

сечової системи у дітей на тлі сольового дизметаболізму в групах порівняння. В дослідженні прийняли участь 33 дитини віком від 6 до 18 рр., хворі на рекурентну інфекцію сечової системи в стадію загострення. За тривалістю застосування комбінованого фітоцитрату дітей було поділено на 2 групи: I (n=17) – отримували засіб в комплексній терапії ІСС протягом 1 місяця, II (n=16) – також отримували фітоцитратний засіб в комплексній терапії протягом 1 місяця, але продовжили його прийом у цілях профілактики ІСС ще наступні 2 місяці у переривчастому режимі по 10 днів.

Результати дослідження довели ефективність застосування комбінованого фітоцитрату у комплексній терапії рекурентної ІСС у дітей на тлі сольового дизметаболізму. Застосування зазначеного засобу призводило до нормалізації показників транспорту солей у 82 % (27/33) пацієнтів (p<0,05) вже після 1-го місяця терапії й знижувало ризик реінфекції в 18 разів: OR = 4,25 ± 0,65 при 95% ДІ [1,18;15,3] – до терапії та OR = 0,235 ± 0,65 [0,066;0,846] - після першого місяця терапії, (p<0,001). Пролонгований переривчастий прийом препарату протягом наступних 2-х місяців зменшував ризик повторних епізодів інфекції сечової системи в 3,5 рази: OR = 1,88 ± 0,9 [0,302;11,73] - у разі вибору 1-місячного курсу терапії; та OR= 0,53 ± 0,83 [0,085;3,3], p<0,05 – у результаті профілактичного застосування комбінованого фітоцитрату.

Ключові слова: рекурентна інфекція сечової системи, діти, мінеральний дизметаболізм, комбінований фітоцитратний комплекс.

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рекурентної інфекції мочевої системи у дітей на фоні сольового дизметаболізму в групах порівняння. В дослідженні прийняли участь 33 ребенка в візасте от 6 до 18 лет с рекурентной инфекцией мочевої системы в стадию обострения. Пациенты I группы (n = 17) – получали комбинированный фиточитрат в комплексной терапии в течение 1 месяца, II группы (n = 16) – также получали фиточитратное средство с целью терапии в течение 1 месяца, но продолжили его прием в целях профилактики повторного эпизода еще 2 месяца в прерывистом режиме по 10 дней.

Применение указанного средства приводило к нормализации показателей транспорта солей в 82% (27/33) пациентов (p <0,05) уже после 1-го месяца терапии и снижало риск реинфекции в 18 раз: OR = 4,25 ± 0,65 при 95% ДИ [1,18; 15,3] – до терапии и OR = 0,235 ± 0,65 [0,066; 0,846] - после первого месяца терапии (p<0,001). Пролонгированный прерывистый прием препарата в течение следующих 2-х месяцев уменьшал риск повторных эпизодов в 3,5 раза: OR = 1,88 ± 0,9 [0,302; 11,73] - в случае выбора 1-месячного курса терапии и OR = 0,53 ± 0,83 [0,085; 3,3], p <0,05 - в результате профилактического применения комбинированного фиточитрата.

Ключевые слова: рекуррентная инфекция мочевої системы, дети, минеральный дизметаболизм, комбинированный фиточитратный комплекс.

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CHOICE OF TERMS FOR SURGICAL TREATMENT OF UNSTABLE PELVIC RING IN VICTIMS WITH POLYTRAUMA BASED ON ANATOMY-FUNCTIONAL ASSESSMENT OF THE TRAUMA SEVERITY

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The purpose of the work was to improve the results in patients with unstable pelvic injuries in polytrauma. The study of integral rheography indices of the body was performed and some laboratory blood parameters in 137 patients with unstable pelvic injuries in polytrauma (UPIP) were studied. The victims had unstable pelvic injuries, namely types B and C according to the international classification of AO (M. Tile, 1995). Rotationally unstable fractures (type B) were observed in 101 (73.72%) cases, vertically unstable (type C) - in 36 (26.28%). It has been scientifically substantiated that the severity of anatomical injuries and the prediction of the condition for patients with UPIP upon admission should be more informatively assessed using the ATS scale (statistical significance - 89.29%). Surgical interventions on the pelvic bones in case of mild and severe trauma are possible from the 5th-7th days of traumatic disease, with extremely severe trauma - from 10-14 days of TC with a favorable prognosis, which was determined taking into account the indices of integral body rheography.

