

MINISTRY OF HEALTH OF UKRAINE
O.O. BOHOMOLETS NATIONAL MEDICAL UNIVERSITY

**Traumatic shock. Classification, clinic, diagnostics, treatment.
Crush-syndrome**

WORK BOOK

For independent work of students of 5th course
Study discipline "Traumatology and Orthopedics"
direction "Medicine"
specialty "Curative care"
Department of Traumatology and Orthopedics

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Introduction

One of the effective means of organizing an independent work of students on topics of disciplines assigned for independent study is the work of a student with his/her workbook. Work with the workbook should begin with the acquaintance with the key issues on the topic. The next step includes the acquaintance with the list of sources from which the student can find the answers to the posed questions. For more deep study of the problem students can visit professional websites.

Having become acquainted with the theory, the student needs to assess his/her degree of mastering the material. In this regard, he/she resolves the proposed tasks; answers test questions on the topic. Students should pay particular attention in preparing for classes to the required minimum of practical skills to be mastered. In the relevant sections of textbooks, manuals, he must glean the information that he needs for mastering further practical skills.

Arrangement of independent work with the use of workbook is conducted as follows: tutor provides the workbook to a student in digital format (to be downloaded from website of the Department), or in printed version; later the students do the tasks at their extra-curricular time, whereupon the tutor checks and assesses them **at the initial stage of practical classes.**

Criteria for assessing the tasks in the workbook

Each task requires a separate approach when assessing the quality of its implementation under particular criteria. And yet, with a 5-point evaluation ranking for each type of tasks, one should observe the general didactic criteria, namely:

“5” is graded when the student:

1. Executed the work w/o errors and deficiencies.
2. maximum one deficiency.

“4” is graded when the student executed the work in full but made:

1. maximum one gross error and one deficiency.
2. maximum two deficiencies.

“4” is graded when the student executed at least one half of a work correctly or made:

1. maximum two gross errors or one gross and one mild errors and one deficiency.
2. maximum two mild errors or one mild error and three deficiencies.
3. In the lack of errors but when four or five deficiencies are available.

“2” is graded when the student made:

1. number of errors (deficiencies) exceeding the limit when grade “3” could be applied.
2. In case less than half of work is completed.
3. Failed to start the work.

Subject: "Traumatic shock classification, clinic, diagnosis, treatment of crush syndrome."

Target (learning objectives):

1. The urgency of the problem of traumatic shock and crush syndrome in practice not only orthopedic trauma, but also family doctors, rheumatologists, surgeons.
2. Establish the factors contributing to the development of traumatic shock and crush syndrome.
4. Analyze the data of the clinical, radiologic, CT, MRI examination of patients with damage to the musculoskeletal system.
5. Justify the basic principles of providing medical assistance to the victims in a state of traumatic shock and crush syndrome on the stages of medical evacuation

The student should know:

1. Features of a current of traumatic shock and distinguish two phases (erectile and torpid).
2. Know, what, depending on the severity of torpid phase of shock share its extent and determine a Algover's shock index
3. Know bleeding stop methods, breathing support via laryngeal masks
4. Know the technique of catheterization of peripheral veins, restore cardiac activity.
- 5 Basic principles of providing medical assistance to the victims in a state of traumatic shock and crush syndrome

The student should be able to:

Conduct a survey of orthopedic patients:

- To analyze the clinical picture of traumatic shock and crush syndrome patients and to evaluate the condition of the patient.
- Analyze data of X-ray, CT, MRI trauma of the musculoskeletal system.

To diagnose:

Develop a treatment plan, to predict its timing and results

Provide tourniquet on a limb, conduct immobilization of limb fracture.

Key terms threads.

Term	Definiton
Traumatic shock	condition caused by trauma, accompanied by severe violations functions of vital organs, particularly all circulation and respiration. most often occurs due to severe extensive damage, accompanied by hemorrhage.
Crush syndrome or syndrome long compression	- a pathological condition resulting from closed large areas of tissue damage under the influence of a large and / or long-acting mechanical force, accompanied by set of specific pathological disorders (Shock, cardiac arrhythmia, acute
	3
	renal failure, compartment syndrome).
The complex hemodynamic	- lowering blood pressure; decrease volume of circulating blood volume reduction organ blood flow velocity; violation

	rheological properties of blood (aggregation formed elements, an increase in viscosity blood).
Algovver's shock index	- the ratio of the heart rate and systolic BP
Rules of tourniquet providing	- Adopt a tourniquet for the injured limb above wounds, but as close as possible to it, stretch harness with maximum force. Push the first round of the harness and make sure in the absence of a pulse on an artery Apply the following stages tow with smaller efforts. Make sure that under tow there are no extraneous things. Attach a note on the tourniquet time Overlay harness is not more than 1.5 hours in summer and 1 h in winter. .
Periods of crash syndrome clinical course	- Compression period, postcompression period early (1-3 hours), intermediate (4-18 hours) and late (Over 18 days)

Literature.

