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LEVELS OF FUNCTIONAL-VEGETATIVE HOMEOSTASIS AS A CRITERION OF BURIAL INJURY

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Summary. The paper presents the results of functional-vegetative diagnostics using the method of V.G.Makats, with a burn disease in the pathogenesis of which the functional state of VNS is not taken into account. The research included 141 patients aged 18 to 80 years, randomized according to the severity index of lesions from 60 units, 90 units and more. Patients underwent standard infusion-transfusion therapy, local treatment in a wet chamber, early necrectomy and xenoplasty. The vegetative pathogenesis was controlled by the levels of the functional-vegetative homeostasis k-V (FVD was performed from 10:00 to 12:00 on the 1, 3, 7, 14, 21 and the 50th day of stay in the hospital). Parasympathetic dynamics of vegetative homeostasis in the pathogenesis of the acute period of burn disease is shown. There is a positive conclusion about FVD, which allows you to monitor the course of the disease at the functional-vegetative level and outstrips the capabilities of modern diagnostic tools.

Key words: functional-vegetative homeostasis, vegetative diagnostics (according to the method of V.G. Makats), burn disease.

Реферат. Представлені результати функціонально-вегетативної діагностики (ФЗД) за методом В.Г.Макаца при опіковій хвороби, в патогенезі якої не враховують функціональний стан ВНС. Під наглядом знаходилося 141 хворий у віці 18 до 80 років, рандомізовані за індексом тяжкості враження від 60 од., 90 од. і більше. Хворим проводили стандартну інфузійно-трансфузійну терапію, місцеве лікування в умовах вологої камери, ранню некректомію і ксенопластику. Вегетативний патогенез контролювали за рівнями функціонально-вегетативного гомеостазу k-V (ФВД проводили з 10⁰⁰ до 12⁰⁰ на 1,3,7,14,21 і 50-ту добу перебування в стаціонарі). Показана парасимпатична динаміка вегетативного гомеостазу в патогенезі гострого періоду опікової хвороби. Робиться позитивний висновок про ФВД, яка дозволяє контролювати перебіг хвороби на функціонально-вегетативному рівні і випереджає можливості сучасних засобів діагностики.

Ключові слова: функціонально-вегетативний гомеостаз, вегетативна діагностика за методом В.Г.Макаца, опікова хвороба.

Реферат. Представлены результаты функционально-вегетативной диагностики (ФВД) по методу В.Г.Макаца при ожоговой болезни, в патогенезе которой не учитывают функциональное состояние ВНС. Под наблюдением находилось 141 больной в возрасте 18 до 80 лет, рандомизированные по индексу тяжести поражения от 60 ед., 90 ед. и больше. Больным проводили стандартную инфузионно-трансфузионную терапию, местное лечение в условиях влажной камеры, раннюю некрэктомію и ксенопластику. Вегетативный патогенез контролировали по уровням функционально-вегетативного гомеостазу k-V (ФВД проводили с 10⁰⁰ до 12⁰⁰ на 1,3,7,14,21 и 50-й день пребывания в стационаре). Показана парасимпатическая динамика вегетативного гомеостазу в патогенезе острого периода ожоговой болезни. Делается положительный вывод о ФВД, которая позволяет контролировать течение болезни на функционально-вегетативном уровне и опережает возможности современных средств диагностики.

Ключевые слова: функционально-вегетативный гомеостаз, вегетативная диагностика по методу В.Г.Макаца, ожоговая болезнь.

Introduction. Estimation of integral vegetative status allows to reveal the development of pathology at the functional level and outstrips the capabilities of modern diagnostic tools [1]. It is known that the information received from the internal organs in the epidermal "functional zones" (FZ) is genetically determined (skin and nervous system are formed with ectoderm). The activity of external phases directly depends on Earth's electromagnetic oscillations (Schumann's resonances), which determine the external (forming) rhythm.

As a result of long-term studies of individual FZ and acupuncture system in general, functional-vegetative diagnostics (FVD) was developed. She united the theoretical basis of traditional Zhen-jiu therapy with a modern understanding of vegetative homeostasis [2]. Опікова травма є надмірним стресовим подразником і різко порушується вегетативний гомеостаз. At the same time, numerous publications on various aspects of the pathogenesis of burn shock do not take into account the functional state of VNS with burns and burn disease.

Objective: to improve the efficiency of controlled rehabilitation of burn patients by applying FVD and further correction of the levels of autonomic homeostasis.