Keywords: polytrauma, unstable pelvic injuries, integral rheography.

The work is a fragment of the research project "Розробити систему оцінки тяжкості бойової хірургічної травми To develop a system for assessing the severity of combat surgical trauma", state registration No. 0116U007313.

The high percentage of mortality (up to 70%), complications (up to 80%), disability (up to 68%) permits to consider the problem of treatment in victims with unstable pelvic injuries with polytrauma to be one of the most relevant in modern traumatology and surgery [5].

Tactics of treating victims with unstable pelvic injuries in polytrauma should be differentiated and depend on the injury severity and the prognosis of the traumatic disease (TD) clinical course, the nature of the combined injury, TD period, type of post-traumatic pelvic ring instability, nature of pelvic injuries [1, 6]. The injury rate of traditional surgical methods of treatment in pelvic bone injuries, the severity of other anatomical areas' injuries, the combined trauma of the pelvic organs encourages to avoid early restoration

of the pelvic ring integrity. The main purpose is to save the patient's life, then - functional results, which are better than in the earlier adequate surgical correction of the unstable pelvic ring performed since the moment of injury [8, 9].

And if for the acute period of TD (1 - 2 days) there are established indications and methods of surgical hemostasis and pelvic stabilization [9, 10], then for the early (3 - 7 days) and late (8 - 21 days) TD periods, at present time, there are no clear criteria for the objective choice of surgery terms due to unstable pelvic injuries, the severity of the injury, the nature of the damage to other anatomical areas and pelvic organs.

The purpose of the work was to improve the results of treating victims with unstable pelvic injuries in polytrauma based on the use of the developed anatomical and functional scale for assessing the severity of injury to select the optimal timing of surgical treatment.

Materials and methods. A study of integrated body rheography (IBR) and some laboratory blood parameters was performed in 137 victims with unstable pelvic injuries with polytrauma (UPIP), who were hospitalized at the Kyiv City Clinical Emergency Hospital from 2000 to 2014. Among them, there were 82 survived patients (59.85%), 61 dead ones (40.15%). The mean age of patients was 42.4 ± 2.58 years.

According to the mechanism of injury, 54 (39.4%) patients had catatrauma, 30 (21.9%) - compression with distraction, 28 (20.4%) - direct stroke, 25 (18.3%) - combination of mechanisms. Pelvic trauma and damage to another anatomical area (AA) was observed in 14 (10.21%) patients, another 2 AA - in 48 (35.04%) patients, another 3 AA - in 49 (35.77%) patients, 4 and more AA - in 26 (18.98%) victims. All victims had unstable pelvic injuries, namely types B and C according to the AO international classification. Rotational-unstable fractures (type B) were observed in 101 (73.72%) cases, vertically-unstable (type C) - in 36 (26.28%) cases.

The severity of anatomical injuries was assessed according to the ATS scale, developed by the staff of the Department of Military Surgery at Ukrainian Military Medical Academy (UMMA) [3, 5, 6]. According to this scale, it was found that minor injury ($ATS \leq 24$ points) occurred in 43 (31.38%) victims, severe injury ($ATS - 25-41$ points) - in 57 (41.61%), extremely severe injury ($ATS \geq 42$ points) - in 37 (27.01%). Severe and extremely severe head injuries were observed in 83 (60.58%) cases, those of chest - in 25 (18.25%), abdomen - in 20 (14.60%), skeletal bones and spine - in 86 (62.77%). In 37 (27.01%) cases, unstable pelvic injuries were combined with pelvic organs' injuries.

