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**INCIDENCE OF PELVIC FRACTURES IN PATIENTS WHO RECEIVED
MEDICAL ASSISTANCE AT THE INSTITUTE OF EMERGENCY
MEDICINE, CHIȘINĂU, REPUBLIC OF MOLDOVA IN 2019**

***Abstract.** Pelvic fractures are severe lesions and are often associated with multiple skeletal lesions. The related literature on the general epidemiology of these lesions is poor. Our goal was to study the epidemiology of hospitalized patients with pelvic fractures at level 1 trauma center in the Republic of Moldova. Information on epidemiological trends in pelvic fractures and medical care for the general population is limited. Therefore, we determined the incidence of pelvic fractures that received medical assistance at the largest trauma and surgical center in the Republic of Moldova for 2019, the year before the SarsCov - 2 pandemic and restrictions. We used data from the information system used in the Institute of Emergency Medicine to calculate the incidence of pelvic fractures, patient characteristics, causes of trauma, amount of medical care provided. All patients over the age of 18 and over were included in the study. Patient demographics, lesion mechanism, and complications were recorded retrospectively.*

***Keywords:** bone fractures , epidemiology, pelvic bones , lesions, epidemiological studies.*

INTRODUCTION

Fractures and injuries of the pelvic ring, which may or may not be associated with severe trauma, are generally not considered to be frequent, accounting for only 2–8% of all fractures. However, in polytraumatized patients the occurrence of this type of injury is much higher, being observed in 20–25% of cases.[1] Fractures of the pelvic ring in young individuals most often occur as a consequence of high-energy trauma such as car and motorcycle accidents and falls from great heights. In the elderly, they are usually caused by low-energy trauma, most commonly fall from own height, mainly due to bone porosity.[1] Young patients with pelvic ring fractures or injuries due to high-energy trauma should be initially assessed by a multidisciplinary team, because they often have multiple injuries and are subject to major bleeding. Bleeding in this type of injury is more severe when associated with unstable pelvic fractures, which, although infrequent, present a high mortality rate of 19–31%.[2] In turn, elderly patients with fractures due to minor trauma generally do not present complications. In recent years, a considerable number of studies related to the care and immediate or late complications of this type of injury have been published, which is undoubtedly praiseworthy, since they increasingly inform and guide the professionals involved in such care, characterizing the importance and severity of the injury, especially in polytrauma cases.[3] However, a much smaller proportion of publications are related to epidemiological data, regional or otherwise, about fractures and injuries of the pelvic ring, which also have very important information, especially regarding the characterization and appropriateness of care for such an injury.[2] Therefore, this study sought to analyze and compare various data, such as age, mechanism and site of injury, type of fracture, emergency interventions, and definitive treatment, among others, referring to the cases of fractures and injuries of the pelvic ring that occurred in this region and were treated in this service.

MATERIALS AND METHODS

A 12-month retrospective observational study (between January 2019 and December 2019) was performed on patients with pelvic fractures at a level 1 trauma

center of a primary and tertiary care hospital of the Institute of Emergency Medicine in Chisinau. Patient demographics, lesion mechanism, and complications were recorded retrospectively.

RESULTS

The results were presented in a descriptive manner with a comparison of some data that the authors considered important.

In 2019, out of the total of 174389 patients hospitalized within Institute of Emergency Medicine, 99956 were treated from a traumatological or surgical pathology (in the following wards: orthopedics and traumatology no.1, orthopedics and traumatology no.2, orthopedics and purulent traumatology no.3, surgery 1, surgery 2, septic-purulent surgery no.3, associated traumas, spinal surgery, urology, neurosurgery no.1 and neurosurgery no.2) except for the following wards: ophthalmology and oro-maxillo-facial surgery department, vascular surgery, thoracic surgery and microsurgery. 113 patients were diagnosed with pelvic fractures.

Distribution by sex: 45 patients were women, which is 39.82% and men - 68 or 60.18%.

Their average age was 48.82 years.

21 patients were aged between 18-30 years which is 18.58%, 52 patients were aged between 30-60 years which is 46.01% and respectively 40 patients were aged over 60 years which constitutes 35.39%.

General causes of trauma in all age groups:

- 1) traffic accidents - 51 cases - 45.13%;
- 2) household - 35 cases - 30.97%;
- 3) catatrauma - 16 cases - 14.15%;
- 4) other causes - 11 cases - 9.73%.