Materials and methods. In the burn department of the Vinnitsa Regional Clinical Hospital in the acute period of burn injury examined 141 victims aged 18-80 years, with an "index of severity of burn injury" (ISBI) of 60-90 units. The victims received standard "infusion-transfusion" therapy and local wound treatment in a "wet chamber under polyvinylchloride film". All patients were operated 2-3 days after the injury (early necroticism, xenoplasty). FVD were conducted from 10⁰⁰ to 12⁰⁰. All patients were randomized to severity of injury. In the 1-st group there were 30 patients with ISBI to 60 units, in the 2-nd 90 patients with ISBI to 90 units, in the 3-rd 21 patients with ISBI above 90 units. The consequences of burn injury were controlled by the "coefficients of functional-vegetative homeostasis" (k-V) [2, 3].

Results and discussion.

1. Vegetative levels with a burn injury from ISBI to 60 units. At burn injury with ISBI up to 60 units (1 g) during the clinical period (50 days) the following vegetative dynamics was observed:

- on the first day signs of "functional compensation of parasympathetic activity" develop (FkP, k-V = 0,91);
- on the 3rd day there are signs of "pronounced parasympathetic activity (PA-e, k-V = 0,76) with the transition to the 7th day in a state of significant (PA-s, k-V = 0,66);
- at the 14th and 21st day there is an increase in the signs of "pronounced" parasympathetic activity (from k-V = 0.72 to k-V = 0.80);
- signs of "functional compensation of parasympathetic activity" (FkP, k-V = 0,95) develop on the 50th day of stay in the hospital.

The data given in Table 1 indicates, that for burns with ISBI up to 60 units at all stages of clinical care in burn patients, parasympathetic inhibition (from the initial level k-V 0.91 = FkP) increases, which is normalized at the level of vegetative equilibrium on the 50th day (k-V 0.95 = VE). In this case, vegetative transformations are accompanied by severe systemic disorders (Fig.1-5), which are accompanied by increasing inhibition of the KI channel (kidney) and the growth of the activity of the channel SI (small intestine).

Table 1. Dynamics of vegetative levels and systemic dependence in group 1 (n = 30)

Day	Functional-vegetative system activity in% (M±m)												k-V	
	LU	PC	HT	SI	TE	LI	SP	LR	KI	BL	GB	ST		
1	8,10 0,07	8,90 0,10	10,0 0,07	7,00 0,09	9,10 0,07	8,40 0,06	8,00 0,14	8,00 0,06	9,30 0,07	9,50 0,11	6,30 0,06	7,20 0,06	0,91	FkP
3	7,80 0,19	7,60 0,21	8,90 0,20	5,10 0,42	6,30 0,22	6,40 0,18	12,9 0,27	8,00 0,23	11,7 0,23	10,7 0,29	7,30 0,21	7,30 0,17	0,76	PA-e
7	8,90 0,05	8,50 0,08	9,10 0,07	5,00 0,07	4,50 0,05	6,30 0,05	11,6 0,07	9,40 0,05	12,8 0,08	10,4 0,10	7,30 0,06	6,20 0,06	0,66	PA-s
14	9,10 0,19	8,70 0,21	9,70 0,20	5,50 0,42	5,50 0,22	5,70 0,18	10,8 0,27	8,00 0,23	11,6 0,23	9,70 0,29	8,30 0,21	7,21 0,17	0,72	PA-e
21	9,80 0,07	9,50 0,06	8,80 0,04	4,90 0,01	3,30 0,08	5,80 0,03	9,30 0,07	8,90 0,05	9,20 0,09	10,6 0,04	11,7 0,04	8,00 0,07	0,80	PA-e
50	11,7 0,04	11,6 0,38	11,4 0,38	10,1 0,40	12,8 0,30	14,3 0,30	5,70 0,53	5,00 0,35	5,90 0,33	5,40 0,62	3,40 0,32	2,70 0,30	0,95	FkP

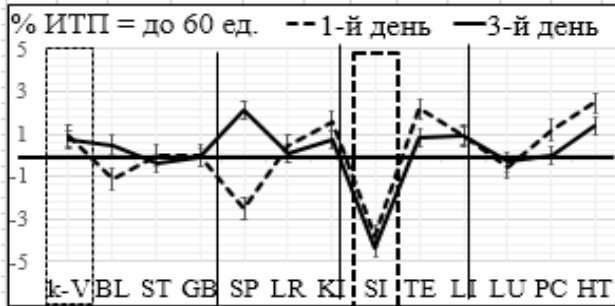


Fig.1 ISBI kV-1 (0,91-FkP) kV-3 (0,76-PAe)

