

Challenges with Life-Threatening Injuries in the Room of Reanimation

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Abstract

Introduction: Patients with life-threatening injuries are a significant concern in the emergency department (ED). These injured people require timely care, as their lives depend on it, and a longer wait can result in organ failure, irreversible damage, and poor survival outcomes.

The purpose of this research is the evaluation, epidemiology, management, diagnosis, treatment, systematization, and the results obtained for the injured in life-threatening cases with trauma, reducing morbidity, disability, and mortality while increasing survival.

Material and Methods. In this retrospective study, we researched and analyzed the data of patients with critical traumatic injuries in DE treated from January-December 2021

Results. During the study period, we analyzed 75,899 ED patients. Of these, 627 cases, or 0.83%, were severely injured and traumatically admitted as a life-threatening traumatic medical emergency in the resuscitation room. Attacked age were males 507 cases or 80.87% and females 120 cases 19.13% and over 16 were 46 cases or 6.67%. The main problem in the admission of the sick was the injured with disorders of consciousness, shock, cardiac, and respiratory failure, as well as issues at the systemic level.

Conclusion. During the study period, we analyzed 75,899 ED patients. Of these, 627 cases, or 0.83%, were severely injured and traumatically admitted as a life-threatening traumatic medical emergency in the resuscitation room. Attacked age were males 507 cases or 80.87% and females 120 cases 19.13% and over 16 were 46 cases or 6.67%. The main problem in the admission of the sick was the injured with disorders of consciousness, shock, cardiac, and respiratory failure, as well as issues at the systemic level.

Also, these critically injured require structured and well-organized care in the DE in the resuscitation room, with educated medical staff, nurses, and support staff trained with the mandatory BLS, BTLS, PHTLS, and ATLS courses, implementing and developing the algorithms standardized for structured care of the critically injured.

Keywords: DE, traumatic, life-threatening, medical emergency, CPR, management,

Introduction

Trauma is one of the significant health problems worldwide. In the USA, trauma is the fourth leading cause of death

and the leading cause of death in children, adolescents, and young adults. Moreover, 50% of all deaths occur within minutes of the injury, either at the scene or on the way to the hospital. For every person injured by severe trauma, about 30 times as many are hospitalized, and 300 times as many are treated in hospital emergency rooms and then discharged. Mortality increased from 35% in a high-income setting to 55% in a middle-income setting to 63% in a low-income one.[1]

Major trauma systems have evolved in many European countries and have resulted in improved care in terms of mortality and morbidity. Recently, emergency department caseloading with serious injuries has become a significant topic of discussion in debates, meetings, and medical conferences. [2]

Expand Hospital Capacity. In 1946, at the end of World War II, the United States Congress addressed concerns about

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deficiencies in hospital bed capacity and health services, bypassing the Hill-Burton Act. [3]

This provided billions of dollars for hospital construction across the country, with the goal of five inpatient beds per 1,000 persons. [4]

Incidence and prevalence of polytrauma: Worldwide, approximately 16,000 people die each day as a result of injuries (5.8 million deaths per year), and projections beyond 2022 indicate that over 8.4 million deaths are expected. [5]

The resuscitation room—also known as a trauma room or “resus” room—is where care teams take patients with life-threatening illnesses and injuries. A care team will bring the patient to the resuscitation area if someone arrives at the emergency department with a severe illness or injury. Timing is crucial in these situations since the patient often needs urgent treatment. Similar issues are identified, including the importance of triage, the concentration of specialist skills that require patients to bypass hospitals, and the standardization of treatment protocols. [6]

The health system in Kosovo is faced with a trauma system that is not well organized, in the absence of beds, professional medical staff, infrastructure, medical equipment, drugs, consumables, management, treatment, and their system. [7, 8]

What are the necessary steps to solve the accumulated problems in ED? The solution to these problems can be realized through chain links in EMS at the institutional level.

The purpose of this research is the evaluation, epidemiology, management, diagnosis, treatment, systematization, and the results obtained for the injured in life-threatening cases with trauma, reducing morbidity, disability, and mortality while increasing survival.

Trauma patients with severe injuries can use great resources in the ED both in terms of professionalism and in the rapid actions of emergency medical actions, management, diagnosis, and treatment in the first hour of trauma. [9]

There is a need for particular areas for implementing CPR measures and emergency medical actions in managing the seriously injured, inadequate information followed by different specialties, and lack of coordination between different specialties during the management of polytrauma patients. [10]

Lack of spatial capacities, medical staff, medical equipment, drugs, consumables, laboratory, and radiological diagnostics, prolonged consultations, lack of beds, and overpopulation with other pathologies. [11]

However, this creates problems in the management of cases with severe trauma by blocking the ED even more with non-priority patients, not enabling the solution of accumulated problems as the leading cause of the disorganization of the trauma system in the absence of a national strategy. [12] The procedure followed in DE:

- **Step 1:** Initial assessment, monitoring, observation, diagnosis, and preparation of the treatment plan by emergency physicians in consultation with specialized surgical and trauma orthopedic branches.