All victims were admitted in a state of traumatic shock of varying severity. However, it can be noted that the II-III degree traumatic shock prevailed, respectively in 126 (91.97%) cases; at the same time, the I degree shock was only observed in 7 (5.11%), patients and the terminal condition (the IV degree shock) only - in 4 (2.92%) cases (all victims died).

Functional changes in central hemodynamics and respiration were recorded using IBR which was performed according to the method of M.I. Tishchenko [2] using the device KSVG-1 and "Diamond" on days 1-3, 5-7, 10-14, 15-21 after injury, at the same time laboratory blood counts were determined by conventional methods. Anatomical and functional assessment of the injury severity in different periods of traumatic disease was performed according to our own developed scales ATS and AFI [3, 4].

Results of the study and their discussion. In order to monitor the clinical course of trauma and the choice of differentiated surgical tactics for treatment of victims with polytrauma, the Military Surgery Department of UMMA developed a method for anatomical and functional assessment of trauma based on IBR by M.I. Tishchenko, which was improved in the dissertation of O.I. Zhovtonozhko [3, 4].

The calculation of anatomical and functional assessment of injuries and multifactorial assessment of the condition severity with the prognosis of the traumatic disease course and the development of fatalities were assessed by the formulas:

1. Anatomical and functional index:

$$AFI = ATS - 0.13 \times BN + 302.9 - 2.75 \times SVI + 5.2 \times BSI + VTSI + 2.43 \times ITF$$

1. Multifactorial index:

$$0.15 \times SVI + 0.45 \times BSI + 0.117 \times ITF + 0.0647 \times VTSI + 2.33 \times BN - 37$$

$$MFI = \frac{\text{AFI}}{37.3}$$

AFI - anatomical and functional index, MFI - multifactorial index, ATS - trauma anatomic assessment scale, IBR indices: BSI - breathing strain index, VTSI - vascular tone stabilization index, ITF - integrated tonic factor, SVI - stroke volume index, BN - percentage of banded neutrophils.

The prognosis of consequences for life was determined taking into account AFI and MFI with allocation of 3 clinical and prognostic groups: with favorable, doubtful and unfavorable consequences for

life. The diagnostic accuracy was 90.75% (for a favorable prognosis - 95.45%, for unfavorable - 86.05%) (table 1).

Table 1

Distribution of victims with UPIP according to the traumatic disease prognosis

Prognosis	Anatomical and functional index – AFI (points)	Multifactorial index – MFI ((points)	Injured (n=137)	
			Survived	Died
favorable	less than 600	less than 0.8	42	2
doubtful	more than 600 less than 600	less than 0.8 more than 0.8	28	22
unfavorable	more than 600	more than 0.8	6	37

In patients with UPIP and a favorable TD prognosis (n = 44) the severity of respiratory and circulatory disorders on days 1–3 after admission was determined as moderately reduced (SVI = 33.9±4.7 ml / m², cardiac index (CI) = 2.9±0.1 l / min / m²). Cardiac output was restored for 5–7 days (SVI=37.9±2.8 ml / m²; CI = 3.1±0.03 l / min / m²), and up to 10–14 days - corresponded to the normodynamic regime of systemic circulation (SVI = 44.9±1.1 ml / m², CI = 3.3±0.02 l / min / m²). The expressed respiratory failure which was observed for 1–3 days after receipt (BSI = 36.7±6.4 RU.; reserve index (RI) = 0.95±0.05 units) to 10–14 days was eliminated (BSI). = 24.2±.8 units; RI = 1.02±0.04 units). Moderate centralization of blood circulation (ITF = 71.5±0.2 RU) was maintained until the end of the acute period of traumatic disease and was eliminated on days 5-7 (ITF = 75.2±0.2 RU) during TD (table 2).