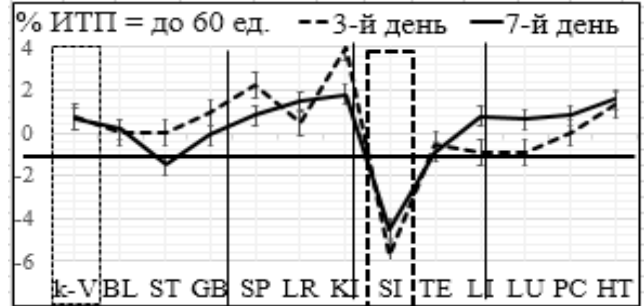


Fig.2 ISBI kV-3 (0,76-PAe) kV-7 (0,66-PAs)

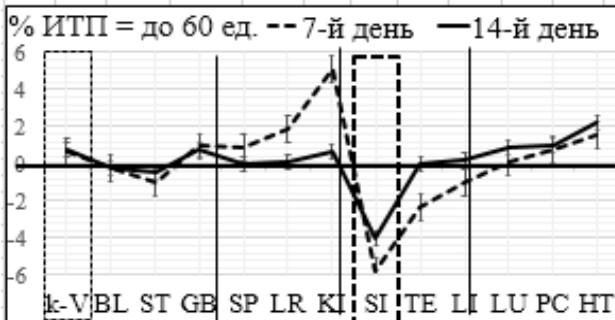


Fig.3 ISBI kV-1 (0,91,66 PAs) kV-3 (0,72PAe)

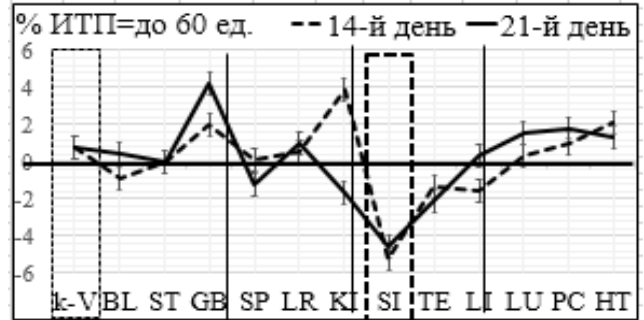


Fig.4 ISBI kV-3 (0,72-PAe) kV-7 (0,80-PAs)



Fig.5 ISBI kV-21 (0,80 PAe) kV-50 (0,95 VA)

Fig. 1-5 Dynamics of systemic activity in burn injuries with ISBI up to 90 units.

Note: k-V = vegetative level

2. Vegetative levels with a burn injury from (ISBI) to 90 units.

As in the 1 st group at all stages of clinical care for burn patients with ISBI to 90 units. there was parasympathetic inhibition, accompanied by significant systemic disorder in the form of the following dynamics:

- on the first day after the injury, all signs of a marked parasympathetic advantage (PA-e k-V = 0.83), which became significant in the 3rd day (PA-s, k-V = 0.69);
- at the 7th and 14th days there is an increase in signs of marked parasympathetic activity (from k-V = 0.78 to k-V = 0.84);
- at the 21st day, the level of "expressed" parasympathetic activity decreases to "significant" (PA-s, k-V = 0.76);
- On the 50th day of observation, parasympathetic inhibition slowly passes into the zone of "functional compensation of parasympathetic activity" (FkP, k-V = 0.87).

For burns with ISBI to 90 units. (Table 2) draws attention to the increase of parasympathetic inhibition (from k-V 0.83-PAe on the day of admission to k-V 0.87-FkP on the day of discharge). In this

case, vegetative transformations are accompanied by systemic disorders (Fig. 6-10) and increasing oppression of the KI channel (kidney) and the growth of the activity of the channel SI (small intestine).