The causes of trauma in patients over 60 years of age were:

- 1) household trauma by falling from own height on a weak or osteoporotic bone system in 25 cases - 22.12%,
- 2) pedestrians involved in traffic accidents in 8 cases - 7.07%
- 3) catatrauma in 3 cases - 2.65%,
- 3) other causes - 4 - 3.53%.

The causes of trauma in patients under 60 years were:

- 1) traffic accidents - 43 cases - 38.05%,
- 2) falls from heights (including suicide attempts) - 13 cases - 11.5%
- 3) habitual trauma - 10 cases 8.84%,
- 4) other causes - 6 cases - 5.30%.

Related to traffic accidents was a total number of 51 patients:

- 1) driver or occupant of the vehicle - 26 cases (50.98%),
- 2) pedestrian - 25 cases (49.01%)

The vast majority of patients were from urban areas 86 patients - 76.10%, of which 68 from Chisinau (capital of the Republic of Moldova) - 60.17%, and the remaining 18 - 15.92% from other cities in the country, and 27 from rural area or - 23.89%.

The total number of 113 patients who underwent surgical treatment related to pelvic trauma were 28, which is 24.77%. Urgently operated were 10 patients - 8.84% of the total number. There were 18 patients operated on planned surgery - 15.92% of the total number of patients with fractures. External osteosynthesis was performed in 14 cases - 12.38% of the total number of patients with fractures and 35.71% of those operated. Internal osteosynthesis was performed in 16 cases - 14.15% of the total number of patients with fractures and 64.29% of those operated.

2 Patients who underwent pelvic surgery were excluded from the study because in one case the ablation of the degraded osteosynthesis of the pubic symphysis plaque was performed and, in another case, the pathological pelvic pathology was excluded.

Non-invasive treatment was most commonly used method in 85 patients - 75.23%.

From the total number of patients:

- 20 were diagnosed with acetabulum fracture;
- 7 were diagnosed with acetabular fracture as the main lesion among other pelvic ring lesions;
- 37 had the lesion of the anterior half-ring;
- 2 suffered injury to the posterior half-ring;

- 7 suffered the fracture of the iliac bone, out of which 1 patient with an open lesion who was treated primarily;
- 28 patients suffered the fracture both the anterior and posterior half-ring, out of which 1 patient with open lesion that was treated primarily;
- 10 patients had a type C lesion after Tile with lesion of both the anterior, posterior half-ring and the acetabulum.

The reduction of a dislocated hip was performed each time in an emergency under the protection of general anesthesia and 8 cases were registered. 3 cases of dislocation were in people who suffered traffic accidents as a driver. 5 cases were catatraumas. 1 patient underwent flat surgery by acetabular osteosynthesis. People with dislocation after hip arthroplasty were excluded from the study.

Intervention on the bladder and urethra associated with external fixator - 1 case.

65 patients, which is over 57.52%, suffered pelvic trauma as a component of a polytrauma.

Death during hospitalization occurred in 12 patients 10.61% of cases with high-energy trauma (traffic accident, catatrauma) with pelvic ring injuries type B or C, in addition to the associated serious injuries.

The total duration of hospitalization for 113 patients was in total 1661 bed days, the average being 14.69 days. The longest hospitalization period of 162 days was t a patient who suffered polytrauma with an open lesion of the pelvic ring type C - which became septicly complicated during hospitalization, later associated with decubitus. The shortest period of hospitalization resulting in death was 1 hour of a patient who fell from the 6th floor, and suffered polytrauma incompatible with life. In the case of acetabular lesions that were not treated surgically but were treated by traction, the average duration of hospitalization was 21.27 days. Associated lesions of the extremities, head, abdomen and urogenital system caused a longer hospital stay.

CONCLUSION

Under the conditions of this study, the following can be concluded regarding pelvic ring fractures/injuries:

They are more frequent in males.

In general, most common mechanism of injury is traffic accident.

In the elderly, the most common mechanism of injury is low-energy trauma (fall from own height).

In adults, the most common mechanism of injury is high-energy trauma and the most common place of injury is the urban.

In general, stable fractures are the most frequent.

Most injuries do not need emergency intervention and, when necessary, orthopedic interventions are the most frequent.

Emergency interventions are associated with high-energy trauma.

Among associated injuries, fractures/dislocations in other sites are the most common and are associated with high-energy trauma.

Non-surgical treatment is the most common; in cases treated surgically, external fixation is the most used method.

Deaths occur in unstable fractures and severe associated injuries of high-energy trauma.

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