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Thoracic Trauma

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Thoracic Trauma

ABSTRACT

Every day thousands of people die from trauma. Thoracic trauma is a growing health problem, which disproportionately affects the most vulnerable groups: road users, altitude workers, children, women, the elderly. More than half of people who die from road trauma during road accidents are young people aged 15-44 often the backbone of the family. Trauma injury prevention should be included in a broad agenda, such as developing and managing road infrastructure, providing safer cars, strengthening legislation, providing health and hospital services, and urban and environmental planning. The health sector is an important partner in this process. Its role is to strengthen evidence-based data, ensure adequate pre-hospital and inpatient care, and contribute to the implementation and evaluation of interventions. The health sector is an important partner in this process. Its role is to strengthen evidence-based data, provide adequate pre-hospital and inpatient care, conduct advocacy, and contribute to the implementation and evaluation of interventions. Trauma injury prevention should be included in a broad agenda of activities, such as the development and management of road infrastructure, the provision of safer cars, the strengthening of legislation, the provision of health and hospital services, and urban and environmental planning.

Keywords: thoracic trauma, accidental causes, knife piercing, nursing intervention, traumatic injury

Thoracic Trauma

Thoracic trauma may be closed when the entire skin covering caused by non-sharp objects is not damaged.

Open thoracic trauma or otherwise penetrating thoracic trauma are those traumas that penetrate and pass through the thoracic wall and parietal pleura, affecting or damaging vital intrathoracic organs such as the lungs and heart. These usually stab wounds with knives, firearms, sharp tools, etc. When wounds enter and exit holes are called penetrating while when they have only entry holes they are called blind [1].

Physiatology

In the thorax are found the vital organs of respiration and circulation. Trauma can severely compromise their normal function, through complex physiopathological mechanisms manifested by respiratory and cardiocirculatory failure.

- Free airways.
- Thoracic and diaphragmatic itactic and effective movements.
- Subatmospheric pressure in the pleural cavity.
- Lungs that are stretched, ventilated, and have permeable alveolar-capillary membranes.
- Compatibility of ventilation with lung perfusion.

Vital organs such as the heart, lungs, and large blood vessels are located in the chest area. The ribs have a protective function because they protect these vital organs located in the space of the thoracic cage. When trauma involves the thoracic cage, it damages not only the ribs but also the organs which are located in the ribs. Penetration of hard tools, such as knives, bullets, metal tools, etc. They also damage the organs inside the thorax. Touching the lungs causes air to enter another pathway and not through the thorax. Finding air or fluid including blood in the pleural space gives hemothorax and pneumothorax or both pneumo-thoracic. This is one of the most common complications that occur or are encountered in open thoracic trauma. Blood flow from the lungs to the heart is reduced. As a result of mediastinum pneumo-hemothorax, the heart shifts making its work more difficult. The accumulation of blood and air not only in the mediastinum but also in the pericardial space impedes the work of the heart. In these cases, we can say that the patient is in difficulty for life.

Causes of Thoracic Trauma

Open (occupational) thoracic trauma is caused by external invasive factors. They come as a result of knife wounds that cause lacerations to the surface of

the thoracic wall which may include other injuries such as the lungs and vascular lacerations of the heart.

Firearms wounds have an unpredictable path making emergency trauma treatment difficult for the medical team. The extent of the injuries to the gunshot wounds is unknown. They are manifested through imaging examination. Damage from firearms e.g., lead can affect several organs at the same time and their damage depends on the speed with which the piercing (penetrating) object has entered the body and its size. Trauma from metal tools such as iron, spears, etc. are also causes of thoracic trauma Traumas from car accidents have been frequent in recent years. Penetration of hard tissues into the thoracic cage causes severe damage to the patient. thoracic caused by the action of a mechanical force on it.

From the fall of the body on something strong, from the passage of heavy pashas over a part of the body such as violation by vehicles or pressure from different weights. All these damages disrupt the activity of the thoracic wall, pulmonary parenchyma, and bronchial tree giving damage to the work of the respiratory and cardiac apparatus.¹

The mechanism of trauma can provide valuable diagnostic guidance, which is then confirmed by physical and radiological examination.