Table 2

Dynamics of changes in respiratory and circulatory disorders in UPIP patients with favorable prognosis of TD (mild trauma)

IBR index	Days 1–3 (n=44)	Days 5–7 (n=44)	Days 10–14 (n=44)
SVI, ml/m ²	33.9±4.7	37.9±2.8*	44.9±1.1 *
CI, l/min/m ²	2.9±0.1	3.1±0.03*	3.3±0.02*
BSI, RU	36.7±6.4	33.4±5.7	24.2±1.8
VTSI, RU	1.4±0.1	1.2±0.1	1.02±0.1
RI, RU	0.95±0.05	0.99±0.04	1.02±0.04
ITF, RU	71.5±0.2*	75.2±0.2*	75.7±0.1 *

Note: * - the difference is statistically significant (p <0.05).

Post-traumatic indolent anemia was observed at the end of the first day after admission (hemoglobin = 106.2±2.63 g / l, erythrocytes = 3.4±0.06x10¹² / l) and persisted for up to 3 days (hemoglobin = 104.5±4.12 g / l, erythrocytes = 3.5±0.05x10¹² / l), (p <0.05). The hematocrit number was the same: 0.31±0.02. Decrease in the number of erythrocytes in traumatic disease was due not only to the blood loss, but also to their increased consumption due to hyperaggregation and destruction.

In the acute period of TD, from the first hours, neutrophilic leukocytosis (leukocytes = 10.8±0.75x10⁹ / l, rod-shaped neutrophils = 6.52±0.72%) was observed.

The erythrocyte sedimentation rate after 24 hours remained high (11.07±0.79 mm / h and 13.16±0.81 mm / h, respectively), and the level of albumin on days 1 and 3 was consistently low (51.8±1.54% and 48.3±1.22%, respectively). On the first day, the patients developed moderate hypercoagulation (fibrinogen = 4.96±0.32 g / l), which was observed after the acute period of traumatic disease (fibrinogen = 4.21±0.18 g / l) against the background of normal fibrinolytic blood activity.

In patients with UPIP and mild trauma, who survived (n = 42), the prognosis of TD was determined throughout treatment as favorable: by AFP from 587.4 to 550.7 points and by BFP from 0.78 to 0.69 points.

In 28 victims with severe combined pelvic injury (520–620 by AFP), who survived, a questionable prognosis was obtained on admission (by ATS scale). By days 5–7, the prognosis in all victims became favorable (by AFP and BFP). The cardiac output was restored up to days 5–7 (SVI – 48.21±1.27 ml / m² compared to days 1–3: SVI – 40.12±0.95 ml / m², p <0.05), and up to days 10–14 - corresponded to the hyperdynamic regime of systemic circulation (SVI – 60.12±2.05 ml / m², CI – 3.97±0.14 l / min / m²; p <0.05 compared to the level at admission). Moderate respiratory failure, which was observed on days 1–3 after admission (BSI – 26.93±0.21 RU, RI – 1.24±0.07 RU) was eliminated by days 15–21, p <0.05). Moderate centralization of blood circulation (ITF – 78.01±0.35 RU) was maintained until the 15th – 21st day (ITF– 77.6±0.2 RU; p > 0.05) (table). 3).

In victims who died (n = 22), a questionable prognosis (by the ATS scale) was also obtained on admission. At the end of the 3rd day and in other periods, the prognosis was consistently unfavorable (by AFP and BFP). There was a critical decrease in IBR indices in the acute period of TD: SVI to 17.8±3.1 ml

/ m²; CI to 1.9±0.3 l / min / m², ITF to 63.8±0.4 RU, RI to 0.43±0.05 RU. And critical increase of VTSI to 1.92±0.04 RU and BSI up to 62.8±8.3 RU. In the following periods of TD, the IBR indices remained virtually unchanged and ranged from critical to severe reductions, which indicated an extremely severe condition of the victims and an unfavorable prognosis (table 3).

