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Erythrocyte Pharmacocytes with Roncoleukin in The Treatment of Pancreatogenic Abdominal Sepsis.

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ABSTRACT

The article presents the results of applying in complex intensive therapy in severe forms of destructive pancreatitis drug roncoleukin consisting of autologous erythrocyte shadows, as well as the results of comparing the effectiveness of drugs in different ways. Confirmed high clinical efficiency directed transport, as well as significant immunomodulatory effects of the roncoleukin drug.

Keywords: acute destructive pancreatitis, sepsis, pancreatonecrosis, roncoleukin, erythrocyte pharmacocytes.

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INTRODUCTION

Roncoleukin like other recombinant medications of some interleukins: rIL-1β (Betaleukin), rIL-2, prescribed as a component of a complex treatment of infectious complications in patients who have had extensive operational intervention [1].

In the midst of abdominal sepsis by the development of multiple organ failure immune support is needed, first and foremost, the organs involved in the barrier function against rising portal bacteria toxemia, i.e. RES liver system. In this regard, very promising and pathogenetically justified is the establishment of systems for direct transport of drugs included in cytokines autologous erythrocyte shadows. Erythrocyte pharmacocytes can be administered both intravenously and regionally focused directly at the portal vein through established intraoperatively catheter in one of its tributaries is the umbilical vein and the right gastroepiploic vein and others. It should be noted that the local use of recombinant cytokines practically does not manifest their system-wide action, just immunotropic activity of roncoleukin applying intravenous is very short. In view of the above, there is a need to develop the most effective ways of implementing pharmacological immunomodulatory effect of drugs cytokines directly in the middle of inflammation, i.e. local applications or create transport systems of local delivery [2-3].

For more than 20 years in many clinics of the Republic of Kazakhstan successfully used erythrocyte pharmacocytes in the complex treatment of acute surgical diseases of the abdominal cavity organs [4-7].

Objective

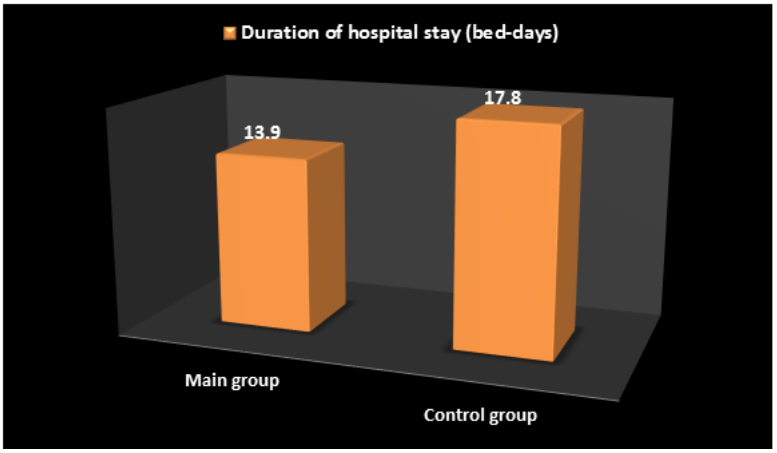
Assess the clinical and laboratory, immunological efficiency of roncoleukin in autologous erythrocyte shadows in the complex treatment of patients with acute pancreatogenous abdominal sepsis.

MATERIALS AND METHODS

The main group consisted of 10 patients with ADP in complex intensive therapy which appointed Roncoleukin in autologous erythrocyte shadows (2014-2016). The drug was administered to patients, consisting of autologous erythrocyte shadows intravenously after surgical treatment at a dose of 250 thousand units daily for 10 days. A control group consisted of 10 patients with ADP in complex intensive therapy which appointed Roncoleukin (2013-2014). The drug was administered intravenously to patients in early hospital treatment, the same as in the main group, in the dose of 250 thousand units daily for 10 days.

RESULTS AND DISCUSSION

Due to the inefficiencies of the comprehensive conservative therapy traditional ways the introduction of drugs and the development of inflammatory disease complications lengthen terms short of clinical and laboratory manifestations of acute destructive pancreatitis, which affects the timing of pre-surgery patients stay in the hospital. In patients with acute primary group pancreatonecrosis duration of hospital stay amounted to 13.0 ± 0.93, in the control group 17.8 ± 1.65 days.



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The average age of main group is 46.4 ± 4.43, the control group 56.3 ± 5.98. In the main group of men was 6 (60%), women (40%), 4 in the control group of men was 1 (10%), 9 women (90%). Acute pancreatitis is most often suffered women.

All observed patients with acute pancreatonecrosis in both groups were subjected to comprehensive general clinic and laboratory examinations on admission and after applying roncoleukin drug. Along with the traditional obligatory blood and urine tests conducted biochemical research.

