THE USE OF CELLULAR TECHNOLOGIES IN THE COMPLEX TREATMENT OF PURULENT-SEPTIC WOUNDS

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Abstract
Treatment of complicated forms of purulent wounds is an actual problem of modern medicine. A serious problem of the preoperative period is purulent complications that develop in 15-35% of cases, mortality reaches 25-60%. It is known that the predominant pathological syndrome in complicated forms of purulent sepsis is the syndrome of endogenous intoxication (SEI).

Objective. In this regard, the desire of many researchers to study new methods of intensive care for the syndrome of endogenous intoxication is understandable [1,2,3,4,5,6,7,8]. The authors analyzed the effectiveness of the use of mediators (surfactant) of fetal hepatocytes in the complex treatment of purulent-septic wounds.

Material and methods. A prospective study method was carried out for the main group, which consisted of patients with purulent-septic wounds (PSW) - 50 people, in the complex treatment of which cellular mediators (CM) were used; control group - 50 patients with PSW treated according to the traditional scheme.

Results. The results of treatment with cellular mediators were evaluated in 50 patients who received this drug at a dose of 0.15 ml/kg. The control group consisted of 50 patients who received saline at a dose of 0.15 ml/kg as a placebo. Men 27, women 23. The study was conducted in accordance with the Clinical Protocol for Surgical and Diagnostic Intervention of Transplantation of Fetal Cell Mediators Recommended by the Expert Council of the RSE on REM «Republican Center for Health Development» of the Ministry of Health and Social Development of the Republic of Kazakhstan dated September 30, 2015 (Protocol № 10).

Conclusion. The results of the study have been implemented in the practice of the PKP on the REM of the Nur-Sultan MCH №2 and the Nur-Sultan MCH №1; highlighted in the work of the poster session of the VII Congress of Surgeons of Kazakhstan with international participation in Almaty from 30.09.-01.10.2021. Received AC No. 18079 of the Republic of Kazakhstan dated May 27, 2021 (www.kazpatent.kz)

Keywords
cellular mediators, fetal hepatocytes, purulent-septic wounds

Conflict of interest
The authors declare that they have no conflicts of interest

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Применение клеточных технологий в комплексном лечении гнойно-септических ран

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Аннотация
Лечение осложненных форм гнойных ран - актуальная проблема современной медицины. Серьезной проблемой предоперационного периода являются гнойные осложнения, которые развиваются в 15-35% случаев. У таких пациентов летальность достигает 25-60%. Известно, что преобладающим патологическим синдромом при осложненных формах гнойного сепсиса является синдром эндогенной интоксикации (СЭИ).
Цель. В связи с этим понятно стремление многих исследователей к изучению новых методов интенсивной терапии синдрома эндогенной интоксикации [1,2,3,4,5,6,7,8]. Авторами проведен анализ эффективности применения медиаторов (суфрактанта) фетальных гепатоцитов в комплексном лечении гнойно-септических ран. Представлены результаты применения клеточных медиаторов фетальных гепатоцитов у данной категории больных.

Материал и методы. Проведён проспективный метод исследования основной группы, которую составили больные с гнойно-септическими ранами (далее ГСР) – 50 человек, в комплексном лечении которых применяли клеточные медиаторы (далее КМ); контрольной группы – 50 больных ГСР, прошлиенных по традиционной схеме.

Результаты. Результаты лечения клеточными медиаторами оценены у 50 пациентов, получавших этот препарат в дозе 0,15 мл/кг. Контрольную группу составили 50 пациентов, получавших физиологический раствор в дозе 0,15 мл/кг в качестве плацебо. Мужчин 27, женщин 23. Исследование проводилось по протоколу, утвержденному Министерством здравоохранения Кыргызской Республики от 20.11.2016 г. (протокол № 10).

Заключение. Результаты исследования внедрены в практическую деятельность ГКП на ПХВ №2, ГКП на ПХВ ГБ №1 г. Нур-Султан; освещены в работе постерной сессии VII Казахстанского конгресса хирургов от 30.09.- 01.10.2016 г. Получено АС № 18079 РК от 27.05.2016 г. (www.kazpatent.kz)

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Ключевые слова клеточные медиаторы, фетальные гепатоциты, гнойно-септические раны.

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Relevance:
Despite the results achieved in the complex treatment of purulent wounds, this problem continues to be relevant and needs to be further developed. The clinical diversity of manifestations of purulent infection of soft tissues determines the need to search for an algorithm for diagnosing the severity of the course of a purulent wound process, clarifying indications for use and optimizing the components of complex treatment. Treatment of complicated forms of purulent wounds is an urgent problem in practical public health. A serious problem of the preoperative period is purulent complications that develop in 15-35% of cases. In such patients, mortality reaches 25-60%. It is known that the predominant pathological syndrome in complicated forms of purulent sepsis is the syndrome of endogenous intoxication (SEI). At the same time, the traditional intensive therapy of SEI in complicated forms of PSW does not always give an effect. Patients have long-term fever, encephalopathy, and intoxication. Therefore, the desire of many researchers to study new methods of intensive care for the syndrome of endogenous intoxication is understandable. [1,2,3,4,5,6,7,8]. The use of cellular technologies in the treatment of sepsis and HSR is understandable. [1,2,3,4,5,6,7,8]. The use of cellular technologies in the treatment of sepsis and HSR is understandable. [1,2,3,4,5,6,7,8].