Table 3

Dynamics of changes in respiratory and circulatory disorders in patients with UPIP (severe trauma)

Trauma consequence	IBR index	Day			
		1-3	5-7	10-14	15-21
Survived n=28	SVI, (ml/m ²)	40.12±0.95	48.21±1.27	60.12±2.05	45.2±1.2
	CI, (l/min / m ²)	2.31±0.25	3.12±0.52	3.97±0.14	3.2±0.2
	ITF, (RU)	79.45±0.81	79.01±0.55	77.98±0.32	77.6±0.2
	VTSI, (RU)	1.52±0.03	1.35±0.02	1.2±0.01	1.09±0.01
	BSI, (RU)	26.93±0.21	25.1±0.40	24.32±1.85	25.3±0.23
	RI, (RU)	1.24±0.07	1.27±0.14	1.42±0.07	1.06±0.13
Died n=22	SVI, (ml/m ²)	17.8±3.1*	19.4±2.6*	23.6±2.1*	21.8±1.8*
	CI (l/min/m ²)	1.49±0.3*	1.64±0.2*	2.12±0.3*	1.7±0.1*
	ITF, (RU)	63.8±0.4*	68.2±0.3*	71.6±0.5*	73.1±0.2*
	VTSI, (RU)	1.92±0.04*	1.69±0.02*	1.3±0.02*	1.16±0.01*
	BSI, (RU)	62.8±8.3*	69.5±7.3*	74.1±6.3*	72.9±5.9*
	RI, (RU)	0.43±0.05*	0.55±0.04*	0.6±0.04*	0.65±0.03*

Note: * - the difference is statistically significant compared to the survived victims (p < 0.05).

In the analysis of laboratory parameters in victims who survived, moderate anemia persisted up to days 10-14 (Hb – 100.25±3.12 g / l). A slight increase in the concentration of leukocytes and banded neutrophils was observed on days 1-3 after injury (8.24±0.85x10⁹ / l, 7.64±1.94%, respectively) with a significant decrease up to days 5-7 (p < 0.05). Noteworthy is the decrease in the concentration of blood albumin up to days 10-14 (36.98±1.62 g / l) with a moderate increase to day 21 after injury (49.25±1.27 g / l) (p < 0.05). No significant changes in the blood coagulation system were observed (fibrinogen concentration ranged from 3.82±0.15 g / l on days 1-3 up to 4.76±0.21 g / l on days 10-14 (p < 0.05).

In 6 victims with extremely severe combined pelvic injury (by AFI more than 620 points), who survived, an unfavorable prognosis was obtained on admission (by the ATS scale). Up to days 10-14, the prognosis in all victims became favorable (by AFI and MFI). Upon admission, there were pronounced respiratory and circulatory disorders (a sharp decrease in myocardial contractility: SVI-27.05±1.07 ml / m², CI - 1.82±0.12 l / min / m², moderate stress of the external respiratory system - BSI – 32.74 ± 0.63 RU) with the subsequent normalization of cardiac activity up to day 10 (SVI – 51.06±3.21 ml / m², CI – 3.41±0.12 l / min / m²), p < 0.05), and external respiratory systems - up to days 15-21 (BSI – 24.5±1.19 RU, p < 0.05) (table 4).

Table 4

Dynamics of changes in respiratory and circulatory disorders in UPIP victims (extremely severe injury)

Trauma consequence	IBR index	Day			
		1-3	5-7	10-14	15-21
survived n=6	SVI, (мл/м ²)	27.05±1.07	34.76±1.18	51.06±3.21	46.4±1.3
	CI, (л/хв/м ²)	1.82±0.12	1.92±0.05	3.41±0.12	3.1±0.02
	ITF, (ум.од.)	76.15±0.23	78.01±0.35	79.14±0.78	76.9±0.2
	VTSI, (ум.од.)	1.46±0.03	1.39±0.02	1.15±0.01	1.03±0.01
	BSI, (ум.од.)	32.74±0.63	28.12±0.28	27.03±0.38	24.5±1.19
	RI, (від.од.)	1.14±0.25	1.42±0.08	1.44±0.07	1.01±0.01
died n=37	SVI, (мл/м ²)	24.14±1.15	23.21±1.62*	15.10±0.27*	-
	CI, (л/хв/м ²)	1.84±0.35	1.82±0.14	1.74±0.13*	-
	ITF, (ум.од.)	74.15±2.18	72.16±1.72*	71.32±0.24*	-
	VTSI, (ум.од.)	2.01±0.06*	2.06±0.09*	2.18±0.07*	-
	BSI, (ум.од.)	42.18±4.27*	54.14±5.18*	73.21±8.27*	-
	RI, (від.од.)	0.96±0.10	0.92±0.17*	0.57±0.02*	-