We observed patients with acute pancreatonecrosis the most common complaints were acute pain neuralgia nature in epigastric, spreading to the back. The attack was accompanied by the general weakness of the body, nausea, repeated vomiting and malaise.

Table 1: Terms relief of the main clinical manifestations of ADP in patients of study groups (day) (x ± s).

№	Clinical indicators	Duration (day, night)	
		Main group, n=10	Control group, n=10
1	Disappearance of pains	3÷10 (5.8±0.72)	3 ÷ 10 (6.10 ± 0.72)
2	Normalization of body temperature	12÷3 (6.9±0.93)	1 ÷ 8 (3.00 ± 0.72) **
3	The appearance of peristalsis	3 ÷1 (1.57±0.28)	1 ÷ 3 (1.30 ± 0.21)
4	Stopped discharge	6÷10 (7.8±0.77) ***	9 ÷ 16 (12.20 ± 0.72)
5	Passed the nausea	1 ÷2 (1.2±0.2) **	1 ÷ 4 (2.5 ± 0.31)
6	Bed-days	9÷18 (13.9±0.93) *	10 ÷ 26 (17.8 ± 1.65)

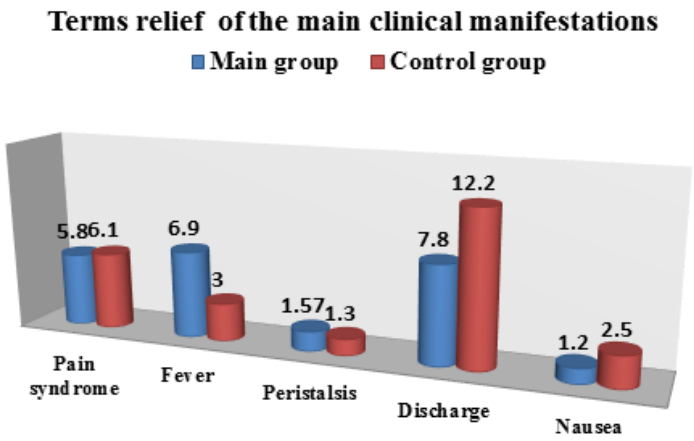

Table 2: The character of inflammatory complications of diseases, developing on the background of conservative therapy

№	The character of complications	Group of patients	
		Main group	Control group
	Peritonitis	-	-
	Phlegmon retroperitoneal fat	-	1 (10%)
	Obstructive jaundice	1 (10%)	2 (20%)
	Pancreatic fistula	-	-

Table 3: Indicators hemogram

Indicators	Norm	Unit of measure	Main group		Control group	
			At the beginning of treatment	At the end of treatment	At the beginning of treatment	At the end of treatment
Erythrocyte	3.9-5.5	10^{12}/l	4.53±0.31 (5.97÷2.95)	4.52±0.15 (3.83÷5.30)	3.86±0.21 (2.74÷4.80)	4.59±0,26 (3.32÷5.82)
Hemoglobin	120-150	g/l	133.7± 8.56 (172 ÷ 89)	136.2±2.36 (100÷154)	111.40±5.88 (81÷138)	126.6±8,56 (91.0÷174.0)

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Leukocyte	4.0-9.0	10^9/l	12.91±1.62 (19,7 ÷ 4)	13.89±2.36 (6.6÷29.50)	12.85±2.08 (7.60÷27.80)	17.29±2.24 (8.28÷30.0)
Thrombocyte	180-400	10^9/l	270±35.67 (519 ÷ 173)	276.86±30.59 (171÷390)	318.14±46.09 (110÷440)	339.5±49.28 (151÷629)
Hematocrit	36-42	%	49.99±2.69 (58÷ 31.9)	39.80±2.11 (44÷ 33)	31.5±2.31 (24 ÷36)	33.2±0.04 (32÷51)
ESR			31.5±6.18 (68 ÷ 8)	16.61±3.50 (3÷ 37) *	28.00±5.36 (8 ÷ 60)	48.5±3.71 (28÷64)
Color indicator			0.83±0.04 (1 ÷0.58)	0.91±0.01 (0.90÷1.00)	0.89±0.01 (0.8÷0.9)	0.82±0.02 (0.65÷0.90)