Closed thoracic injuries are usually caused by braking, deceleration, sudden stop, and collision of the moving body. Vehicle collisions are the main cause of injuries of this nature. It can be:

- The high-velocity collision causes the displacement of the fixed intrathoracic organs due to the "bell clanger effect" when the organs move like the tongue of the foot and are fused or reattached. Aorta, bronchi, the diaphragm can be damaged in this way. The thoracic wall is less damaged but can result in fractures of the clavicle or sternum.
- Low-velocity collision causes more damage to the bony thorax, with or without contusion of the lungs or myocardium. When acting on the lower thorax, the liver and spleen may rupture.
- Crush injury gives more bilateral fractures of the ribs, but also rupture of the diaphragm. Increased intrathoracic pressure when the glottis is closed can lead to rupture of the bronchi by increasing the pressure inside them.
- Explosive wave gives a large increase in intrapulmonary pressure and parenchymal damage (barotrauma-blast injury).
- Compression and decompression in the deep dive can cause lesions from sudden changes in broncho-pulmonary pressure.
- Open injuries are caused by cold steel and firearms. Knife wounds are rarely fatal if they do not affect the heart and large vessels.
- Lesions caused by firearms are explained by the laws of wound ballistics. The lungs have low tissue density and are damaged relatively less than other solid parenchymatous organs such as the liver.

Respiratory Disorders

1. All traumas are associated with increased broncho-alveolar muscle.
2. Injuries to the pulmonary parenchyma or bronchi in the exchange of cases are also associated with hemorrhages of various degrees, which fill the bronchial pulmonary tract.
3. The trauma itself is accompanied by spasms of the bronchi and bronchioles, which lead to respiratory disorders.
4. The pain that the patient has restricts the respiratory movements by making the breathing superficial, this serious obstacle in the exchange of gases, from the pain is prevented and the act of coughing.
5. Not infrequently trauma damages the visceral tissue and pleura. As a result, air accumulates in the pleural cavity and we have PNX. The accumulated air presses on the lungs preventing the act of breathing.
6. Damage to the pulmonary capillaries gives infiltration of the interstitial lung which leads to disruption of gas exchange at the alveolar level.

Cardiac Disorders

In thoracic traumas come after:

1. Blood flow from the lungs to the heart is reduced.
2. As a result of the pneumo-hemo-thorax mediastinum, the heart shifts making its work more difficult.
3. The accumulation of blood + air not only in the mediastinum but also in the pericardial space impedes the work of the heart.
4. The activity of the heart is disturbed by indirect pressure due to intestinal metonism and bloating.
5. Compression of the heart occurs in the case of traumatic diaphragmatic injuries.

Objective Examination

Patients with open thoracic trauma come to the hospital premises consciously or not. The medical staff or team performs an objective examination only when the patient is conscious and not in danger of death, if the patient is in danger of death, he is immediately admitted to the operating room. If the patient is not in danger of death then an objective examination is performed which summarizes:

- Assessment of the patient's consciousness and emotional state.
- It protects the airways, the presence of cough, tongue drop.
- Evaluation of the skin and its color. Presence of cirrhosis on the lips and earlobes.

- Checking the jugular veins.
- Check for visible damage to the chest.
- Assessment of the cause of open thoracic trauma.
- Sputum value has foam or blood.

Very important in the objective examination and:

- Palpation and percussion.
- The same pulse with the arms, peripheral pulse, and central pulse.
- Capillary filling.
- Thoracic expansion.
- Respiration, the amount of air that comes out of the mouth and nose.

Imaging Examination

They are done when vital functions are stable. It would be a fatal mistake to spend time on radiological examinations in a patient who is in urgent need of air for blood.

Radiography in two projections, possibly sitting or standing gives great help in skeletal and visceral injuries. Chemothorax, pneumothorax, pneumomediastinum, sternal rib fractures, and spinal cord are seen on quality radiographs.

Emergency ultrasound is of great help in detecting minimal amounts of pleural fluid. CT is done when the condition allows and gives more complete data than plain radiographs.

Bronchoscopy: is done in severe trauma to detect in time the lesions of the trachea and main bronchi. It can also be done for therapeutic purposes, for the aspiration of bronchial secretions and the removal of foreign bodies.

From additional examinations hypoxemia is the first sign of respiratory insufficiency, hypercapnia appears later. Repeated examinations are more valuable.

