International Surgery Journal
Karakaş D et al. Int Surg J. 2017 Apr;4(4):1185-1188
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

Original Research Article

DOI: http://dx.doi.org/10.18203/2349-2902.isj20170954

Epidemiology of orthopaedic trauma in Istanbul level 3 private hospital

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Received: 16 February 2017
Accepted: 03 March 2017

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ABSTRACT

Background: The distribution of patients who were admitted to the hospital for trauma depends on the location of hospital and the distribution of the population where the hospital is located. The aim was to answer the question regarding the distribution of orthopaedic traumas which were admitted to the emergency service of level 3 a private hospital and to be able to shed light on necessary training and equipment for the aforementioned emergency departments.
Methods: The distribution of the patients who were admitted to level 3 private hospital for a year was analyzed retrospectively. The patients who admitted between January 2014 and January 2015 were divided into subgroups as upper extremity, lower extremity, vertebral disk pathology, vertebral trauma, infection and soft tissue trauma, accompanying thoracic trauma and then they were taken into consideration.
Results: A total of 1538 patients admitted during a 12-month period. The number of the patients with upper extremity trauma was 539 while that of lower extremity was 423. There were 365 patients with vertebral trauma which was followed by 94 patients with pelvic trauma. The remaining patient group had thoracic trauma.
Conclusions: The patients aged between 30-39 years constituted the majority of the cases in present study. The upper extremity injuries were predominant. Also, the number of male patients was higher in every month. The center where the hospital is located plays an important role in determining the age group and type of trauma.

Keywords: Epidemiology, Fracture, Orthopaedics, Trauma

INTRODUCTION

The distribution of patients who were admitted to the hospital for trauma depends on the location of hospital and the distribution of the population where the hospital is located. In regions where the population is relatively old and there are no industry-related business lines, admission with osteoporotic wrist, pelvic, ankle fractures could be the most frequent cause whereas it can be predicted that male and young adult patients would make up most of the admissions in the regions of industrial centers.[1]

There are not many publications related to admissions with orthopaedic trauma and the majority of publications are about fracture epidemiology.

Predicting patient distribution may be beneficial in terms of utilizing the resources effectively, providing insight about in which field the surgeon should develop him/herself better as well as improving the quality of health care.[2] The retrospective records of the patients with orthopaedic trauma between January 2014 and January 2015 were examined and their distribution was endeavored to be analyzed.

METHODS

The present study was approved by the local ethics committee. The medical records of the patients who were admitted to a single center between January 2014 and January 2015 were examined retrospectively. The age, gender, diagnosis and received treatment were recorded in the patient files.

In addition to all patients who were admitted to orthopaedics, the patients with multiple traumas and secondary orthopaedic trauma and the patients received orthopaedic treatment were included whereas the patients who were admitted to another department at first and did not undergo any intervention after consultation were excluded.

All patients with soft tissue traumas and spinal problems were included in the study. There are studies about fracture epidemiology in the literature.[5] The cases with definite diagnosis were examined in present study. The patients who were referred to another hospital after admission to emergency were not taken into consideration.

RESULTS

Examining the patients who were admitted between January 2014 and January 2015 indicated that 1538 patients underwent intervention by the orthopaedic group. The mean age of the patients was found to be 46.20 years and the gender rate was on the behalf of males with 57.2%.

Table 1: Monthly distribution of admitted patients' demographics.

	Female	Male	Total
January	61	72	133
February	50	52	102
March	58	78	136
April	62	77	139
May	39	84	123
June	45	78	123
July	58	80	138
August	65	83	148
September	70	81	151
October	57	59	116
November	48	66	114
December	44	71	115
Total	**657**	**881**	**1538**

The distribution of the patients according to months and male-female ratio are presented in Table 1.

Besides various number of fractures among 1538 patients, the patients included also 6 animal bites, 10 foreign body penetrations, 2 electric shocks, 30 tendon lacerations (22 of upper extremity, 8 of lower extremity), 3 gunshot injuries, 66 chronic tendinopathies. Location of trauma causing admission listed in Table 3.

