by Boyd and Griffin.⁷ Subtrochanteric fracture accounts for 10% to 34% of all hip fractures. It has a bimodal age distribution. These fractures are classified based on Seinsheimer's classification.⁴ Conservative methods of management are advocated in young children. Femur shaft fracture has a blood loss of nearly 1.5 L and occurs due to major violence. Simple shaft fracture femurs are treated by open reduction and internal fixation. Comminuted fractures with soft tissue injury are initially managed by traction. Fracture of distal femur accounts 7% of all femoral fractures. Lower limb long bone fractures are seen as a serious concern at the individual and population level. Tibial shaft fractures are most common fractures because of its location. As the bone is subcutaneous, open fractures occur more commonly.⁵ The tibial shaft fracture is treated by cast or intramedullary nailing.⁶ A segmental fracture is treated by interlocking nails. Intramedullary nailing of lower limb fractures gives good results.⁸ National Institute for Clinical Excellence (NICE) guidelines state that 'a quality improvement process that seeks to improve patient care and outcomes through systemic review of care against explicit criteria and the implementation of change.' Aspects of the structure processes and outcomes of care are selected and systemically evaluated against explicit criteria.⁹ Wherever indicated, changes are implemented at an individual, team or service level and further monitoring is used to confirm improvement in health care delivery.¹⁰ Patients with Postoperative complications leads to increase the hospital stay because of intraoperative and postoperative complications so the study was planned to assess the complications intra and postoperative for long bone fractures operative procedure treatment in tertiary care hospital.

METHODOLOGY

This study was conducted as a prospective observational study. Total 100 cases aged between 20 to 92 yrs were included in the study. Out of this 76 are operated. A written consent was taken from each patient. All adult patients reporting to Emergency Medicine Department of Bharati Hospital Pune, Maharashtra Patients with long bone fractures of lower limb were included in the study. All old fractures (non union and malunion), fractures due to bone tumor, Patients GCS of <8 or who are on ventilator support were excluded from the study. Duration of study was 1 year 7 months. Follow up of study was at 1, 3 and 6 months. Data of patients coming to emergency medicine department of hospital from September 2015 to September 2016 was collected and follow up was done at 1, 3 and 6 months for all cases which got completed for last case in month of March 2017. Total number of orthopedic patients presented to emergency medicine department of hospital as per the audit inclusion and exclusion criteria are considered into the study. Patients who took leaving against medical advice (LAMA) and discharge against medical advice (DAMA) are taken into consideration for incidence calculation, pre hospital care, and management in emergency department but excluded from the detailed study. Effects on the final outcome on the lifestyle of the patients will be evaluated against the interventions and management at all stages of the course of the illness. Best practices at each stage would be identified. Details history, examination and investigations will be undertaken as per department protocol for patients coming to hospital. Details of preadmission interventions if any and their responses will be noted. Prehospital care of the patient was assessed. Time gap between the admission and time patient got operated was noted as <24 hours, 24 hours to 48 hours, 48 hours to 1 week and more than 1 week. Cause for delay of surgery in operated cases was categorized into delay due to medical fitness issues, financial issues (lack of money and approval of schemes), infrastructure (non availability of OT, unit system and non-availability of implant) and plan of surgery (non emergency like distal tibia and fibula fractures) The in-hospital course, management and progress was followed up and correlation with patient outcome. Intra-operative complications are noted down. Complications during post operative period are noted and it was correlated with the hospital stay of the patient. Post discharge quality of life was assessed by assessing the status of ambulation, physiotherapy and ability to resume daily work by the patients through telephone after 1st, 3rd and 6th months in all operated patients and the patients discharged with conservative management.

RESULTS

Table 1: Distribution of incidence Complication

Post -op Complications	No. of cases	% of cases
Absent	23	31.10
Present	51	68.90
Total	74	100.0

Of 74 got operated, 23 cases (31.1.0%) had post-op complications and 51 cases (68.9.0%) did not have post-op complications.

Table 2: Distribution of Post-op Complication

	Post-op complications				P-value
	Present (n=23)		Absent (n=50)		
	N	%	N	%	
Hospital Stay					0.001***
<7days	0	0.0	4	7.8	
7 – 15 days	4	17.4	22	43.1	
15-30 days	13	56.5	24	47.1	
>30 days	6	26.1	1	2.0	
Total	23	100.0	51	100.0	

Table showed that higher proportion of cases having post-op Complications had relatively higher hospital stay compared to the cases who did not have post-op complications (P-value<0.001).

Table 3: Distribution of assess merit of post-op parameters studied

Parameters	1-Month		3-Months		6-Months		P-values		
	n	%	n	%	n	%	1-Month V 3-Months	1-Month V 6-Months	3-Months V 6-Months
Ambulation									
Non weight bearing	38	47.5	4	5.1	3	3.8	0.001***	0.001***	0.001***
Partial weight bearing	40	50	45	57.7	23	29.5			
Full weight bearing	2	2.5	29	37.2	52	66.7			
Physiotherapy									
Stopped	5	6.2	35	44.9	61	78.2	0.001***	0.001***	0.001***
Continued	75	93.8	43	55.1	17	21.8			
Ability to resume									
Daily work									
Yes	10	12.5	33	42.3	65	83.3	0.001***	0.001***	0.001***
No	70	87.5	45	57.7	13	16.7			

The ambulation improved significantly at 3-months and 6-months compared to ambulation at 1-month post-op follow-up. The ambulation improved significantly at 6-months follow-up compared to ambulation at 3-month post-op follow-up. The effect of physiotherapy improved significantly at 3-months and 6-months compared to status of physiotherapy at 1-month post-op follow-up. The effect of physiotherapy improved significantly at 6-months follow-up compared to status of physiotherapy at 3-month post-op follow-up. The ability to resume daily work improved significantly at 3-months and 6-months compared to status of physiotherapy at 1-month post-op follow-up. The ability to resume daily work improved significantly at 6-months follow-up-month post-op follow-up the ability to resume daily work at 3.

DISCUSSION

Bone fractures are considered a major public health problem. In the modern world with increase in population and increase in life expectancy,¹⁰ the number of patients with fractures in extremities is on an increasing trend. Lower limb long bone fractures are more in today's world worth increase in road traffic accidents.^{11,12} Patients with postoperative complications had significantly higher hospital stay compared to the cases that did not have post-op complications. Postoperative period follow-up of patients was done by telephone conversation. Patient ambulation status, physiotherapy status, and ability to resume daily work were inquired.¹³ Recent retrospective studies showed that women with hip or femur fractures were discharged to rehabilitation more often than home. Previous studies show conflicting data for the outcomes of mortality, postoperative complications, length of hospital stay, and return to previous living status.^{14,15}

Limitation of our study was short follow-up period but our study is a prospective study. Another limitation of our study was that follow-up was done by telephone which will not give us a chance to assess the range of mobility of the joint. Degree of patient's mobility was noted but that will only give us a rough idea of joint mobility. Our study did not correlate the outcome in patients depending on the duration of physiotherapy. Many studies relating to morbidity and mortality following hip fractures in elderly age group are available but these studies are retrospective studies. The follow-up period was more than 1 year. Patients with Postoperative complications have a prolonged stay in the hospital. Increase in hospital stay because of intraoperative and postoperative complications have a lesser role in reducing length of hospital stay. Physiotherapy has an important role in the postoperative period.

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