Table 2. Dynamics of vegetative levels and systemic dependence in group 2 (n = 0)

Day	Functional-vegetative system activity in % (M±m)													k-V	
	LU	PC	HT	SI	TE	LI	SP	LR	KI	BL	GB	ST			
1	10,5 0,07	10,2 0,10	10,7 0,07	8,00 0,09	9,30 0,07	10,6 0,06	8,40 0,14	6,90 0,06	7,80 0,07	7,30 0,11	5,30 0,06	5,00 0,06	0,83	PA-e	
3	6,30 0,19	6,90 0,21	8,40 0,20	2,50 0,42	3,50 0,22	5,30 0,18	15,4 0,27	10,7 0,23	11,2 0,23	13,6 0,29	8,30 0,21	7,70 0,17	0,69	PA-s	
7	7,30 0,05	7,80 0,08	11,6 0,07	4,60 0,07	4,40 0,05	6,00 0,05	15,4 0,07	6,70 0,05	7,50 0,08	12,9 0,10	9,10 0,06	6,70 0,06	0,78	PA-e	
14	8,60 0,19	8,00 0,21	8,80 0,20	8,90 0,42	6,90 0,22	8,10 0,18	13,8 0,27	7,40 0,23	7,60 0,23	11,3 0,29	5,60 0,21	4,90 0,17	0,84	PA-e	
21	6,00 0,07	6,40 0,06	7,20 0,04	2,40 0,01	4,80 0,08	6,40 0,03	15,1 0,07	15,1 0,05	9,60 0,09	10,8 0,04	5,20 0,04	11,2 0,07	0,69	PA-s	
50	10,5 0,04	9,80 0,38	10,4 0,38	10,2 0,40	11,3 0,30	10,6 0,30	7,70 0,53	8,10 0,35	9,30 0,33	4,20 0,62	5,40 0,32	6,80 0,30	0,87	FkP	

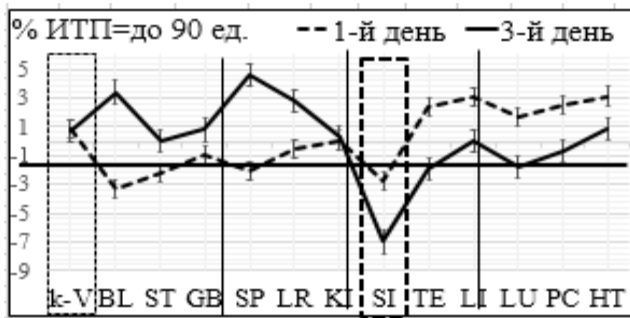


Fig.6 ISBI kV-1 (0,83-PAe) kV-3 (0,69-PAs)

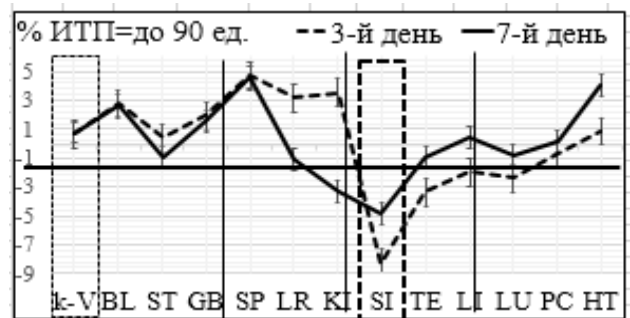


Fig.7 ISBI kV-3 (0,69-PAs) kV-7 (0,78-PAe)

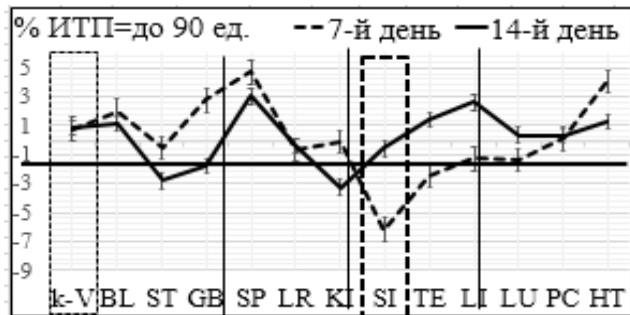


Fig.8 ISBI kV-1 (0,78-PAe) kV-3 (0,84PAe)

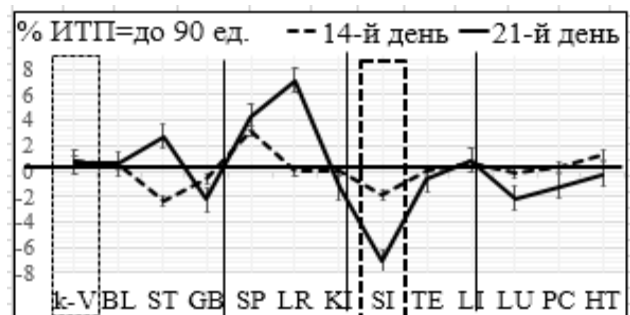


Fig.9 ISBI kV-3 (0,84-PAe) kV-7 (0,69-PAs)