Table 2: The distribution of admitted patients' ages according to months.

Age	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70- ≥	Total
January	12	13	25	17	23	20	13	10	133
February	7	7	20	29	13	11	15		102
March	12	16	22	28	20	16	12	10	136
April	16	16	22	20	24	23	10	8	139
May	11	16	13	30	21	16	15	1	123
June	15	15	27	28	19	17	2		123
July	14	18	22	27	20	12	14	11	138
August	20	16	25	36	24	14	13		148
September	18	18	19	30	20	14	14	18	151
October	12	12	19	18	26	18	5	6	116
November	10	12	21	19	18	14	11	9	114
December	11	17	22	15	18	14	16	2	115
Total	**158**	**176**	**257**	**297**	**246**	**189**	**140**	**75**	**1538**

A predominance in terms of admission was detected between the ages of 20-49 years. This can be explained by the proximity of the hospital to the centers requiring heavy workload (Table 2).

The distribution of the patients according to months showed a homogenous pattern. The month in which the patient admission was lowest was February and this can be attributed to less working days in this month (Table 1).

The majority of our patients were discharged within the same day (Table 4).

Table 3: Location of trauma causing admission.

Location of trauma	Number of patients
Upper extremity	539
Lower extremity	423
Spine	365
Pelvis	94
Head	1
Thorax	116
Total	**1538**

Table 4: Length of hospital stay for trauma patients.

Length of hospital stay	Number of patients
0 day	826
1-2 days	596
3-7 days	96
8-15 days	12
≥15 days	8
Total	**1538**

In respect of the region where the hospital is situated, the upper extremity traumas predominated regarding the frequency of admission due to high density of workers.

DISCUSSION

The orthopaedic emergency admission scale is influenced by factors such as elderly population in the area, proximity of the hospital to the factories with high density of heavy workload, proximity of the hospital to holiday regions. In this study, as distinct from the previous studies, although it included less patients, the details and classifications were performed more sensitively.[1] The patients were classified generally in terms of age, gender, anatomic localization of orthopaedic problem, length of hospital stay, monthly distribution and pathologies.

As far as it is seen, the majority of our patients were discharged within 2 days. Short hospital stay in orthopaedic is satisfactory.

The monthly admission of 130 patients was sustained at a steady level throughout the year. The age distribution of admitted patients was also steady. This result is not consistent with the study which reported an increase in pediatric traumas in conjunction with the increased outdoor activities of pediatric age group during summer months.[2]

In another study, it was stated that the incidence of hip fracture was increased in adverse weather conditions, however, such a result was not encountered in our study.[3]

Presumably, there is a male dominancy in patient admission rate (57.2%) because of the proximity of the hospital to male dominant lines of business. This result is incompatible with the adult fracture epidemiology study by Court-Brown.[6]

Public health centers want to reduce injuries so that try to methods for counting injuries, determining injury rates.[6] This data could use for this aim.

As it is in many hospitals, a significant number of patients admitting to emergency services in our hospital are also associated with orthopaedics and traumatology. The location of the hospital is the determining factor in the distribution of the patients who are admitted to emergency. Our hospital is close to the area where the shipyards are located but also in close vicinity with the settlements where people from all ages live, thus there is a high admission rate of job accidents, however, this rate was not predominant in present study.

CONCLUSION

We determined that the region where the hospital is located could cause changes regarding the age and type of trauma of the patient who is admitted to orthopaedic trauma team. The proximity of the hospital to business lines with heavy workload, to holiday regions and high concentration of elderly population in the vicinity can affect the diversity of patients. Gender, age, anatomical region of the pathology and frequency of the problems of the patients who will be admitted to orthopaedic emergency can be determined conjecturally. Under the light of this information, the personnel and equipment of emergency service can be prepared in this direction and a fast and correct treatment can be carried out from the patient point of view as well as hospitals can gain time and cost benefit from the intervention.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

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Cite this article as: Karakaş D, Demiroğlu M. Epidemiology of orthopaedic trauma in Istanbul level 3 private hospital. Int Surg J 2017;4:1185-8.