Note: * - the difference is statistically significant compared to the survived victims (p < 0.05).

In victims with extremely severe combined pelvic trauma who died (n = 37), an unfavorable prognosis was determined (according to the ATS scale) on admission. Subsequently, on days 5-7, there was an increase in the functional component of the trauma severity (AFI-836.7±13.2 points, MFI-1.78±0.25), followed by decompensation on days 10-14 (AFI -965.9±15.4 points, MFI-2.35±0.12), p < 0.05. In the analysis of respiratory and circulatory disorders in this group of victims, a sharp decrease in myocardial contractility, starting from days 5-7 and until death (days 10-14) (SVI-23.21±1.62 ml / m²),

SVI – 15.10 ± 0.27 ml / m², respectively, $p < 0.05$). Respiratory failure against the background of the external respiratory system's strain was indicated by the BSI increase on days 5-7 compared to days 1-3 (from 42.18 ± 4.27 RU to 54.14 ± 5.18 RU, $p < 0.05$), and on days 10–14 this index increased almost by 2 times (BSI – 73.21 ± 8.27), $p < 0.05$. The general blood circulation failure was characterized by decrease in the reserve index (RI) from days 5–7 to days 10–14 almost by 1.5 times (RI – 0.92 ± 0.17 RU, 0.7 ± 0.02 RU) respectively, $p < 0.05$ (table. 4).

In victims with extremely severe pelvic trauma, who survived, it was found that anemia was observed in all periods of TD and was more significant up to days 5-7 (hemoglobin – 87.95 ± 1.17 g / l; $p < 0.05$ compared to the level on days 1–3). From the first hours after the injury leukocytosis was reported, which was observed up to day 14 (on days 1-3 - $11.26 \pm 0.15 \times 10^9$ / l, on days 10-14 - $9.27 \pm 0.54 \times 10^9$ / l) with a significant decrease on days 15–21 - $8.77 \pm 0.42 \times 10^9$ / l, $p < 0.05$). The number of rod nuclear leukocytes decreased up to days 5–7 (banded neutrophils – $10.31 \pm 1.05\%$), and on days 10–14 - normalized: banded neutrophils - $5.21 \pm 0.04\%$ ($p < 0.05$). In all periods of TD, the erythrocyte sedimentation rate increased almost by 2 times. The amount of total protein and its fraction - albumin normalized up to days 15- 21 (on days 10-14 - 33.13 ± 1.45 g / l, on days 15-21 - 45.56 ± 1.25 g / l, $p < 0.05$). Moderate hypercoagulation was observed starting from days 5–7 (fibrinogen – 5.49 ± 0.52 g / l) with a slight increase up to days 10–14 (fibrinogen – 5.49 ± 0.52 g / l), $p > 0.05$ and a significant decrease up to days 15–21 (fibrinogen – 5.14 ± 0.41 g / l), $p < 0.05$.

Among the victims who died, there was a progressive decrease in hemoglobin concentration starting from days 5-7 to death compared to the survived group ($p < 0.05$), increasing leukocytosis (days 1-3 - $11.93 \pm 0.76 \times 10^9$ / l, on days 10–14 - $14.22 \pm 0.17 \times 10^9$ / l, $p < 0.05$), with an increase of more than 2 times in the number of banded neutrophils, starting from admission of the victim (days 1–3 - $21.78 \pm 2.44\%$, days 5–7 - $22.43 \pm 1.94\%$, days 10–14 – $24.27 \pm 2.75\%$, $p < 0.05$). During the shock period, the victims developed moderate hypocoagulation (fibrinogen – 2.84 ± 0.54 g / l), which up to days 5–7 turned into moderate hypercoagulation (fibrinogen – 4.93 ± 0.41 g / l), which persisted. up to days 10–14 (fibrinogen – 6.27 ± 0.41 g / l), $p < 0.05$.

