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"Investigations on the Length of Hospital Stay of Orthopedic Patients – a study in a tertiary care hospital, Barisal, Bangladesh"

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Abstract: *Treatment of the injured patients takes lot of time and energy all over the world and more so in our country with limited resources and manpower. We conducted an observatory study in Barishal Medical College Hospital in Orthopaedic unit during the period from July 2016 to December 2016. All the indoor patients of Orthopaedics unit were included in the study. A total of 136 patients were studied. In a particular ward data regarding all the admitted patients were collected in a single day (point study). Particulars of the patients, diagnosis, length of hospital stay (on the particular day of data collection in each wards), and the causes of prolonged hospital stay were recorded in an audit data sheet by examining the hospital records and direct interview of the patients. Prolonged hospital stay is arbitrarily defined in the present study as more than 3 weeks of hospital stay. In patients who had undergone a definitive operative treatment, the lengths of preoperative delay and post operative hospital stay (on the day of data collection) were also recorded. Data regarding patients were analyzed and the lengths of hospital stay among the surgical units were determined. Finally the main causes of prolonged hospital stay were categorized broadly and their frequencies were determined.*

Key words: *Investigations, Hospital stay, Orthopedic Patients, Injury*

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I. Introduction

Treatment of the injured patients takes lot of time and energy all over the world and more so in our country with limited resources and manpower, In Bangladesh, per bed day hospital cost in a tertiary care hospital is around 500 BDT[1]. The cost of Road accident has been analyzed by Transport Research by Laboratory (TRL) Fouracre & Jacobs-76[2] showed that the accident costs were equivalent in any country be it developed or developing to approximately 1% of Annual Gross National Product (GNP) in current prices this suggests that it is costing Indonesia 600 million pound sterling per annum, Pakistan 260 million, Egypt 200 million, Korea 60 million and probably in Bangladesh about 200 million pound sterling. The cost of the injury management is very high. About 5 Billion US dollar is spent in UK for the injury management in USA 75-100 Billion are spent for injury management directly or indirectly. But very little is spent on injury research. In our country we do not have any exact statistics but we know that the cost of this management is very high[3].

II. Objectives

General objective:
To investigate hospital stay of orthopedic patients in a tertiary care hospital
Specific objectives:
To investigate length of hospital stay in different causes
To know the distribution of disease pattern in orthopaedics unit

III. Method and Materials

We conducted an observatory study in Barishal Medical College Hospital at Orthopedic unit during the period from July 2016 to December 2016. A total of 134 patients were studied. In a particular ward data regarding all the admitted patients of four orthopaedic surgical units were collected in a single day (point study).

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IV. Result

Figure-I: Age and sex distributions of the patients of Orthopaedics unit

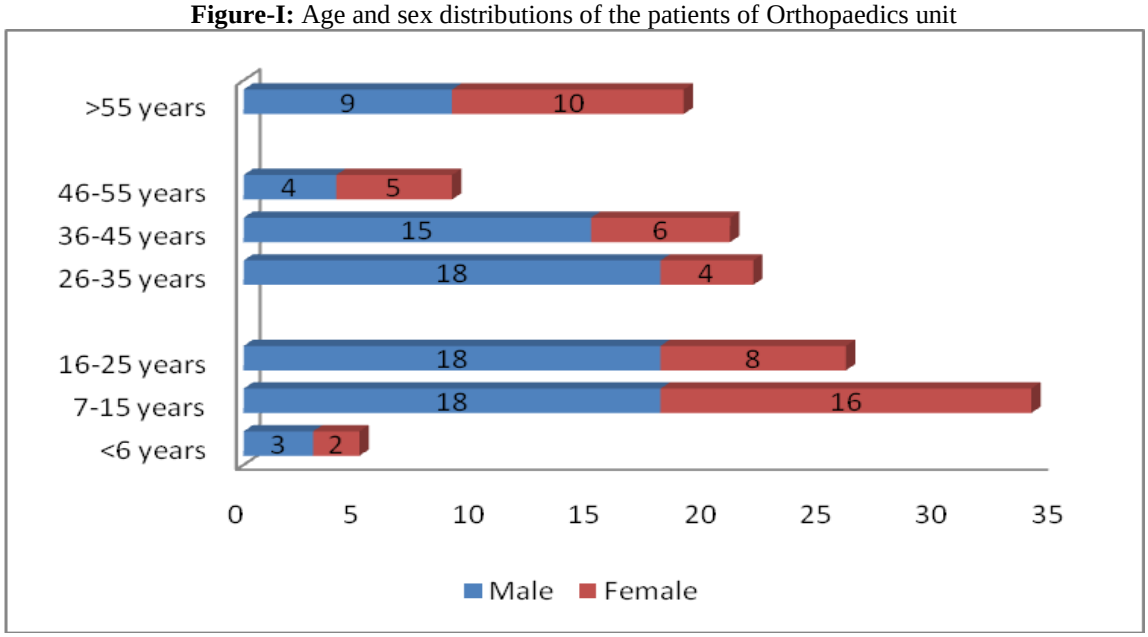

Table 1: Age and sex distribution of patients of Orthopaedics unit (n=136)