Table 4: Biochemical blood tests

No.	Indicators	Norm	Unit of measure	Main group		Control group	
				At the beginning of treatment	At the beginning of treatment	At the end of treatment	At the end of treatment
1	Total protein	63-82	g/l	66.40 ±1.24 (62 ÷ 74)	59.44±2.68 (48÷74)	62.9± 2.68 (74÷ 48)	65.48± 3.04 (74.5÷ 45)
2	Glucose	3,05-6,38	mmol/L	7.34 ± 1.01 (4.5÷14.34)	8.06±0.52 (5.29÷10.30)	5.67± 0.59 (9.1÷ 3.4)	5.1 ±0.25 (6.3 ÷ 3.9)
3	Urea	2,5-6,1(3,2-7,1)	mmol/L	9.16±2.11 (5.6 ÷16.6)	2.58 ± 6.57 (1.90÷15.30)	3.82 ±0.29 (5.3 ÷ 2.52)	3.46± 0.54 (6 ÷ 0.8)
4	Creatinine	62-106 (71-133)	mcmol/L	90.77 ±5.08 (70.67÷119.98)	86.94 ± 8.4 (61.49÷143)	82.08 ±15.57 (185 ÷ 34)	70.37± 10.51 (130÷ 28)
5	Rest nitrogen			25.30±4.77 (17.98÷42.80)	19,32 ± 7,04 (41,4 ÷4,80)	-	-
6	Total bilirubin	To 22,2	mcmol/L	58.15±10.69 (6.89÷110.62)	28.69±15.23 (7.23÷155)	27.77± 6.73 (71.9÷ 6.6)	17.27± 2.27 (26÷ 4)
7	Direct bilirubin	To 5,1	mcmol/L	25.57±5.73 (4.45÷60)	19.08±9.003 (2.1 ÷ 89.74)	-	-
8	AST	14-36 (17-59)	u/l	140.102±83 .26 (0.38±808)	103,01±52,86 (0,21÷513)	180.5± 66.9 (671÷ 22)	41.77± 14.23 (161÷ 23) *
9	ALT	9-52 (21-72)	u/l	99.59 ±49.87 (0.28÷4 84.01)	67,80±23,73 (0,28÷230,46)	195.5± 101.75 (1000 ÷ 13)	65.45±16.7 (184 ÷ 22)
10	Amylase	To 110	u/l	330.6±101.85 (32.0÷1020.0)	73,9 ± 10,31 (30÷130)	720.5± 272.37 (2700÷ 58)	90.22 ±18.52 (209.7÷ 30)

To assess the condition of patients with acute pancreatonecrosis, the effectiveness of the treatment of the inflammatory process flow forecasting has been studied indicator dynamics of immune system. Assessment indicators of cellular and humoral immunity at the beginning and after treatment with roncoleukin drug. Determination of the immune status of the system was conducted on admission of patients to the hospital and before discharge to outpatient treatment, interval averaged 10 days.

Table 5: Immunological indicators

	Indicators	Norm	Unit of measure	Control group, n=10		Main group, n=10	
				Before treatment	After treatment	Before treatment	After treatment
	IgM	0.7-3.7	g/l	0.74±0.13	1.59±0.26	0.61±0.04	2.36±0.12 *** (*)
	IgG	9.0-20.0	g/l	14.7±0.41	18.30±1.03 **	12.44±1.09	18.26±1.17
	IgA	0.85-5.00	g/l	2.4±0.14	1.80÷4.80	2.3±0.22	4.23±0.22 *** (*)
	sIgA	1.6-3.8	g/l	1.95±0.21	1.00÷4.00	-	-
	IgE	15-130	g/l	74.90±2.006	96.30±2.78 ***	-	-
	Lymphocyte	18-40	%	21.55±1.60	33.5±1.65***	19.39±3.2	22.65±4.26
		1.7-3.6	abs.		4.08±0.60 *	2.31± 0.65	2.06± 0.33