Complications [2]

- Chemothorax
- Pneumothorax
- Pneumothorax tension
- Open pneumothorax
- Fractures of the ribs and sternum
- Flail chest
- Pulmonary contusion
- Subcutaneous emphysema
- Tracheobronchial trauma
- Trauma to the esophagus

- Rapture of the diaphragm
- Cardiovascular disease
- Cardiac tamponade
- Aortic rupture

Hemothorax is the presence of blood in the chest. Chest blood is usually due to lung injury. Massive hemothorax is common due to bleeding from large thoracic vessels such as the arteries between the ribs. Arteries bleed and cause a large accumulation of blood. Its accumulation in the thorax causes hemothorax.

Clinic

- Decreased breathing (dyspnea) on the affected side.
- Pain.
- Filiform pulse (Unattainable)
- Asymmetric expansion of the chest.
- Deafness in percussion.
- Lack of breathing noises.
- Possible hemoptysis.
- Presence of cyanosis.
- Presence of a shock

Hemothorax is distinguished from pneumothorax by shock noise during an examination.

Diagnosis: Chemothorax should be suspected when unilateral sounds are found during chest strokes. RO: chest x-ray may confirm the diagnosis. The presence of up to 1 liter of blood in the collected thorax can not be diagnosed by RO: x-ray in an outstretched chest.

Treatment: the blood is removed through a tube even if the collected blood is not necessary enough to intervene with the tube. The placement of a tube in the chest also serves as a bleeding tamponade on the surface of the chest wall. Pipe. The pipe should be 36-40cm long. The use of thrombolytics is indicated. Most cases of hemothorax are not indicated for surgery even if the bleeding continues.

Pneumothorax is the accumulation of air in the pleural space. Pneumothorax can compromise breathing by interfering with lung enlargement. Difficulty breathing is not seen without a pneumothorax up to 40% of lung volume unless the patient has pre-existing lung disease or parenchymal lung injury. If the air pressure inside the pleural space increases, the venous return to the chest slows down and shock may develop.

Clinic

- Decreased breathing (dyspnea).
- Sudden severe pain.

- Follow.
- Asymmetric thoracic expansion.
- Reduction or absence of breathing noises on the affected side.
- Anxiety, Agitation.
- Subcutaneous emphysema.
- Enlargement of the jugular veins.
- Deviation of the mediastinum of the neck.

Diagnosis: pneumothorax is diagnosed by Ro: graph. A small pneumothorax may not be visible on radiography. Such pneumothorax is diagnosed based on the clinic which according to the clinical tiades dispensation, shock and unilateral absence of respiratory sounds give the diagnosis.

Treatment: evacuation of air from the lungs by inserting a tube into the lungs.

Aortic Ruptur

About 90% of patients with an aortic rupture die within minutes. Most reptiles are caused by car accidents. The mechanism of injury or trauma is the sudden movement of the heart and large vessels inside the chest.

Clinic

- Pulse I weak.
- Dispne.
- Bradycardia.
- Pain.
- Shock condition.
- Apnea.
- Extended mediastini.
- Tracheal deviation.

Diagnosis: done with aortography. Dilated mediastinum, deviation of the right trachea, loss of clear space between the aorta and pulmonary artery may indicate or confirm the diagnosis.

Treatment:

- Delivery of intravenous fluids.
- Cardio-pulmonary resuscitation placement.
- Surgical intervention.

Cardiac tamponade is the presence of blood around the heart. Cardiac tamponade occurs due to deep injuries or trauma inside the cage approaching the heart, as well as touching it. Increased pressure in the space around the heart stops further bleeding from the heart wound. This pressure stops the heart

and shock can occur.

Clinic: all patients with shock with a wound that penetrates deep into the blood, also have heart damage. Injuries with knives or firearms can reach the heart. The main signs are:

- Distended jugular veins.
- Low blood pressure (TA).
- Muted heart tones.
- If hypovolemia is present, the jugular veins are not distended.
- Paradoxical pulse.

Diagnosis: Ro examination: the graph is normal, ie it does not show signs of cardiac tamponade. Other X-ray examinations are also not helpful. Diagnosis is made through pericardiocentesis.

Treatment: pericardiocentesis can improve blood pressure by removing less than 50ml of blood. Insert the catheter into the wound site until the cardiac tamponade is repaired.