Summary:

1. Golka G.S., Buryanov A.A., Klimovitskiy V.G. "Traumatology and Orthopedics" (National textbook). Vinnitsa, Nova Knyga, 2015.
2. Sklyarenko E.T. Traumatology and orthopedics. . - K: Health 2005 328p.
3. Bitchuk D.D., Istomin A.V., Khimenko M.F., Maryuhnich A.A. Traumatology and orthopedics. Collection of tests for extracurricular prepare students for licensing examinations Step-2. - Kharkov: KNMU, NTU "KPI", 2004. - 224p.

Additional

- 1 Alexey A.P. Traumatology and orthopedics. M.: «Vyshaya Shkola» (High School), 1999.-511s.
- 2 Trubnikov V.F. Diseases and injuries of the musculoskeletal system. - M: Health, 1984. - 328s..
- 3 Inkova A.N. Directory of medical first aid and emergency medical care. Fifth edition, stereotyped. / "Medicine for You" series. - Rostov-na-Donu: "Phoenix", 2003. - 352 p.

Tasks for independent work.

To be answered in written.

Variant 1

Task 1

B normal rate Algover's shock index:

- More than 1.6
- 0,8-1
- 0.5 -0.7
- 1.1-1.5

Task 2.

Term use of a tourniquet

1. no more than 1.5 hours in the summer and 1 hour in winter
2. no more than 2:00 in the summer and 1 hour in winter
3. no more than 1.5 hours in summer and winter
4. not more than 2 hours in summer and 1 hour in winter

Task 3.

Arterial bleeding stops by:

1. dressing
2. tamponade
3. tourniquet
4. coagulants

Task 4.

In the pathogenesis of at crush syndrome a major role is:

1. compression
2. of compression and decompression
3. decompression

Task 5

Drug Assistance urgent conditions include:

1. control of the correctness of a tourniquet.
2. anti-shock event
3. control of the accuracy of tourniquet, replacement of transport immobilization
4. antishock therapy, intramuscular antibiotics / in injection of tetanus toxoid

Task 6

Traumatic shock treatment includes:

1. anesthesia
2. Restoration of cardiac activity
3. hemostasis

4.
Stop
the
bleedi

ng, anesthesia, recovery bcc Mechanical ventilation

Test questions.

1. Traumatic shock II degree - systolic blood pressure (SBP) and the Algover's index are:

- A. 50-70 mm and 1.6 -more
- B. 90 mm and 0.8-1

2. Rules of tourniquet includes:

- A. Adopt a tourniquet for the injured limb above a wound, to press the first round of tourniquet and ensure no pulse on the artery, to impose the following stages of tourniquet with less effort, to enclose a note on tourniquet time
- B. Adopt a tourniquet for the injured limb below the wound, to press the first round tourniquet and ensure no pulse on the artery, to impose the following stages harness with less effort, to enclose a note on tourniquet time
- C. Adopt a tourniquet for the injured limb above a wound, press the first round of the tourniquet and make sure you have a pulse on the artery, to impose the following tours tournoquet with less effort, put a note on the tourniquet time.
- D. Adopt a tourniquet for the injured limb above a wound, to press the first round tourniquet and ensure no pulse on the artery, to impose the following stages tourniquet with less effort.

3. Method of stopping venous bleeding:

- A. compressive bandage
- B. Tourniquet – distal to wound
- C. vascular ligation
- D. hemostatic sponge
- E. clips

4. What factors contribute to the emergence of shock

- A. toxemia
- B. fat embolism
- C. thromboembolism

5. Mortality in crush syndrome caused:

- A. Lesions of bones and joints
- B. Lesion of major vessels and nerves.
- C. renal damage
- D. lung damage