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ДЗЯРЖАЎНАЯ ЎСТАНОВА
«РЭСПУБЛІКАНСКІ НАВУКОВА-
ПРАКТЫЧНЫ ЦЭНТР
ТРАНСФУЗІЯЛОГІІ
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Gentlemen surgeons !

We strive to offer the best in the world of medicine for humanity and the preservation of human life.

Your attention is a hemostatic means of local action "**Alufer-Bel**" based on inorganic iron and aluminum salts, developed in the laboratory of experimental pathology and transfusiology of the Republican Scientific and Practical Center for Hematology and Blood Transfusion of the Ministry of Health of the Republic of Belarus, which has polyvalent coagulation activity. As part of the preparation "**Alufer-Bel**": Aluminum chloride hexahydrate (**$AlCl_3 \cdot 6H_2O$**) -4.5 gr., Iron chloride hexahydrate (**$FeCl_3 \cdot 6H_2O$**), - 5 gr. Excipient - purified water to 10 ml.

Description of the drug "**Alufer-Bel**" was created in 2016 on the basis of instructions posted on the official website of the Ministry of Health of the Republic of Belarus.

The main purpose of the medical device is to provide a fast hemostatic effect, bonding and fixation of tissues due to coagulation of blood plasma proteins and tissue proteins under the influence of aluminum chloride hexahydrate (**$AlCl_3 \cdot 6H_2O$**) and iron chloride hexahydrate (**$FeCl_3 \cdot 6H_2O$**).

The medical device has high adhesive properties, which ensures reliable retention of a blood clot on the wound surface, even with intensive bleeding.

Clinical trials in medicine have shown that "**Alufer-Bel**" does not exhibit toxic properties, is characterized by a high binding rate of blood proteins and a pronounced antifibrinolytic potential, is devoid of cumulative and systemic effects, and is not inferior to iodine and chlorhexidine solutions for its antimicrobial effect. In surgical practice, it was found that hemostasis with "**Alufer-Bel**" is well tolerated and, as a rule, does not cause any adverse reactions and adverse effects.

The medical device "**Alufer-Bel**" should be stored at a temperature of + **15 ° to + 35 ° C**. Shelf life - **2 year**.

"**Alufer-Bel**" has a rapid local hemostatic effect, which occurs after application to the wound surface within **7-22 seconds**, ensures the formation and organization of a blood clot, which is tightly fixed on the wound surface.

The local application of the medical device "**Alufer-Bel**" active drug substance almost do not enter the systemic circulation. No cases of overdose with the use of the drug in the medical literature, and periodicals are not described.

The medical device "**Alufer-Bel**" is recommended as a local hemostatic agent for conditions associated with bleeding:

- to stop bleeding from local superficial wounds of the skin and subcutaneous tissue;
- With bleeding after tooth extraction, tonsillectomy, nosebleeds;
- to stop bleeding in injuries of the liver, kidney and spleen.

Stopping bleeding from local superficial skin wounds with subcutaneous tissue is performed by applying a cotton swab sized **1.0 × 1.0 cm** soaked with Alufer to the wound for **10–15 s**. Wetting of the tampon with the medical device "**Alufer-Bel**" solution on aminocaproic acid at a ratio of **1: 2 "Alufer-Bel" to acid**.

With repeated use of **"Alufer-Bel"** (during the treatment of skin lesions), it is possible to temporarily color the skin in a yellow-brown color, which disappears after cessation of the use of the medical device **"Alufer-Bel"**.

With spontaneous nasal bleeding, a cotton ball **0.5 × 0.5 cm** in size, impregnated with **"Alufer-Bel"**, is pressed against the bleeding site and held for **20-30 s**. If the bleeding continues, you can, without removing the tampon, enter another one next to it.

The use of **"Alufer-Bel"** may cause short-term irritation of the nasal mucosa (burning sensation, sneezing). To avoid this, mucous can be treated with lidacaine spray.

In case of bleeding after tonsillectomy (tooth extraction), a cotton ball measuring **1 × 1 cm** is impregnated with the preparation, pressed against the bleeding area of the tonsillar niche. After **15-20 s** is formed blood clot. If necessary, the manipulation can be repeated several times (if there is an extensive area of bleeding) without removing the originally formed clot. After that, with a cotton or gauze swab tightly pressed the formed clot for a few seconds and remove the tampon.