Comparative analysis of homeostasis indices in victims with combined extremely severe pelvic injury showed that all victims, both dead and survivors, on days 1–3 after admission, had severe respiratory and circulatory disorders (SVI – 24.14 ± 1.15 ml / m², CI – 1.84 ± 0.35 l / min / m², RI – 0.96 ± 0.10 RU, ITF – 74.15 ± 2.18 RU, $p < 0.05$, VTSI – 2.01 ± 0.06 RU, BSI – 42.18 ± 2.27 RU, $p < 0.05$), however on days 5–7 the majority of IBR indices in those, who survived, improved, although the prognosis remained "unfavorable" (SVI - 34.76 ± 1.18 ml / m², RI - 1.42 ± 0.08 units, ITF - 78.01 ± 0.35 units), VTSI – 1.39 ± 0.02 RU, BSI – 28.12 ± 0.28 RU, $p < 0.05$, CI – 1.84 ± 0.35 l / min / m², $p < 0.05$, and only starting from days 10–14, in the group of survivors there was a favorable prognosis, which was characterized by the approximation of IBR indices to the physiological norm (SVI - 51.06 ± 3.21 ml / m², CI - 3.41 ± 0.12 l / min / m², BSI - 27.03 ± 0.38 units, RI – 1.44 ± 0.07 RU, ITF – 79.14 ± 0.78 units, VTSI – 1.15 ± 0.01 RU, $p < 0.05$ in comparison with indices of the died victims group).

Thus, in UPIP victims with mild and severe trauma by the ATS scale with a favorable prognosis of traumatic disease, post-traumatic anemia was observed during the first 3-5 days after injury, and respiratory and circulatory disorders were fully restored up to days 7-10, which gives grounds to recommend performing invasive surgical interventions with indices on pelvic bones in this group of patients from days 5-7 of traumatic disease. Extremely severe trauma is characterized by severe anemia on days 5-7 after injury and normalization of cardiac activity and respiratory system up to days 10-15.

The question of the terms for internal osteosynthesis of unstable pelvic injuries in polytrauma, especially in type "C" fractures remains important. Ushakov S.A. et al., (2011) [7] in their studies showed the possibility of performing percutaneous transiliosacral screw fixation in posterior instability with minimal blood loss performed in the resuscitation phase of treatment. In the late 1990s, data were obtained on improving the treatment outcomes in patients who were subjected to "early" surgical treatment, especially for type "C" injuries [13]. However, other studies showed that patients who had undergone surgery at an early stage have a higher risk of secondary organ damage as a result of prolonged surgery (more than 6 hours), that significantly increases mortality and the incidence of multiple organ failure. According to studies performed by Rommens P.M. et al., (2002) [13], Pape H.C., Krettek C. (2003) [12], re-operation for pelvic injury should preferably be performed between days 5 and 10 after admission, rather than within 24 hours.

The most optimal is to perform invasive surgical interventions (internal metallic osteosynthesis - MOS, combined MOS of the unstable pelvic ring) in the early and late periods of TD up to day 21 after injury [9, 10]. According to our data, invasive surgical interventions in the pelvic bones in 2.94% of cases (MOS of the ventral pelvis during the pelvic organs operations) were performed on the 1st day after injury, in 51.47% - up to day 21 after injury, in 20.59% - within the terms of over 21 days.