- **Step 2:** After the initial evaluation, the emergency physician, after completing the diagnostic procedures and consultations, informs the surgeon of the surgical branches about the pathological findings
- **Step 3:** Evaluation by different specialties, calling on the phone.
- **Step 4:** Referral to specialties other than those planned initially, being treated in the EC by consulting and arranging interactions with consultancies with other specialties.
- **Step 5:** Referral of the injured to placement or systematization specialties.
- **Step 6:** Whose final responsibility/ownership belongs to polytrauma? [13]

Delay by any member of the emergency medical team and other specialties can lead to the death of the injured in the three emergency medical care settings. To avoid any delay and to have better management in the initial examination of the trauma, creating triage areas is essential, based on the needs of the treatment and the available resources to ensure adequate treatment.[15]

What are the five general guidelines for the priorities of care for trauma patients? Once this has occurred, the primary survey can begin in a sequential set of steps, ABCDE, with the most vital areas taking precedence: Airway, Breathing, Circulation, Disability, and Exposure/Environmental Control. [16, 17]

The key areas in which advances are necessary to reduce the number of trauma deaths are the prevention of trauma, more rapid and skilled transport of injured victims, better early management of primary brain injuries, and more effective treatment of the late complications of sepsis and multiple organ failure. [17] The treatment and rehabilitation of injured persons represent a large part of many national health budgets and Kosovo.[18]

Purpose of the Work

The purpose of this research is the evaluation, epidemiology, management, diagnosis, treatment, systematization, and the results obtained for the injured in life-threatening cases with trauma, reducing morbidity, disability, and mortality while increasing survival. Solving problems for severe concussions in the health system of Kosovo, such as with professional staff, doctors and nurses, dedicated spaces, medical equipment, drugs, consumables, poor diagnostics, non-decisional consultations, as well as their timely and timely delivery, seeks political health solutions to solve this problem.

Material and Methods

In this retrospective study, we researched and analyzed the data of patients with critical traumatic injuries in ED treated from January to December 2021 Emergency Center

UCCK. Inclusion was only for those injured with trauma. Epidemiological data could not be collected due to the lack of a system.

a. Data collection methods and techniques

In the research, 627 cases of severe injuries with trauma were investigated, investigating all age groups. In the study, all age groups with severe trauma injuries were taken. The research was carried out based on data obtained from the evaluations of health care professionals based on anamnestic data, the status of vital parameters, monitoring, medical procedures, injuries at the systems level, type of health care delivery, and their system.

Protocols, updated interdisciplinary strategies, and data analysis can provide knowledge of organizational structures and sufficient levels of adequate medical staff to manage multiple incidents to minimize the loss of life. EMS access to pre-hospital and hospital emergency settings that provide rapid response and require a professional medical approach. Treatment procedures and actions that assist the process in all stages of treatment with a health system organized in the comprehensive plan.

b. Description of the sample. In the research, 627 cases of severe injuries with trauma were investigated, investigating all age groups. The study was carried out based on anamnestic data, the status of vital parameters, monitoring, medical procedures, injuries at the level of systems, and the type of health care provision.

c. Description of data processing. Data processing is described through statistical parameters (worked Excel Word), structure index, arithmetic mean, and standard deviation. Statistical tests: X2-test and T-test. The tests were verified for 95% and 99% confidence levels, respectively, for $p < 0.01$ and $p < 0.05$.

Result

During the study period, we analyzed 75,899 ED patients. Of these, 627 cases, or 0.83%, were severely injured and traumatically admitted as a life-threatening traumatic medical emergency in the resuscitation room. (Tab. 1: Diag. 1)

Attacked age were males 507 cases or 80.87% and females 120 cases 19.13% and over 16 were 46 cases or 6.67%. (Tab. 2) The main problem in the admission of the sick was the injured with disorders of consciousness, shock, cardiac, and respiratory failure, as well as problems at the systemic level.

Pathology	No. cases	%
Diseases	75.272	99.17
Severe trauma	627	0.83
Total	75,899	100%

Table 1. Number of cases according to pathology.