The method of therapeutic and diagnostic endoscopy with the use of the medical device "Alufer-Bel" with gastroduodenal bleeding

(The main military clinical center of the Armed Forces of the Republic of Belarus. Report at the 11th congress of surgeons of Russia).

Therapeutic and diagnostic endoscopy for ulcerative and erosive bleeding of the stomach and duodenum with the use of the drug

"Alufer-Bel" is carried out simultaneously with a set of conservative measures aimed at filling blood loss and treating the underlying disease. During the study, the source of bleeding

is visualized and the degree of stability of hemostasis is assessed. Through the operating channel of the endoscope, a Teflon catheter is inserted through which the bleeding source "Aluferom" is irrigated in the "top-down" direction, which promotes optimal contact with the hemostatic agent and prevents its contact with the optics of the device. Hemostasis is achieved by the formation of a blood clot of dark brown or black color, which is tightly fixed to the defect of the mucous membrane.

At the same time, in order to eliminate the after-effect effect of the unreacted part of "**Alufer-Bel**", before removing the catheter is washed with **4% sodium** bicarbonate solution, directing the stream of solution to the area treated with hemostatics. In this way, it is possible to achieve:

- neutralization of the excess part of the "**Alufer-Bel**", which reduced the manifestations of a specific inflammatory reaction of the mucous membrane;
- good visualization and assessment of the hemostatic effect;
- prevent the "**Alufer-Bel**" from entering the instrumental channel and the optics of the endoscope.

The maximum amount of spent "**Alufer-Bel**" is not more than **5 ml** per source of hemorrhage. When bleeding from extensive erosive-ulcerative lesions and neoplasms of the upper digestive tract, "**Alufer-Bel**" is used in an amount of **10-15 ml** when diluted in a ratio **from 1: 3 to 1:10** with physiological sodium chloride solution or aminocaproic acid solution.

Therapeutic endoscopy with irrigation of the source of hemorrhage "**Alufer-Bel**" in combination with multi-component conservative therapy for bleeding from acute gastroduodenal ulcers, gastric neoplasms and Mallory-Weiss syndrome is a minimally invasive, affordable and effective treatment method and, as a rule, allows you to abandon emergency surgery.

If there are endoscopic signs of possible recurrence of bleeding, **"Alufer-Bel"** hemostasis is considered as temporary for preoperative preparation, and in patients with high risk factors, as an attempt at final hemostasis in combination with intensive conservative therapy.

In case of damage to the liver with a depth of **4-6 cm** with mixed bleeding, hemostasis is performed by injecting the preparation with a syringe through a thin needle directly into the depth of the wound in the amount of **5-7 ml**. After hemostasis is achieved, the wound edges are reduced and slightly pressed against each other for **5-20 s** to ensure their "gluing" without forming a cavity. When resection of the liver lobes, removal of a cyst after topical application of **"Alufer-Bel"**, large blood vessels are additionally sutured with catgut.

Local medical hemostasis in laparoscopic surgical treatment of sclerocystic ovaries (Republican Scientific and Practical Center "Mother and Child" Minsk)

With hemostasis of the wound surface of the resected ovary, a scab is formed by mono- or bipolar coagulation, then it is rejected and replaced by granulation tissue. When the wound surface of the resected ovary coagulates with the preparation of **"Alufer-Bel"**, a blood clot is formed, tightly fixed to the surface of the wound. The regenerative process and postoperative epithelialization of the wound surface, the formation of granulations occur without the formation of a scab.

The use of the medical device **"Alufer-Bel"** for the purpose of hemostasis during laparoscopic resection sklerokistoz the ovaries in women with infertility, improves clinical and economic effectiveness of the treatment.

The high hemostatic effect of **"Alufer-Bel"**, the less traumatic effect on ovarian tissue, in comparison with electrocoagulation, the low cost of

the medical device "**Alufer-Bel**" make its use justified in gynecological endoscopic operations on the ovaries.

Intraoperative hemostatic effect by forming a blood clot without scab formation promotes ovulation and eliminates the need for the surgeon to carry out electrocautery.

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Signature and stamp

