

## ORIGINAL RESEARCH

### To Assess Prevalence of Supracondylar Fractures of Humerus Among Patients Visited to Tertiary Care Hospital

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#### ABSTRACT

**Background:** Supracondylar fractures of the humerus are the most common elbow fractures in children and adolescents accounting for 50-70% of all elbow fractures. Supracondylar fractures may result in significant neurovascular compromise. The present study was conducted to assess the prevalence of supracondylar fractures of humerus among the patients who visited to tertiary care hospital.

**Materials and Methods:** The present retrospective study was conducted among 110 cases of supracondylar fractures reported to the department of both genders. General information such as name, age, gender etc. was recorded. In all patients, the reason of fracture and type were recorded. Data was collected and the data were analysed in SPSS version 22 for windows. P value less than 0.05 was considered statistically significant.

**Results:** In the present study out of 110 patients, 59.09% were males and 40.90% were females. Gartland type II was seen in 28 males and 18 females and Gartland type III in 37 males and 27 females. The common reason for fractures was roadside accidents seen in 47.27%, domestic violence in 35.45% and fall in 17.27%.

**Conclusion:** The present study concluded that supracondylar fractures of humerus were more common in males than in females. The common reason for fractures was roadside accidents.

**Keywords:** Gartland type II, Gartland type III, Supracondylar Fractures, Humerus.

#### INTRODUCTION

Fractures of the adult distal humerus are relatively uncommon, comprising approximately 2% of all fractures and a third of all humeral fractures and only 7% of all fractures of the distal humerus are open.<sup>1</sup> Supracondylar humerus (SCH) fractures are classically associated with falls from playground equipment onto an outstretched, nondominant hand, and are believed to be more common among boys than among girls.<sup>2-4</sup> SCH fractures often occur between the ages of 4 and 8 years,<sup>3,4</sup> when elbows are thought to be vulnerable because of increased bone remodeling and thin cortical bone.<sup>5-7</sup> The complex shape of this joint (Elbow) and its associated vascular & nerve structures and the sparse soft tissue envelope combine to make these fractures difficult to treat.<sup>8</sup> While operative management remains the standard of care for Gartland type III fractures, controversy persists regarding the optimum treatment for

Gartland type II fractures.<sup>9</sup> Treatment options include closed reduction with either casting or percutaneous pinning.<sup>10</sup> The American Academy of Orthopaedic Surgeons (AAOS) has published in its clinical practice guidelines for the treatment of pediatric supracondylar humerus fractures that “closed reduction with pin fixation for patients with displaced (Gartland type II and III, and displaced flexion) pediatric supracondylar fractures of the humerus”.<sup>11</sup> The majority of supracondylar humeral fractures are extension- type injuries due to a fall onto the outstretched hand while the elbow is extended.<sup>12</sup> Complications after supracondylar humeral fractures include neurovascular lesions, decreased range of motion, malalignment, and nonunion.<sup>13</sup> The present study was conducted to assess prevalence of supracondylar fractures of humerus among the patients visited to tertiary care hospital.

## MATERIALS AND METHODS

The present retrospective study was conducted to assess prevalence of supracondylar fractures of humerus in the patients visited to the Department of Orthopaedics, Saraswathi Institute of Medical Sciences, Hapur Road, Anwarpur, Uttar Pradesh (India). Before the commencement of the study ethical clearance was taken from the Ethical Committee of the institute. The sample comprised of 110 cases of supracondylar fractures reported to the department of both genders. General information such as name, age, gender etc. was recorded. In all patients, the reason of fracture and type were recorded. Data was collected and the data were analysed in SPSS version 22 for windows. P value less than 0.05 was considered as statistically significant.

## RESULTS

In the present study out of 110 patients, 59.09% were males and 40.90% were females. Gartland type II was seen in 28 males and 18 females and Gartland type III in 37 males and 27 females. The common reason for fractures was roadside accidents seen in 47.27%, domestic violence in 35.45% and fall in 17.27%.

**Table 1: Distribution of gender**

Gender	N(%)
Males	65(59.09%)
Females	45(40.90%)
Total	110(100%)

**Table 2: Type of fractures**

Types of fracture	Male	Female
Gartland type II	28	18
Gartland type III	37	27
Total	65	45

**Table 3: Reasons of fractures**

Reasons of fractures	N(%)
Road accident	52(47.27%)
Domestic violence	39(35.45%)
Fall	19(17.27%)
Total	110(100%)

## DISCUSSION

Supracondylar humerus fracture is one of the most common pediatric upper extremity fractures and can cause substantial morbidity. Although previous studies reported that boys

were more likely than girls to sustain SCH fractures, recent studies have reported that girls sustain SCH fractures at equal or higher rates than do boys.<sup>14,15</sup>

In the present study out of 110 patients, 59.09% were males and 40.90% were females. Gartland type II was seen in 28 males and 18 females and Gartland type III in 37 males and 27 females. The common reason for fractures was roadside accidents seen in 47.27%, domestic violence in 35.45% and fall in 17.27%.

Seventy children with displaced Type II and III supracondylar fractures of the humerus were managed with percutaneous lateral cross-wiring technique from January 2006 to January 2007 by Farley FA et al (2008).<sup>16</sup>

Pullagura M et al in 2013 retrospectively reviewed 81 children with displaced supracondylar fractures (64 Gartland Type III and 17 Type IIA). Of these, 46 children were treated within 6 h of presentation, and 35 were treated later. The rate of open reduction was higher in children treated early (23%) than in late cases (11%). There was no significant difference in the postoperative outcomes and complications between the groups.<sup>17</sup>

The occurrence of a supracondylar fracture with a proximal forearm injury is an indicator of the greatest traumatic force in patients with a floating elbow injury.<sup>18</sup>

Holt et al found a stable annual incidence of 60 to 72 SCH fractures per 100,000 children between 2006 and 2011.<sup>14</sup>

Studies have reported that boys are 1.5 to 2.5 times as likely as girls to sustain SCH fractures.<sup>19,20</sup> The higher incidence of SCH fractures among boys has been suggested to be related to boys' more active and aggressive style of play compared with that of girls.<sup>21</sup>

Korner J et al found that out of one hundred and twelve children were included in this study, of whom 61 (54.46%) were younger than seven years of age while 51 (45.5%) were aged seven years or older. Children aged seven or older had a greater incidence of associated neurological deficit at presentation. Of the six patients with a nerve injury in the older age group, one patient (16.7%) had a radial nerve injury, two patients (33.3%) had ulnar nerve injuries while another two patients (33.3%) had median nerve injuries. There was one patient (16.7%) with both median and ulnar nerve injuries. Comminuted fractures were also more common in older children. No significant differences were demonstrated between the groups with regard to age, gender and mechanism of injury, laterality, the incidence of open fracture, vascular injuries, and operative time.<sup>22</sup>

## CONCLUSION

The present study concluded that supracondylar fractures of humerus were more common in males than in females. The common reason for fractures was roadside accidents.

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