Age in Year	Male	Female	Total (%)
<6	3	2	5(3.57)
7-15	18	16	34(25)
16-25	18	8	26(19.11)
26-35	18	4	22(16.17)
36-45	15	6	21((15.44)
46-55	4	5	9(6.61)
>55	9	10	19(13.97)
Total	85	51	136(100)

Table 2: Disease pattern among study participants (n=134)

	Male	Female	Total
Congenital disorders	6	3	9(6.61)
Acute trauma	26	12	38(27.94)
Late complication of bone and Joint injuries	11	3	14(10.29)
Tumour /pure Orthopaedics	22	13	35(25.73)
Neurologic disorders	10	9	19(13.97)
TB	7	5	12(8.82)
Infection(Poisonic)	7	1	8(5.88)
Implant failure	5	5	10(7.35)
Total	**85**	**51**	**136(100.00)**

Table 3: Hospital stay (days) among study participants (n=134)

Hospital stay(day)	**Frequency**	**Percentage**	Mean length of hospital Days(±standard deviation)
< 3 days	30	22.05	28±28.87
3 days – 1 weeks	51	37.56	33.17±44.06
1 weeks- 3 weeks	19	13.97	23.17±34.06
3 weeks >	36	26.47	33.17±38.06

Table 4: Distribution of long stays among study participants (n=36)

	Frequency	Percentage
Wound infection	9	25
Prolonged preoperative delay	7	19.44
Chronic osteomyelitis	10	27.77
Conservative treatment by skeletal traction	7	19.77
Treatment by external skeletal fixators	1	2.77
Others causes	2	5.55
Total	**36**	**100(%)**

V. Discussion

In the present study the number acute trauma was 38 and represents 27.94% of the total cases studied followed by Tumour /pure Orthopaedics 35 which represents 25.73%, Neurologic disorders 19 which represents 13.97%, Late complication of bone and Joint injuries 14 which represents 10.29%, TB 12 which represents 8.82%, Implant failure 10 which represents 7.35 Congenital disorders 9 which represents 6.61% Infection (Poisonic) 8 which represents 5.88%. Among the patients the most important diagnostic group made up of trauma victims either those who have sustained acute trauma, or those presenting with pure orthopaedics. The next important group is made up of patients of neurological disorders. A major part of this group is made up of poliomyelistis victims. Fifty one (51) representing 37.56% patients stayed 3 days -1 weeks. Twenty six (26.47%) patients stayed long time in the hospital and mean long stay was 33.17±38.06.Of the various causes of prolonged hospital stay among patients; excess preoperative delay is a leading one. It results undue suffering of the patients waiting for operation, and is an indication of suboptimal patient management-greatly increasing the cost of treatment. The main reasons for preoperative delay in this study were i) delay in getting a schedule in the operating list - which was in turn due to small number of operating theatres, ii) cancellation of OT. Schedule date- on many occasions due to political reason, iii) poverty- inability of the patients to purchase implants and medicines for operations, & iv) unplanned access of emergency operations in the 0T.Provision of more operating theaters would probably cut down the system loss due to prolonged preoperative delay. Use of external fixators is another cause of prolonged hospital stay. However, it is necessary to take into account of the results using external fixators and compare them with other modalities of treatment. Possible the length of postoperative hospital stay could be reduced by teaching the patients and their relatives about the management of external fixatorts at their home, while the patients can be followed up on the out patient department. Among the patients wound infection and chronic osteomyelitis are the most important causes of prolonged hospital stay. It is difficult to control bone and joint infections, but this aspect of treatment probably demands more attention from the clinicians. A total of 36 patients were found in the present study staying in the hospital for more than three weeks (26.47%) of the total patients. Many of these prolonged stay could have been prevented. The present study is inadequate in the sense that longitudinal study of all the patients of the hospital throughout the year is required to obtain a clean picture abbot the state of surgical treatment. In the year present study only a cross sectional study is done and data about all the patients have not been collected in a particular time point. The patients in the paraplegic were excluded from the study as the mean stay in the para ward is understandably much prolonged and our empirical definition of prolonged hospital stay does not apply in paraplegic patients. Also patients of the plastic surgery unit were not included in the study. However, it has been shown that systemic collection of data can give us much useful information's and an insight about our performance.

VI. Limitations of the study

Sample size of our study was very small that can't be generalized in the whole country. In addition, we conducted this study in only one hospital, so that this finding can't reflect the scenario in the whole country.

VII. Conclusion and Recommendations

In the present study, a preliminary attempt of surgical audit in trauma and orthopaedic unit. The emphasis of this cross sectional study was on estimating the length of hospital stay. It was found that very large proportion of patients (26.47%) stay in the hospital for prolonged hospital stay should be prevented. A comprehensive surgical audit can provide many more useful information's about our patients and the standard of our treatment and cost of treatment. So, similar study should be practiced by all orthopaedic surgical units of our country to help us to improve our performance.

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