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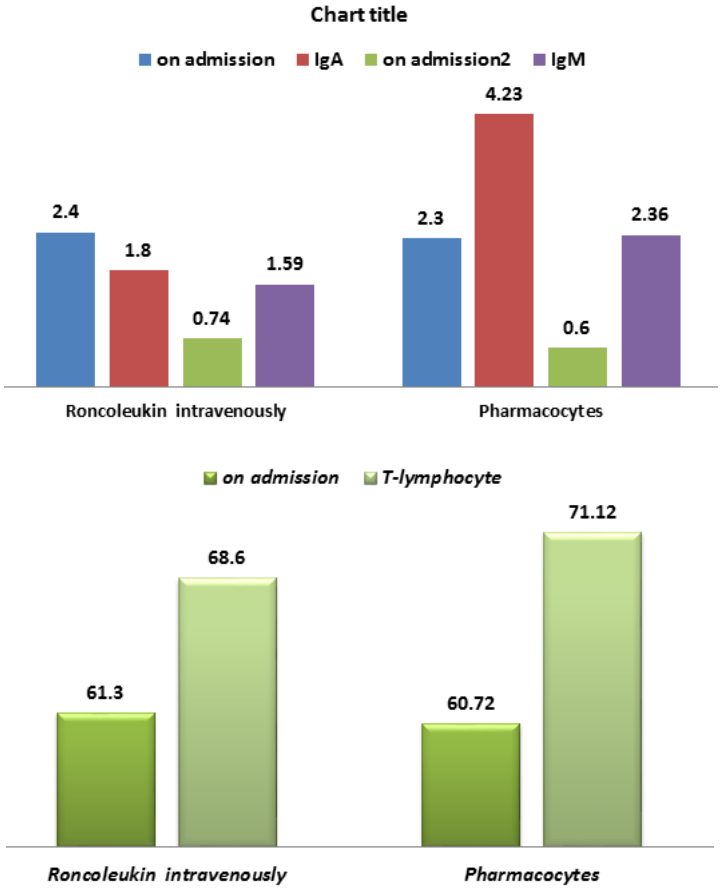
			(x10^9/l)	2.61±0.45			
	T-lymphocyte CD3+	59-69	%	61.30±0.52	68.60±1.24 ***	60.72±1.47	71.12±1,44 ***(***)
		1.4-2.0	abs. (x10^9/l)	1.59±0.27	2.77±0.43	1.62±0.48	0.35±0,22 (*)
	T-lymphocyte CD4+	33-44	%	41.90±1.55	46.2±2.37	39.84±1.55	48.09±1.44 **
		0.7-1.1	abs. (x 10^9/л)	1.04±0.15	1.94±0.32 *	0.99±0.25	1.007±0.18
	T-lymphocyte CD8+	19-25	%	16.1±1.24	23.3±1.13 ***	16.44±0.86	24.49±1.13 ***
		0.6-0.9	abs. (x 10^9/l)	0.42±0.09	0.97±0.16 *	0.43±0.13	0.49±0.06
	B-T-lymphocyte СД20+	6-15	%	10.20±0.72	16.7±0.93 ***	9.34±0.72	12.76±1.13 **
		0.3-0.5	abs. (x 10^9/l)	0.26±0.06	0.55±0.09 ***	0.25±0.06	0.35±0.11
	CD4+/CD8+	1.5-2.0	%	1.77±0.12	2.89±0.15 ***	1.68±0.08	2.13±0.14*
			abs. (x 10^9/l)	0.04±0.005	0.1±0.02 **	0.17±0.04	0.15±0.12
	Zero (immature) lymphocyte	8-25	%	16.80±1.44	23.10±0.93 **	16.23±2.11	21.7±2.26
			abs. (x 10^9/l)	0.43±0.07	0.84±0.13 *	0.32±0.06	0.45±0.09

The level of probability of faultless prognosis (%):
* - 95%;
** - 99%;
*** - 99.9%.
(*) the difference between main and control groups
* the difference before and after treatment



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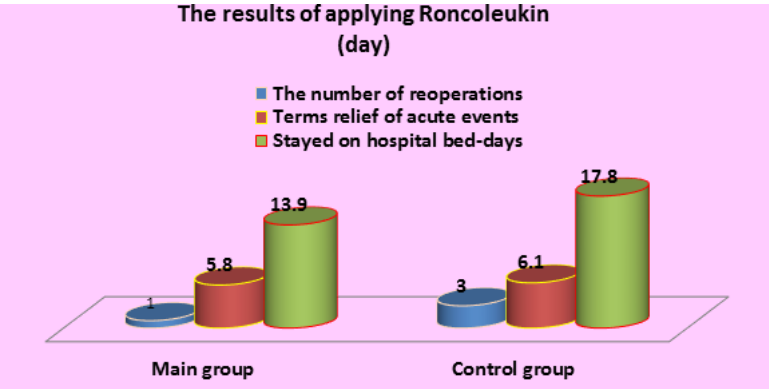

Table 6: The results of applying roncoleukin in complex of traditional conservative treatment in patients with acute destructive pancreatitis.

№	Number of patients	Number %			Terms relief of acute events (day)	Stayed on hospital bed-days
		Inflammatory complications	Emergency surgery	Number of reoperations		
1	Control group, n=10	9	10	3	6.10±0.72	17.8±1.65
2	Main group, n=10	8	5	1	5.8 ±0.72	13.9±0.93 * (*)

CONCLUSION

Thus, it presents the results of the applying in the complex intensive therapy of severe forms of acute destructive pancreatitis roncoleukin drug consisting of autologous erythrocyte shadows. It confirmed its high clinical and immunological effectiveness.

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