Rib Fractures

The most common complications are fractures of the middle and lower ribs in the middle axillary line. In penetrating traumas, the localization of fractures depends on the location of these injuries, while in closed traumas they are usually damaged at the place where the force is exerted, but they can be damaged even at the weakest point. Fractures of the first and second ribs lead to 50% of mortality associated with another injury. Ribs 1,2,3 are less damaged because they are protected by the clavicle, shoulders, arm, and muscles. Ribs 4,5,6,7,8,9 are damaged more and the lungs are damaged more. Ribs 9,10,11,12 damage the abdominal organs. Rib fractures interfere with pulmonary function, reduce pain performance, and predispose to atelectasis and pneumonia.

Clinics:

- Pain during breathing.
- Pain during coughing and sneezing.
- There is a strong tenderness of pain on the injured side, on palpation, and during pressure on the sternum.

Treatment: place the patient in a semi-sitting position, allowing the patient to lean on the affected side. This will help the patient during breathing.

Chest Cage not Stable

It is characterized by paradoxical breathing which means that during inspiration the unstable part of the wall rises inside while in exhalation it goes

outside. We distinguish three types of the unstable thorax:

1. Lateral type: three or more adjacent ribs are broken in both places
2. Anterior or anterior type: sternal fracture.
3. Posterior or posterior type: paravertebral or bilateral rib fracture.

Most often the lateral type is encountered while the anterior or posterior type occurs less frequently.

First aid (treatment): several layers of gas are placed through the unstable thoracic wall and glued tightly with leucoplast.

Sternum fractures: Any severe trauma to the front of the thorax (soon to hit the cage at the wheel) causes sternal fractures. During these injuries, an isolated sternum fracture or sternum fracture may form along with the fracture of several ribs. The sternal fracture is most often located in the body of the sternum or the passage to the sternal manubrium. The site of injury or crossing is very painful.

Treatment: conservative treatment, while dislocation of fragments requires operative repositioning and fixation.

Thoracic compression or traumatic asphyxia: It is created as a result of the action of strong and sudden pressure on the thoracic cage and the upper part of the abdomen. During this comes the reflex closure of the epiglottis with the creation of positive intrapleural pressure. As a result, the superior vena cava vein becomes stuck.

Clinic: cyanosis of the head, neck, and upper half of the thorax. Petechial subcutaneous and subconjunctival hemorrhage

Treatment: release the thorax immediately and remove all factors that make breathing difficult. Special treatment is not necessary.

Nursing Care

Nursing Care in the Post-Operative Period of Resuscitation

The postoperative phase is the third and final phase of surgical intervention. It begins with the admission of the patient to the waking room or in resuscitation until his transfer to the ward. The patient with thoracic trauma, whether open or closed, can have surgery according to the diagnosis. In patients with open thoracic trauma, surgical intervention is the most efficient and adequate treatment. Having a surgical intervention these patients need nursing care. The scope of action of nursing care is wide in the post-operative period and aims to:

- Restoration of the patient's mental balance.
- Prevention of complications and pain.
- Return of the patient to normal physiological functions.

Nursing care for post-operative patients ranks second in importance. Transfer of the patient to resuscitation: After the operation is over, the patient moves slowly from the operating table and is placed in his bed or the respective transport cart. The nurse must be careful when moving the patient to his bed. Many wounds close in considerable tension, so every effort is made to prevent further tightening of the sutures. The nurse should be careful in his position because the different patient movement after anesthesia can cause serious arterial hypotension. Patients who are still under the effect of anesthesia are placed in resuscitation where they are followed under the constant care of specialized nurses who make the immediate post-operative preparation of the patient the equipment and medications that the patient must receive.

Goals of the resuscitation nurse:

- To adequately maintain vital functions, and to maintain them in the norm.
- Prevent surgical complications early and prevent possible nosocomial infections.
- Ensure patient comfort.

The resuscitation nurse receives detailed information from the ward nurse about the patient's condition. As soon as the patient with thoracic trauma arrives in resuscitation the nurse makes the initial evaluation as well as the immediate care evaluations.

