

## SOCIO-DEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF THE PATIENTS SUFFERING FROM DISTAL FEMORAL FRACTURE

Amit Kumar<sup>1</sup>, Sanjeev Gupta<sup>2</sup>, Rameshwar Singh Manhas<sup>3</sup>

<sup>1</sup> PG 3<sup>rd</sup> year, Department of Orthopaedics, GMCH Jammu, J&K

<sup>2</sup> Professor & HOD, Department of Orthopaedics, GMCH Jammu, J&K

<sup>3</sup> Registrar, Department of Psychiatry, GMCH Jammu, J&K

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**Corresponding author:** Dr. Rameshwar Singh Manhas

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### Abstract

**Background:** Distal femoral fractures are the fractures which occurs in distal femur involving the intercondylar and supracondylar region. Currently they account for less than 1% of all fractures whereas among femoral fractures they account for 3% to 6%. These fractures are difficult to treat and notorious for the complications.

**Aim:** To find the socio-demographic and clinical characteristics of the patients suffering from distal femoral fracture.

**Methodology:** The present observational and prospective study was conducted in the Department of Orthopaedic, Govt. Medical College, Jammu, J&K for period of 1 year on 27 patients. General information including age, sex, residence, religion, marital status, side of fracture etc. were noted on separate sheet. All fractures were classified as per AO/Müller's classification.

**Results:** Majority of patients i.e. 40.8% were between 18-30 years age group. 66.6% patients were males and only 33.4% were females. 63% patients were from rural area and 37% patients from urban area. Maximum percentage of patients i.e. 59.3% from Hindu community and 66.7% were married. RTA was the most common mode of injury involving 74.1% patients whereas, right limb fractures were most commonly involving 66.7% patients. As per AO/Müller's classification B3 and C1 were most common fractures affecting 18.6% patients each.

**Conclusion:** From present study we conclude that the distal femoral fractures were more common in young age group and RTA is the most common cause. Hence it is recommended to the authorities to implement strict traffic rules so that over speeding of vehicle can be prevented which may lead to decrease in incidence of high velocity trauma.

**Key words:** Fractures, Road traffic accidents, Injury.

### Introduction:

Distal femoral fractures are the fractures which occurs in distal femur involving the intercondylar and supracondylar region. These fractures are difficult to treat and notorious for the complications.<sup>1</sup> Currently they account for less than 1% of all fractures whereas among femoral fractures they account for 3% to 6%.<sup>2-4</sup> These fractures has a bimodal age distribution and can result from high energy trauma in young patients and low energy falls in old age patients.<sup>5</sup> There is lack of data regarding the socio-demographic and clinical characteristics of the patients suffering from distal femoral fractures. Hence the present study was conducted to find the socio-demographic and clinical characteristics of the patients suffering from distal femoral fracture.

### Methodology

The present observational and prospective study was conducted in the Department of Orthopaedic, Govt. Medical College, Jammu, J&K for period of 1 year from 2019-2020. All the patient were informed regarding the study and written consent was taken. After meeting inclusion and exclusion criteria, 27 patients were selected for the study. General information including age, sex, residence, religion,

marital status, side of fracture etc. were noted on separate sheet. Initially patents were managed on ATLS guidelines and x rays were taken to rule out other associated injuries. All fractures were classified as per AO/Müller's classification.<sup>6</sup>

### Inclusion criteria

- Age above 18 years
- Patients with fresh fracture

### Exclusion criteria

- Polytrauma patients
- Those who didn't gave consent
- Pathological fracture
- Ipsilateral other fractures

### Results

Table 1 shows that maximum number of patients were in 18-30 years age group i.e. 40.8% patients followed by 22.2% in above 60 years age group, 51-60 years i.e. 14.8%, 41-50 years 11.1% and 31-40 years 11.1%. Out of 27 patients studied 66.6% were males and 33.4% were females. 63% patients included in study belongs to rural area and 37% patients from urban area. Table 1 also shows that 59.3% patients belongs to Hindu religion, 26% from Muslim

community, 11.1% from Sikh community and 3.6% belongs to other religion. 66.7% patients were married and 33.3% patient was unmarried.