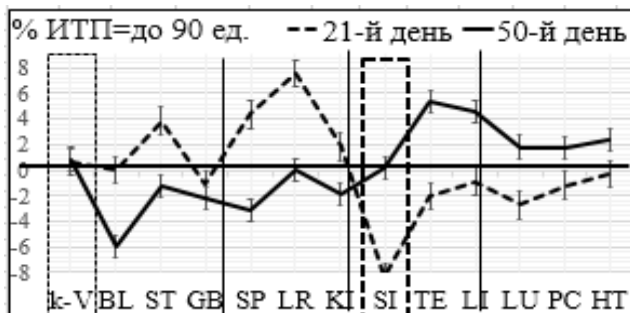


Fig.10 ISBI kV-1 (0,69-PAs) kV-3 (0,87-FkP)

Fig. 6-10 Dynamics of systemic activity in burn injuries with ISBI up to 90 units.

Note: k-V = vegetative level

3. Vegetative levels with a burn injury with an ISBI > 90 units agreed with the above.

At all stages of treatment parasympathetic inhibition is observed, which is accompanied by a significant systemic disorder in the form of such dynamics:

- for the first day, all signs of functional compensation of parasympathetic activity (FkP, $k-V = 0.91$) were recorded;
- on the 3rd and 7th days manifestations of expressed parasympathetic advantage increased (from $k-V = 0.84$ to $k-V = 0.83$);
- on the 14th day, a leap-like advantage of expressed sympathetic activity was recorded (SA-e, $k-V = 0.76$);
- At the 21st and 50th days, the levels of vegetative homeostasis returned to the zone of significant and marked parasympathetic activity (within $k-V = 0.69-0.76$).

For burns with ISBI > 90 units. (Table 3) draws attention to the stable state of parasympathetic inhibition (from $k-V 0.91$ -FkP on the day of admission to $k-V 0.76$ -PAe on the day of discharge). In this case, vegetative transformations are accompanied by systemic disorders (fig.11-15), which are accompanied by non-standard activity of the channels KI (kidney) and SI (small intestine).

After discharge from the hospital, this group of burn-up convalescents requires outpatient (or sanatorium-resort) healing (functional correction of vegetative homeostasis)...

Table 3. Dynamics of vegetative levels and systemic dependence in group 3 ($n = 21$)

Day	Functional-vegetative system activity in % (M±m)													k-VG	
	LU	PC	HT	SI	TE	LI	SP	LR	KI	BL	GB	ST			
1	8,30 0,07	7,00 0,06	13,2 0,11	7,40 0,06	9,30 0,06	10,1 0,08	5,70 0,08	9,30 0,09	8,80 0,10	7,50 0,10	8,50 0,08	4,90 0,08	0,91	FkP	
3	8,60 0,19	8,00 0,21	8,80 0,20	8,90 0,42	6,90 0,22	8,10 0,18	13,8 0,27	7,40 0,23	7,60 0,23	11,3 0,29	5,60 0,21	4,90 0,17	0,84	PA-e	
7	9,30 0,04	7,70 0,06	6,70 0,06	3,00 0,06	4,00 0,05	9,30 0,05	6,90 0,08	7,00 0,05	16,9 0,05	6,90 0,10	12,7 0,05	9,60 0,05	0,83	PA-e	
14	8,90 0,04	6,80 0,38	9,60 0,38	6,60 0,40	10,5 0,30	6,30 0,30	3,70 0,53	4,60 0,35	11,2 0,33	4,30 0,62	14,8 0,32	12,7 0,30	1,23	SA-e	
21	17,8 0,07	8,20 0,05	10,9 0,06	2,50 0,07	2,30 0,08	5,90 0,06	7,60 0,09	5,80 0,09	8,90 0,06	8,90 0,15	12,0 0,08	9,30 0,08	0,69	PA-s	
50	10,9 0,03	9,40 0,39	9,30 0,35	9,20 0,43	8,30 0,30	8,60 0,32	8,10 0,51	9,20 0,32	9,30 0,60	4,20 0,28	5,40 0,34	6,80 0,32	0,76	PA-e	