Immediate post-operative evaluations: One of the main responsibilities of the nurse is to perform initial and immediate assessments for a patient with post-operative thoracic trauma. These assessments will be performed immediately in both resuscitation (waking room) and ward. Nursing care consists of quick and frequent assessment. Vital physiological functions should be assisted until the effect of anesthesia is over. The nurse evaluates the patient during the time of his coverage from the effects of the operation. The purpose of the post-anesthesia nurse's observations is to help the patient return to a safe physiological level after anesthesia, through the use of knowledge, safety, individualized nursing care according to the respective patient. Before the patient arrives from the operating room, the nurse should check that the following equipment and tools are working and ready for use:

1. Sphygmomanometer or automatic blood pressure monitor.
2. Stethoscope to hear breathing noises and blood pressure.
3. Cardiac monitoring and electrodes (ECG).
4. Intravenous equipment such as liquids, tubes, cannulas, etc.
5. Aspiration equipment (catheters, etc.).
6. Equipment and tools to assist respiration such as oxygen, shoulders, oxygen with masks, cannulas, intubation equipment, etc.
7. Medications such as narcotics, antihypertensives, analgesics, anti-inflammatory drugs, bronchodilators, etc.
8. Thermometer for oral /rectal/axillary temperature measurement.

9. Emergency kits such as cardiotoxic, vasotocin, and respiratory emergency medications, tracheostomy equipment, endotracheal tubes, defibrillator, ventilator, equipment, and gastric aspiration and for insertion of tubes into the thorax.

A position suitable for an unconscious or semi-conscious patient ensures the well-being of the airways. The head of an adult patient is held sideways and his chin extended forward. It may be necessary to pull the neck and push the jaw forward. Sometimes for surgical or anatomical reasons, the patient should be kept lying on his back after surgery. In this case, his respiratory condition will be monitored very carefully and at any moment the aspirator should be aspirated to vomit, hemorrhage, or oral secretions.

Immediate baseline assessment:

- The nurse evaluates the airway clearance and helps if necessary.
- The nurse assesses for the presence of hoarseness, blockage of the airways, the presence of wheezing or wheezing.
- The nurse assesses the reduction of breathing noises.
- The nurse applies moist oxygen using a nasal cannula or mask.
- The nurse records vital signs (arterial blood pressure (TA), heart rate, strength and regularity, depth and respiratory rate, oxygenation, skin color for the presence of pallor or cyanosis, and fever).
- The nurse assesses the patient's level of consciousness and muscle strength.
- The nurse observes intravenous infusions, wound gauze, her lips, color, drainage, and special equipment.
- Observations to be documented
- Admission time in the intensive care unit.
- Lack of such reflexes pharyngeal reflex.
- Level of consciousness (Glasgow degree).
- Temperature vital signs that are monitored every 15min.
- Color and dryness of the skin.
- Conditions of wound gauze (dry, soiled).
- Drainage pipes.
- Intravenous infusions or components of blood (control the rate of their administration and absorb for a possible reaction).
- Pain (their presence, administration of analgesics).

Respiratory Function Assessments

A nurse should assess the rhythm, depth, and quality of breathing, as well as the patient's chest movements for signs of respiratory obstruction. Respiratory obstruction may occur as a result of relaxation of the pharyngeal muscles, obstruction of breathing due to falling off the tongue, spasms, or edema of the airways. Signs of respiratory distress include weak and irregular

pulse disturbance, noisy and irregular breathing, use of sensory muscles for breathing (e.g., abdominal and neck muscles), intercostal narrowing, fear or anxiety, paleness, or cyanosis. It often happens that patients come to intubated resuscitation. The intubation tube will not be removed until the reflex signs are restored.

Cardiovascular Function Assessments

The nurse evaluates for cardiovascular complications. The nurse should keep in mind that a slight increase in the patient's heart rate after surgery may be normal. When acidosis develops the nurse monitors the patient's blood pressure (TA), oxygenation and ventilation

When the patient shows signs of a shock the nurse applies oxygenation or increases its amount, increases the administration of intravenous fluids and notifies the doctor. Cardiac arrest occurs as a result of blockage of blood vessels, respiratory obstruction, heart failure, etc. The nurse should know that the main directions in the assessment of cardiovascular function are: patient absenteeism, pulse determination, respiration, blood pressure, (PVC) central venous pressure and patient body temperature. As a rule, the pulse, respiration, and pressure of the blood should be evaluated and recorded at a time interval for every 15min or more often, for the first 2 hours after surgery and every 30 minutes in the other 2 hours until these parameters are stabilized.²

Body Temperature

The postoperative patient may experience a low body temperature after surgery. This low temperature is caused by the central nervous system (CNS). The nurse should know that in the first days of the intervention, especially in cases of major operations, the temperature can reach up to 38°C. if the temperature will continue for many days and will reach up to 39°C or more then it is a wound infection or a general infection. Usually, the nurse measures the temperature every day in the morning and at dinner.

