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## Selection of anesthesia method for patients with diabetic foot complications

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### ВИБІР МЕТОДУ ЗНЕБОЛЮВАННЯ У ХВОРИХ ІЗ УСКЛАДНЕННЯМИ ДІАБЕТИЧНОЇ СТОПИ

Anesthesia is a necessary component of surgical treatment of patients with purulent-necrotic complications of diabetic foot syndrome. Research of anesthesia methods and the recent years publications are of interest to the choice of adequate anesthesia for such patients. The analysis of anesthesia methods in the treatment of 79 patients was conducted. Spinal, intravenous, and regional anesthesia were used. The assessment of pain syndrome based on a visual analogue scale of pain intensity was conducted. After results analysis the following data was obtained. In 6 hours after surgical intervention using spinal anesthesia the average pain grade was 2.67, using intravenous anesthesia – 4.02 points, with regional anesthesia – 1.89 points. In 24 hours the levels of pain on a scale equaled 1.71 points, 1.56 points, and 1.01 points. Pain syndrome is the smallest when using regional anesthesia.

Знеболювання є необхідним компонентом хірургічного лікування пацієнтів із гнійно-некротичними ускладненнями синдрому діабетичної стопи. Численні дослідження методів анестезії та публікації останніх років в іноземній літературі викликають інтерес у даній категорії пацієнтів до вибору адекватного анестезіологічного забезпечення. Проведено аналіз результатів анестезіологічного забезпечення при лікуванні 79 пацієнтів. З метою знеболювання використовували спинномозкову, внутрішньовенну та провідникову анестезію. Проводили оцінку больового синдрому за візуально-аналоговою шкалою інтенсивності болю. При аналізі результатів отримано такі дані. Через 6 год після операційного втручання при використанні спинномозкової анестезії середній бал болю становив 2,67, при використанні внутрішньовенної анестезії – 4,02 бала, при провідниковій – 1,89 бала. Через 24 год показники болю за шкалою становили, відповідно, 1,71; 1,56; 1,01 бала. Больовий синдром найменш виражений при використанні провідникової анестезії.

**Stating the problem and analysis of the last studies and publications.** Diabetes mellitus considered "non-infectious epidemic", which covered more than 130 million people worldwide and is projected to WHO 2025 on Earth 300 million is expected diabetic patients [1,2,6]. Diabetic foot syndrome is one of the main causes of disability and mortality in patients with diabetes mellitus [1,2,5].

Treatment of purulent necrotic forms of diabetic foot involves multiple surgeries, and consequently repeated anesthesia [4,5]. Anesthesia is a necessary component of surgical treatment of a patient who, on the one hand, protects the body from surgical aggression, on the other hand, affects the life support system, exposing the patient's risk of possible complications [2,6]. Numerous methods of anesthesia research and publications in recent years, foreign literature, confirming the relevance of the issue and of interest to the selection of adequate anesthesia in these patients [1,5].

**Aim of the work:** investigation of the effect of different types of anesthesia during surgery in patients with purulent-necrotic complications of diabetic foot syndrome.

**Materials and methods.** The analysis of anesthesia in the treatment of 79 patients. Men were 47 (59.49%), women – 32 (40.51%) aged 32–65 years. There were 118 surgeries using different types of anesthesia. 7 patients were conducted repeated surgery on progression. 32 patients with major postoperative wounds were conducted by autodermoplastic by method of the Tirsh.

In order to anesthesia, intravenous anesthesia (IA) was used in 26 patients, spinal anesthesia (SA) – in 21, conduction anesthesia (CA) – in 71. To assess postoperative pain using a visual analog scale of pain intensity (VAS), where 1 – the lowest pain intensity, 10 – the greatest intensity of pain (Table 1). Every 6 hours during the first 2 hours after surgery, patients noted pain intensity using this scale. For postoperative analgesia used deksalhin (Dexketoprofen) 50 mg / 2 ml. 13 patients because of severe pain were used Sol. Morphini hydrochloridi 1%, 1 ml.

**Results of researches and their discussion.** As shown in Table 2 in patients who used the SA, the

Table 1. Visual-analogue scale of pain intensity

1	2	3	4	5	6	7	8	9	10
Easy		Moderate		Average		Strong		Strong, unbearable	

Table 2. Pain intensity depending on the method of anesthesia

Method of anesthesia	The intensity of pain on a scale VAS			
	6 hours	12 hours	18 hours	24 hours
Spinal anesthesia	0,53	3,57	2,53	1,71
Intravenous anesthesia	4,02	3,93	2,95	1,56
Conduction anesthesia	1,89	3,15	2,07	1,01

pain was expressed slightly and averaged 0.53 points on the VAS, pain then amplified and reached its maximum of 10-12 hours and was 3.57 points. By the end of the day the pain had decreased to 1.71 points. This daily dose of deksalhinu averaged 111.6 mg / day.

After intravenous anesthesia pain occurred after an average of 1.2 hours, your in the first 6 hours was 4.02 points. Further pain weakened and after 18 hours was 2.95 points according to the scale. Within 24 hours after surgery pain corresponded on average 1.56 points on VAS. The required dose deksalhinu in this group of patients was the largest and was 140 mg / day.

When performing conduction anesthesia, pain in the wound occurred after an average of 9.3 hours. Up to 12 hours it reaches a maximum and was 3.15 on a scale VAS. By the end of the day the pain on a scale VAS was 1.01 points. Required deksalhinu average dose was 80.6 mg / day.

**Conclusion.** Based on the above written, we can conclude that the pain is least pronounced in patients in whom anesthesia was used, which is confirmed by the results of the visual-analogue scale of pain intensity and low dose of deksalhinu.

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