Materials and methods of research:
The results of treated patients with PSW were evaluated in 50 patients who received this drug at a dose of 0.15 ml/kg. The control group consisted of 50 patients who received saline at a dose of 0.15 ml/kg as a placebo. Age of patients from 17 to 75, 27 men, 23 women. The study was conducted in accordance with the Clinical Protocol for the surgical and diagnostic intervention of transplantation of fetal cell mediators Recommended by the Expert Council of the RSE on REM «Republican Center for Health Development» of the Ministry of Health and Social Development of the Republic of Kazakhstan dated September 30, 2015 (Protocol No. 10). In the course of the work, medical records were examined and detailed information on the results of clinical and laboratory studies of the medical history. Weighted sampling was used in data analysis throughout the study. Prior to enrollment in the study, all patients received a patient information leaflet and signed an informed consent form for participation in the study.

Characteristics of the object of study:
Patients of the main group were injected with cellular mediators. Cellular mediators are an extracellular fraction of cryopreserved fetal tissues of a human fetus at 17-20 weeks of gestation. Fetal material is tested by PCR for the following pathogens: Chlamydia trachomatis, Chlamydia pneumoniae, Ureaplasma

Fetal material was tested for Human immunodeficiency virus (HIV) by enzyme immunoassay (ELISA).

In the main group of patients with PSW treated according to the developed algorithm [9], starting from the 3rd day of the postoperative period, there was a positive trend in the course of the endogenous intoxication syndrome (hereinafter referred to as SEI). This was expressed with the normalization of body temperature, a decrease in tachycardia to 76-64 bpm, improving appetite, reducing the effects of intoxication and encephalopathy. In laboratory parameters, there was a decrease in LII to 0.41 units, HII to 0.7 units, a decrease in plasma osmolarity to 291.03 mosmol/l. The severity of SEI decreased to 1 degree. The number of points on the SAPS scale reached 16, which corresponded to a 2.3% probability of death. For example: Patient K., 42 years old with PSW, operated on September 27, 2004, received CM at a dose of 10.0 ml IM x 1 time per day for 5 days in complex treatment; already on the 4th day after the operation, he was transferred to the specialized surgical department due to the stabilization of his condition. After 7-9 days, patients of the main group were discharged in a satisfactory condition. Total stay in the hospital 10+0.52 bed-days, including 3-4 bed-days in the intensive care unit (department of anesthesiology and resuscitation).

These results demonstrate the possibility of successful correction of SEI in patients with PSW through the introduction of cellular mediators in complex intensive care. In order to study the effect of therapy with cellular mediators on the dynamics of changes in SEI markers, the leukocyte index of intoxication, the hematological index of intoxication (HII), the level of medium molecules (LMM), plasma osmolarity, urea, creatinine, bilirubin, ALT, AST, interleukin 2 (IL-2), interleukin 6 (IL-6), interleukin - 10 (IL-10), tumor necrosis factor (TNFα) in patients of the main and control groups. The diagrams below clearly reflect the dynamics of the inflammatory process against the background of ongoing therapy in the main and control groups.

By the 7th day, the level of medium molecules (Fig. 1) in the main group was lower by 0.25 c.u. (1.8 times) than in the control group (p < 0.05).

The leukocyte intoxication index (LII) increases statistically significantly on the first day after surgery by 8 times, decreases by 5-7 days, reaching the initial level. In the main group, compared with the control group, on the 7th day LII (Fig. 2) was 1.4 times lower (p <0.05).

The level of interleukins in dynamics

The level of TNFα was 2.6 times lower than in the control group (p < 0.05).

The concentration of IL-6 and IL-2 (Fig. 3, 4) in the main group was 1.5 and 2.5 times higher, respectively, than in the control group. The results of planimetric methods for studying the rate of wound healing in the...
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Main (Fig. 6) and control (Fig. 7) groups correlated with the results of the dynamics of changes in SEI markers: leukocyte index of intoxication (LII), hematological index of intoxication (HII), level of medium molecules (LMM), interleukin 2 (IL-2), interleukin 6 (IL-6), interleukin - 10 (IL-10), tumor necrosis factor (TNFα) in patients of the main and control groups. In the main group of patients, the healing rate was consistently high throughout the entire observation period, which indicates a pronounced CM activity: the regeneration phases are significantly accelerated (p < 0.05).

Conclusions:
1. For the first time, an optimal algorithm for the complex treatment of patients with purulent-septic wounds using cellular mediators of fetal hepatocytes has been developed and proposed.
2. The clinical efficacy of cellular mediators of fetal hepatocytes in the complex intensive care of patients with purulent-septic wounds is substantiated.
3. Author’s certificate № 18079 RK dated 27.05.2021 received.

References