Nausea and Vomiting

When vomiting is frequent, the patient may lose a lot of fluids and electrolytes that lead to dehydration. The nurse should treat the patient with the liquid I/V. the nurse should be careful because vomiting may cause the post-operative patient to aspire to their contents and open the incision of the wound.

Nursing Care in the Ward

After the patient stays in the intensive care unit and is transferred to the ward, the patient with thoracic trauma requires constant monitoring because his condition may undergo an immediate change and turn into a life-threatening

situation. A continuous evaluation of the patient's condition is necessary to evaluate the effectiveness of the interventions.

Nursing Planning

- Improving respiratory rate.
- Provide normal lung sound.
- Improving patient comfort.
- Improving heart rate.
- Reduction of pain and anxiety.
- Reducing the risk of infection after surgery.
- Increased tolerance of activities based on thoracic trauma.

Nursing Evaluations

In cases of open trauma, the nursing evaluation continues as in the resuscitation room. Wound evaluation is done from time to time. The nurse assesses the color of the wound, its lips, the moisture and turgor of the skin, the possibility of possible infection, etc. In closed traumas, the nurse assesses dyspnea accompanied by tachypnea or bradypnea, tachycardia, and pleural thoracic pain. The nurse assesses or absorbs the type of breathing (if the patient is doing shallow breathing or using support muscles). The nurse assesses the depth and speed of breathing (changes in respiratory rate and rhythm are the earliest warnings of respiratory distress). The nurse assesses the distension of the jugular veins, cyanosis, etc. The nurse evaluates the patient's vital signs and tries to keep them normal. The nurse assesses the patient's psychological state as long as he is informed about his condition. Is he agitated or not.

Nursing Diagnosis

1. Pain related to surgical intervention.
2. Thoracic pain associated with thoracic trauma.
3. Excessive increase in the volume of fluids or oxygen in the body as a result of thoracic damage.
4. Respiratory rate disorder or dyspnea associated with thoracic injury
5. Disruption of patient comfort due to thoracic pain.
6. Sleep cycle disorder associated with severe pain and cough.
7. Heart rate disorders due to difficulty breathing.
8. Cyanosis is associated with a respiratory disorder.
9. State of anxiety and fear related to lack of knowledge of where he is or concerning surgical intervention.

The nurse's attention is directed to these tasks:

- A. Ensure the usual conditions for the possibility of the normal functioning

- of the heart and lungs.
- B. Clean the airways by inhaling the accumulated secretions so that the patient is oxygenated.
- C. To soothe the pain so that the patient can take deep normal breaths and cough without any problems.

If during trauma the thoracic cavity communicates with the outside environment (PNX Open) then the nurse should close it directly, inhale the air yesterday, the blood accumulated during the suction should not allow the suction of air in the opposite direction. Another important moment is the relief of pain when there is a painful fracture. The nurse manages to soothe the pain by doing novocaine blockade of the intercostal nerves in the injured area. Care should also be taken when using preparations such as morphine and its derivatives for analgesic purposes.

Evaluation of Nursing Achievements

- The patient calms down, skin and nail color becomes normal.
- Breathing stabilizes and the patient can cough freely, excreting the accumulated contents of the broncho-alveolar tract.
- Thoracic movement is normalized.
- Surgical intervention progresses significantly.
- Vital signs are normalized.
- In auscultation the bronchial roles are reduced or eliminated.
- The mediastinum is not displaced and the pulmonary fields are clean.

Statistics

During 2013, 336 patients with chest injuries were admitted to the Tirana Trauma Hospital [3].

Of these 25 were female and 311 were male (female/male ratio). The mean age was 30.5 [3].