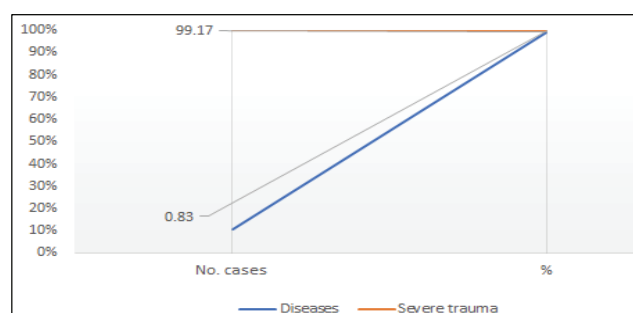


Diagram 1. Number of cases according to pathology.

Gender	No. cases	%
Females	120	19.13
Male	507	80.87
Total	627	100%

Table 2. Number of cases by gender.

In Table 3 and Diagram 2, we show data according to age; we found that most cases were from 31-45 years old, with 232(37.0%) of patients, and in the second place were groupage 16 – 30 years old, with 133(21.21%) of cases, and so on...

Age	No. cases	%
1-15 years	21	3.3
16-30 years	133	21.21
31-45 years	232	37.00
46-65 years	98	15.62
66-75 years	77	12.28
Over 76 years	66	10.52
Total	627	100%

Table 3. Number of cases by age group

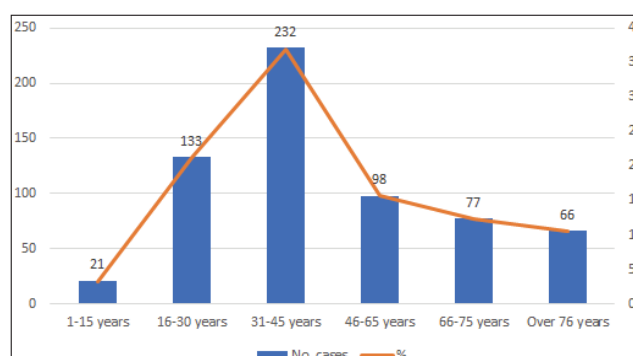


Diagram 2. Number of cases by age group.

In Table 4, we show data according to the mechanism of injuries; we found that most cases were from a traffic accident, with 387(61.75%) of patients, and in the second place fell from a height, with 87(13.87%) of cases, and so on.

Mechanism of injuries	No. cases	%
Traffic accident	387	61.75
with firearms	48	7.65
with cold tools	47	7.49
Beaten	58	9.25
Fall from the height	87	13.87
Total	627	100

Table 4. Causes of injuries

In Table 5, we show data according to the injuries system; we found that most cases were Neurosurgical patients, with 201(30.05%) cases, in the second place were Orthopedic patients, with 164(26.15%) cases, and in the third place were Comprehensive Surgery patients, with 102(16.28%) and so on.

Injuries, according to the systems	No. cases	%
Neurosurgical	201	30.05
Orthopedic	164	26.15
Comprehensive Surgery	102	16.28
Thoracic Surgery	29	4.65
Plastic Surgery	25	3.98
Vascular Surgery	22	3.50
Maxillofacial Surgery	13	2.07
Spinal Surgery	56	8.93
Urology Surgery	15	2.39
Total	627	100

Table 5. Injuries according to the systems.

Pathology	No. Cases	%
Unconscious	75	11.96
Shock	39	6.22
Cardio-respiratory failure	68	10.84
Bleeding	347	55.34
Polytrauma	98	15.62
Total	627	100%

Table 6. Distribution of patient data according to pathologies in the ICU

In Table 6, we show the patient data according to pathologies in the ICU; we found that most cases were Bleeding patients, with 347 (55.34%) cases, and in the second place were Polytrauma patients, with 98 (15.62%) cases, and so on...

During our research, during the various steps in managing the injured with polytrauma, 156 cases, or 24.88%, appeared in phase III (Assessment by different specialties, by calling on the phone). In stage IV (Referral to different specialties, not coordination with the interactions with consultancies and other specialties). Ninety-eight cases, or

15.62%, need help with delays in sending information to relevant referred departments that should be mentioned in the treatment plan. In 59.48% or 373 cases, problems were also reported in Phase VI because no department was ready to admit the injured. Still, the injured were forced to stay in the emergency department longer without active treatment.

However, no problem was observed in Phase II and Phase V. Injured were hospitalized in 70.7%, 6-9 days of MIQ treatment, and 17.21 days of hospital stay. Complications recorded were lung 25.0%, circulation 18.7%, liver .6%, kidney 2.1%, and sepsis (13.6%).