Conclusion

Thus, the severity of anatomical injuries and prediction of the UPIP victims' condition on admission should be more informatively assessed according to the proposed ATS scale (89.29% of statistical significance). In other periods of TD, in order to monitor the clinical course of injury and the choice of rational surgical treatment tactics, it is advisable to use our method for anatomical and functional assessment of the injury severity based on IBR by M.I. Tishchenko. Analysis of changes in homeostasis (indices of respiratory and circulatory disorders and laboratory indices of red blood) depending on the injury severity in patients with UPIP gives grounds to recommend the invasive surgery with indications for pelvic bones in this group of victims: for mild and severe injuries – from days 5-7 of traumatic disease, for extremely severe trauma from days 10–14 of TD with a favorable prognosis.

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Реферати

ВИБІР СТРОКІВ ХІРУРГІЧНОГО ЛІКУВАННЯ НЕСТАБІЛЬНОГО ТАЗОВОГО КІЛЬЦЯ У ПОСТРАЖДАЛИХ З ПОЛІТРАВМОЮ НА ОСНОВІ АНАТОМО-ФУНКЦІОНАЛЬНОЇ ОЦІНКИ ТЯЖКОСТІ ТРАВМИ

Бурлука В.В., Анкін Н.Л., Денисенко В.Н., Максименко М.А., Шепітько К.В.

Метою роботи було покращення результатів лікування постраждалих з нестабільними пошкодженнями таза при політравмі. Проведено дослідження показників інтегральної реографії тіла і деяких лабораторних показників крові у 137 постраждалих з нестабільними пошкодженнями таза при політравмі (НПТП). Усі постраждали мали нестабільні пошкодження таза, а саме типи В і С за міжнародною класифікацією АО (M. Tile 1995). Ротаційно-нестабільні переломи (тип В) спостерігали у 101 (73,72%) випадків, вертикально-нестабільні (тип С) – у 36 (26,28%). Науково обґрунтовано, що тяжкість анатомічних пошкоджень і прогнозування стану постраждалих з НПТП при поступленні більш інформаційно оцінювати за шкалою ATS (89,29% статистичної достовірності). Проведення інвазивних операційних втручань, при показаннях, на кістах таза при нетяжкій і тяжкій травмі можливо з 5 – 7 доби травматичної хвороби, при вкрай тяжкій травмі – з 10 – 14 доби ТХ при сприятливому прогнозі, який визначався з урахуванням показників інтегральної реографії тіла.

Ключові слова: політравма, нестабільні пошкодження таза, інтегральна реографія.

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ВИБОР СРОКОВ ХИРУРГИЧЕСКОГО ЛЕЧЕНИЯ НЕСТАБИЛЬНОГО ТАЗОВОГО КОЛЬЦА У ПОСТРАДАВШИХ С ПОЛИТРАВМОЙ НА ОСНОВЕ АНАТОМО-ФУНКЦИОНАЛЬНОЙ ОЦЕНКИ ТЯЖЕСТИ ТРАВМЫ

Бурлука В.В., Анкин Н.Л., Денисенко В.Н., Максименко М.А., Шепитько К.В.

Целью работы было улучшение результатов лечения постраждавших с нестабильными повреждениями таза при политравме. Проведено исследование показателей интегральной реографии тела и некоторых лабораторных показателей крови у 137 пострадавших с нестабильными повреждениями таза при политравме (НПТП). Пострадавшие имели нестабильные повреждения таза, а именно типы В и С по международной классификации АО (M. Tile 1995). Ротационно-нестабильные переломы (тип В) наблюдали у 101 (73,72%) случаев, вертикально-нестабильные (тип С) - у 36 (26,28%). Научно обосновано, что тяжесть анатомических повреждений и прогнозирование состояния пострадавших с НПТП при поступлении более информационно оценивать по шкале ATS (89,29% статистической достоверности). Проведения операционных вмешательств на костях таза при нетяжелой и тяжелой травме возможно с 5 - 7 суток травматической болезни, при крайне тяжелой травме - с 10 - 14 суток ТХ при благоприятном прогнозе, который определялся с учетом показателей интегральной реографии тела

Ключевые слова: политравма, нестабильные повреждения таза, интегральная реография.

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