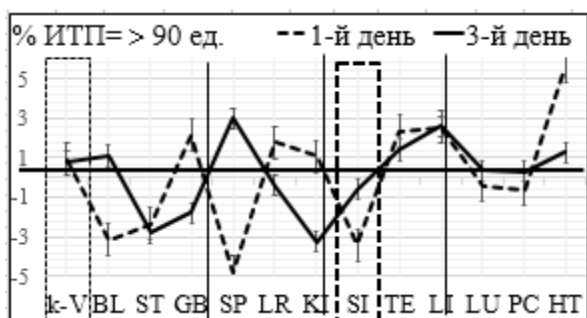


Fig.11 ISBI $kV-1 (0,91-FkP)$ $kV-3 (0,84-PAe)$

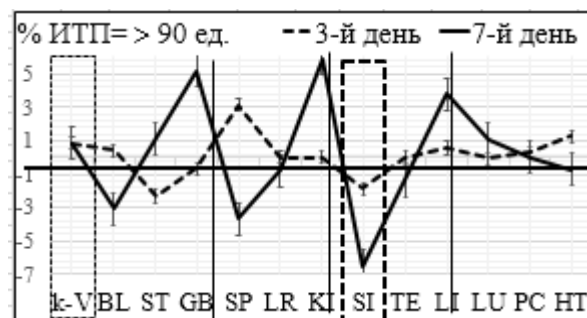


Fig.12 ISBI $kV-3 (0,84-PAe)$ $kV-7 (0,83-PAe)$

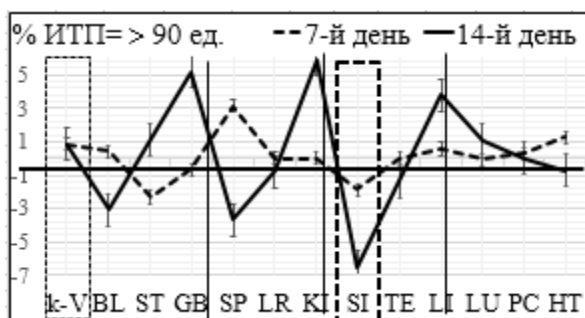


Fig.13 ISBI kV-1 (0,83-PAe) kV-3 (0,84-PAe)

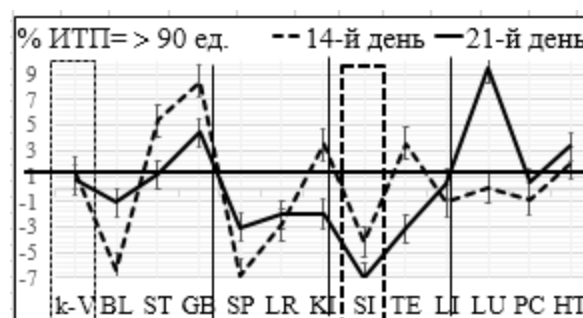


Fig.14 ISBI kV-3 (0,84-PAe) kV-7 (0,69-PAe)

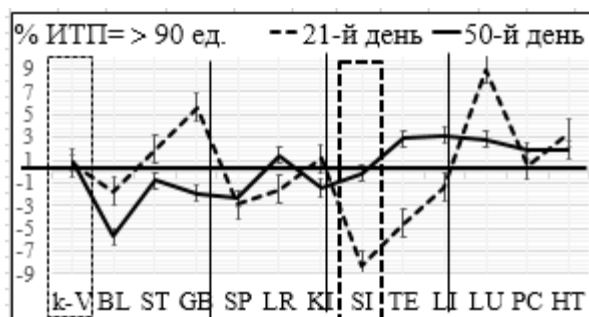


Fig.15 ISBI kV-3 (0,69-PAe) kV-7 (0,76-PAe)

Fig. 11-15 Dynamics of systemic activity in burn injuries with ISBI up to >90 units.

Note: k-V = vegetative level

Conclusions

1. The method of FVD is easy to use, allows you to control the vegetative pathogenesis of burn disease and is allowed for use in inpatient, outpatient and field conditions.
2. The most intense period of adaptation of an organism to a thermal trauma is 7-14 days (maximum imbalance of parasympathetic and sympathetic activity of VNS).
3. Burn trauma leaves behind a long systemic disorder, the consequences of which require functional-vegetative rehabilitation.
4. The detected by FVD method, the earlier normalization of vegetative homeostasis in patients with burn injury indicates the expediency of the tactics of early surgical treatment using lyophilized and bioactivated xenodermotransplants.
5. The use of FVD for burn injury is a promising direction.

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