Discussion

The results of our study were similar and comparable to those of a study conducted in a German hospital (Current Data of the Trauma Registry of the German Trauma Society), where most of the severely injured were in the age group between 17 and 35 years. From our research, we have found that men are affected more often than women (17: 1) by severe trauma injuries followed by subsequent injuries [19, 20]

Based on Newsweek research, "Code Blue for the ER. There have been many media reports, and the Institute of Medicine recently published extensive information on the subject. While there is no doubt that many EDs are overcrowded, factors affect the quality of EMS, starting from the trauma system, connecting with spatial capacities, medical staff, and the duration of the extended stay in the ED. Many factors contribute to the accumulation of problems in the ED, which require solutions at the system level. [4]

Whereas in Kosovo, the trauma system is disorganized in terms of structure and space, the lack of professional medical staff, the lack of laboratory and radiological diagnostics, the lack of protocols for trauma, and the education and training of ED staff is immediate for BLS-D courses, PHTLS, BTLS, ATLS and which courses should be stable and have continuity. Circumstances differ between urban and rural hospitals and district, academic, and private hospitals. We believe that many simultaneous steps are necessary to solve the clustering of critically ill patients with trauma in the ED; solutions should be made through national strategies for institutional trauma to cope with the problem. [21, 22]

Kosovo has over 15 thousand accidents per year. Within a year, over 100 people, or 1.76%, injured in traffic accidents die in the country, while 5678 people injured in traffic accidents, or 7.48%, and 245 from other injuries appear in the ED within the year to receive emergency medical care or 032%. The mortality rate after traffic accidents differed between provinces in Germany (0.5% up to 1.76%). [10, 23]

Germany has more than 7 million accidents every year, with 35,000 patients sustaining severe injuries. Data from 2004 showed that infrastructure, treatment modalities, and outcomes significantly varied between hospitals.

The mortality rate after traffic accidents differed between provinces in Germany (0.5% up to 2.7%). [2]

Based on our data, the trauma system should be a national priority with the sole purpose of reducing morbidity, disability, and mortality and increasing survival in severe trauma of life-threatening injuries. [24]

In waiting for the injured, a proper triage system should be formed according to the predetermined criteria of the triage system. After triage, the emergency doctor should be crucial in deciding the treatment plan according to the circumstances and with other specialties. The manager of the emergency team should be responsible for informing all relevant specialties and noting the time of the information sent in the log, together with the time at which the relevant specialty attended the call. [25]

Emergency teams, during the initial management of the injured with polytrauma and traumatic arrest with CPR measures, must preserve health, stabilize the injured by determining the degree of damage, and develop an initial treatment plan for hospitalization.

Our study showed that problems appear in the different steps while managing the injured with polytrauma; more beds, diagnostics, triage areas, specialist consultations, and their system were needed. The lack of coordination of actions is the leading cause of delays in the management of the injured with severe trauma injuries, And this affects the extended stay of the wounded in the ED. [27]

Conclusion

The data obtained for the critically injured in the resuscitation room showed a high rate of morbidity, disability, and mortality, and immediate multidisciplinary comprehensive diagnostic and treatment emergency medical procedures should be implemented in the resuscitation room. Also, these critically injured require structured and well-organized care in the DE in the resuscitation room, with educated medical staff, nurses, and support staff trained with the mandatory BLS, BTLS, PHTLS, and ATLS courses, implementing and developing the algorithms standardized for structured care of the critically injured.

Creation of trauma teams in the polytrauma management team with the permanent composition of emergency physician, general surgeon, anesthesiologist, orthopedic surgeon, neurosurgeon, cardiothoracic surgeon (other specialties as needed), nurses and other paramedical staff, and support staff.

All communications regarding treatment should be made through the attending team physician to ensure everything is clear. Proper maintenance of records by the team manager is a must. The lack of a national three-level trauma system of emergency medical care with all components is an unsolved problem at the country level.

The Ministry of Health should take immediate measures to solve this problem, which needs to be more organized.

This can be achieved through the national strategy,

which will define the development direction of the national trauma center with standards close to those of European countries.

The loss of productivity due to death and disability from injury represents a significant loss of economic opportunity in all countries. The treatment and rehabilitation of injured people represent a large proportion of many national health budgets.

Practice the concept of ‘minimally acceptable care,’ treating the patient within the hospital’s capability and promptly transferring the more severely injured to a higher level of care. Engage your regional trauma centers and use them as a resource. [28]

Recommendations

1. To institutionally support the advancement and strengthening of the health system at the primary, secondary, and tertiary levels, triage is an essential component in the management of accidental situations.
2. To design clinical guidelines, algorithms, and triage protocols at the three levels of health care.
3. All healthcare professionals should be educated and trained with continuing courses in triage, communication, and Basic Life Support -AED, ACLS, and PHTLS. BTLS. ATLS.

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