**Table 1 shows distribution of patients as per age, sex, residence, religion and marital status**

	Number	Percentage
<b>Age</b>		
18-30	11	40.8
31-40	3	11.1
41-50	3	11.1
51-60	4	14.8
>60	6	22.2
<b>Sex</b>		
Male	18	66.7
Female	9	33.3
<b>Residence</b>		
Rural	17	63
Urban	10	37
<b>Religion</b>		
Hindu	16	59.3
Muslim	7	26
Sikh	3	11.1
Others	1	3.6
<b>Marital status</b>		
Single	9	33.3
Married	18	66.7
<b>Total</b>	<b>27</b>	<b>100</b>

Table 2 shows Fracture pattern classified according to AO/Müller's classification and the most common type of fractures were B3 and C1 type including 18.6% patients each, followed by A1 and B2 type fracture 14.7% patient each, C2 type 11.2% patients, A2 and B1 7.4% patients each and A3 and C3 included 3.7% patient each. It also shows that 66.7% patients had right side involvement whereas 33.3% patients had left side limb involved. RTA was the most common mechanism of injury involving 74.1% patients whereas 25.9% patients suffered injury due to fall from height.

**Table 2: shows distribution of patients as per type of fracture, side affected and mechanism of injury**

	Number	Percentage
<b>Type of fracture</b>		
A1	4	14.7
A2	2	7.4
A3	1	3.7
B1	2	7.4
B2	4	14.7
B3	5	18.6
C1	5	18.6
C2	3	11.2
C3	1	3.7
<b>Side affected</b>		
Right side	18	66.7
Left side	9	33.3
<b>Mechanism of injury</b>		
RTA	20	74.1
Fall from height	7	25.9
<b>Total</b>	<b>27</b>	<b>100</b>

## Discussion

In the present study majority i.e. 40.8% patients were between 18 to 30 years of age followed by 22.2% patients who were above 60 years of age. Distal femur fractures are commonly observed in young age group as these people are more prone to high speed vehicular accidents.<sup>5</sup> The finding of ours can be supported by Jules et al who observed that fracture of femur occurs more commonly in young population.<sup>7</sup> Similar results were also reported by Japheth DS<sup>5</sup> and Smith et al.<sup>8</sup>

About 66.7% patients were males and only 33.3% were females. In Indian culture as compared to females, males are more mobile and involved in high risk outdoor and professional outdoor activities and hence are more predisposed to high speed accidents.<sup>7</sup> Jhathoth DS<sup>5</sup> and Jules et al<sup>7</sup> in their respective studies had also reported that distal femoral fractures occur more commonly in males as compared to females. However, Smith et al<sup>8</sup> had reported more femoral fracture in females which may be due to cultural differences.

63% patients belong to rural area and 37% from urban area. At present majority of the Indian population still lives in rural areas<sup>9,10</sup> and same is reflected in our study.

59.3% patients belong to Hindu community followed by Muslim and others. This could be explained by the fact that majority of the Indian population follows Hindu religion<sup>10,11</sup> glimpses of which are observed in our study.

66.7% patients in our study were married and only 33.7% were unmarried. This could be explained by the fact that the by the age of 30 years, most people in this part of world got married<sup>12</sup> and 16 out of 27 patients in this study were above 30 years.

In present study according to AO/Muller's classification of distal femoral fracture B3 and C1 fractures are most commonly encountered and were observed in 18.6% patients each. This can be explained by the fact that that most distal femoral fracture occurs due to high energy trauma which leads to more complex fracture in AO/Muller's classification.<sup>5</sup> Rajaiah et al had also made similar observation.<sup>13</sup>

66.6 % patients in our study have right side fracture compared to 33.4 % in left side. The reason for this could be that in majority of the population, dominant side is right side and it is the most active limb where the brunt of injury falls during the road traffic accidents.<sup>5</sup> Jhathoth DS had also observed that right side fractures are more common in distal femoral fractures.

Most common mode of injury in our study is RTA in 74.1% patients and fall from height in 24.9% patients. The reason behind the more cases of RTA could be due to ongoing modernization there may be steep increase in high velocity trauma.<sup>5</sup> Observation similar to ours were also reported in recent studies.<sup>13-15</sup>

### Conclusion

From present study we conclude that the distal femoral fractures were more common in young age group and RTA is the most common cause. Hence it is recommended to the authorities to implement strict traffic rules so that over speeding of vehicle can be prevented which may lead to decrease in incidence of high velocity trauma. Moreover, awareness camps can be organized to sensitize youth about the high velocity trauma which may lead to life threatening injuries.

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