Total with chest injuries	Male	Female	Female/male ratio	The average age
336	311	25	1 / 12.4	30.5

177 patients had a superficial chest trauma and 159 patients had a trauma that penetrates deep into the chest. The causes of trauma injury were traffic accidents in 92 and sports accidents in 85. Causes of injury in trauma groups that penetrate deep into the chest were gunshot wounds (including projectiles and mines) at number 140

- stab wounds in 19 patients

Group	No. of patients	%
Superficial trauma	177	52.6
Road accidents	92	27.3
Sports accidents	85	25.2
Deep trauma	159	47.4
Fire wound	140	41.6
Wounds with strong tools, knife	19	5.6

Results

In the world and our country:

- 20-25% of trauma deaths are due to thoracic trauma.
- About 50% of patients with trauma presented in the emergency department are at risk for life from respiratory injuries (breathing problems).
- If respiratory injuries are combined with shock then the probability goes to 75% of deaths.
- Thoracic tumors are responsible for 16,000 deaths worldwide.
- The incidence or number of cases of open thoracic trauma is increasing from year to year.
- Immediate deaths come from damage to the heart and large vessels.
- About 90% of patients with an aortic rupture die within minutes.
- Statistics show that cardiac tamponade and airway obstruction can cause death within 30 minutes to 3 hours.
- 25% of thoracic traumas cause pulmonary contusion.
- 21% of them cause hemothorax.
- 7% give non-stable thorax.
- 6% of them cause pneumothorax.

Recommendations

Closed thoracic traumas are non-penetrating traumas and therefore the injury is invisible on initial examination. To prevent further complications of thoracic trauma, urgent treatment is necessary first.

- Oxygen therapy: oxygen delivery.
- Clearance of the airways.
- Establishing blood circulation.

Prevention also consists of:

- Doing thoracentesis.
- Hemorrhage control: hemorrhage from intracostal arteries can cause

severe hemorrhage, while hemorrhage from lung damage itself can be self-limiting, hemorrhage control prevents many complications where the most important is a shock.

- Dietary regime is very important in thoracic trauma when we have surgery. Weight gain negatively affects the ecto patient. It is recommended to take as much fluid, protein, fiber, carbohydrates and fats in normal amounts without excessive.
- Smoking cessation: is necessary to prevent further complications, especially in closed thoracic trauma.
- Physical activity: a process that positively affects the progress of hospitalization but not by abusing it. Here we can also mention the cough and cough instructed by the nurse. Deep breathing is rare in a ratio of 3/1 to shallow but frequent breathing. Also, cough exercises are very useful after surgery.

Looking at the causes of thoracic trauma, we can say that their prevention is done only by avoiding external factors that cause thoracic trauma. Placement in high, hidden places and especially far from children was also very effective in reducing the incidence of trauma. Another preventive measure is the avoidance of car accidents. Taking protective measures in cars helps to somehow prevent trauma. The placement of the seat belt in vehicles is qualitative for the protection of the thoracic cage.

As for firearms, we can say that it is better not to use them for negative purposes. Keeping away from populated areas, away from children and also the use of anti-bullets reduces open thoracic trauma.

Conclusions

The thorax houses vital organs and has therefore been the target of devastating blows in human physical conflicts. But his organs also suffer damage in other serious accidents of modern mechanized times. The conclusions and recommendations aim to contribute to the promotion of all those measures that would help prevent and control closed thoracic trauma. Prevention of trauma injury should be included in a broad agenda of activities, such as the development and management of road infrastructure, providing safer cars, strengthening legislation, providing health and hospital services, and urban and environmental planning. The health sector is an important partner in this process. Its role is to strengthen evidence-based data, provide adequate pre-hospital and inpatient care, conduct advocacy, and contribute to the implementation and evaluation of interventions.

References

- [1] Prifti, Pirro text of the trauma “Traumatic Emergency” Tirana-Lilo, 2003 ISBN 99927-35-80.
- [2] “Nursing in specialties” As.Ped. Elida Peka, As.Ped. Ledi Necaj, As.Ped. Etleva Rustani, As.Ped. Denisa Bego, As.Ped. Alma Imami, As.Ped. Miranda Ceka, As.Ped. Alketa Dervishi, As.Ped. Violeta Zanaj, As.Ped. Valbona Manej. Tirana 2005.
- [3] Data from the Tirana Trauma Hospital.