Abstract

Of all bone fractures, approximately 3% are pelvic fractures. They are associated with high mortality and high healthcare costs. The COVID-19 pandemic began at the beginning of 2020. Many hospitals were forced to introduce new action plans and face huge changes in staff and access to medicines and medical equipment. From an orthopedic perspective, few studies have been published in the field of the impact of COVID-19 pandemic on the epidemiology of pelvic fractures.

The studied group consisted of patients qualified for surgical treatment of pelvic ring and acetabulum fractures according to the AO criteria. The study group was treated surgically in one center - a trauma center. The people included in the study underwent diagnostic imaging using X-rays and computed tomography of the pelvis. The exclusion criteria were non-surgical treatment of pelvic fractures, fractures requiring primary total hip arthroplasty (THA) and periprosthetic acetabular fractures. Demographic data were collected. The fracture classification was based on the Judet-Letournel, Young-Burgess, AO/OTA systems.

In the original paper I, statistical analysis showed significant differences between the male and female population in terms of BMI ($p=0.01223$). In the group of patients with a higher BMI, the APC II and the APC III fractures were more common ($p=0.012$). In the studied group, as many as 47 patients had concomitant injuries and were classified as patients with multiple injuries, the so-called polytrauma. Patients with pelvic ring injuries in the polytrauma mechanism, were characterized by a statistically significant higher number of transfused blood units (1.02 units vs. 0.55 units), and the hospitalization time was also extended when compared to isolated injuries (5.84 days vs. 3.58 days), ($p = 0.01$ and $p = 0.001$, respectively). In the original paper II, the analyzed group during the COVID-19 pandemic consisted of 91 patients, 50 patients requiring surgical stabilization of the acetabulum and 41 patients requiring stabilization of the pelvic ring. Patients with acetabular fractures required a higher number of blood units transfusion ($p < 0.0001$) compared to pelvic ring fractures. In addition, surgical treatment of acetabular fractures was more time-consuming ($p<0.0001$) compared to pelvic ring fractures, and also prolonged the patient's hospital stay ($p=0.042$). Patients treated surgically during the COVID pandemic spent fewer days in the hospital in the perioperative period ($p<0.0001$) and required fewer blood transfusions ($p=0.0401$).

Patients with polytrauma, who suffered pelvic ring injuries, required more blood transfusions in the perioperative period and extended period of hospitalization. Moreover, the BMI correlated with the morphology of pelvic ring fractures in the Young-Burgess classification. The COVID-19 pandemic has had an impact on the epidemiology of pelvic and acetabular fractures in patients treated surgically. During the COVID-19 period, patients with acetabular fractures required more blood units transfusions when compared with pelvic ring fractures, and the duration of acetabular fracture fixation was longer, as was the hospital stay. Patients during the pandemic stayed in the hospital for fewer days and received fewer blood transfusions.