



Features of the intraoperative, postoperative period in patients with hypertensive intraperitoneal chemotherapy in intensive care units.



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Despite significant progress in the development of oncological care for the Russian population, neglect in some pathologies remains at a fairly high level.

For example, neglect of stomach cancer is 40.4%,
ovarian cancer is 20%.

Mortality within the first year from the date of diagnosis in
ovarian cancer is 47.8%, with ovarian cancer 22.7%.

During the period 2016-2017,
we performed **7 extended combined
surgical interventions**
with the use of intraperitoneal hyperthermic
chemo-perfusion
for advanced forms of ovarian cancer.

Selection criteria

- Status on the ECOG scale <2
- Absence of signs of intestinal obstruction and urethral obstruction
- Absence of severe co-morbidities
- No more than 2 metastases in the liver, resectable
- Creatinine not more than $150 \mu\text{mol} / \text{l}$
- Urea no more than $12 \text{ mmol} / \text{l}$
- Hypoproteinemia is higher than $40 \text{ g} / \text{l}$
- AsT and ALT are no more than 3 times higher than normal
- Fibrinogen of blood not less than $1.0 \text{ g} / \text{l}$
- Leukocytes of blood not less than 2,0
- Hemoglobin not less than $60 \text{ g} / \text{l}$
- Platelets not less than 50

Anesthesia was used to all patients according
to modern concepts of multimodal
anesthesia

based on low-flow anesthesia with
sevoflurane,

thoracic epidural analgesia with narupin and
intravenous administration of fentanyl.

Main factors

Indicators	Values
Average age, years	50 (45 - 56)
Operation time, min.	553 (492 - 607)
Time of anesthesia, min.	609 (568 - 637)
Blood loss, ml.	600 (550 - 650)
Volume of infusion, ml.	11 300 (9 700 – 13 100)
Volume of diuresis, ml.	2 900 (2 600 – 3 200)
Time of HIPEG, min.	90
Solution temperature, gr. Co	42,9 (42,7 - 43,3)
The main drug / dose, mg	Cisplatinum / 100

The peculiarity of anesthesia and postoperative period was

high-volume infusion therapy in the vast majority consisting in the introduction of crystalloids for us.



Standard infusion intraoperative therapy

It is calculated on the basis of the daily requirement for liquid (40-50 ml / kg / day) + unforeseen losses (blood loss, ascites, application of osmotic laxatives).



Base crystalloids were
NaCl solutions of 0.9%
and Ringer.



Water -
electrolyte
changes

Increased
cardiac output

Reduction of
systemic
vascular
resistance

An increase in the
temperature of
patients causes:

Increase in the final
tidal CO₂

Increase heart
rate



The volume of intraoperative infusion therapy

The total volume of 11340 ml.
(100%)

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graph TD; A["The total volume of 11340 ml.  
(100%)"] --> B["Colloids -1500 ml.  
(13,2%)"]; A --> C["Fresh-frozen plasma-  
1040 ml. (9,1%)"]; A --> D["Crystalloids-8800 ml.  
(77,6%)"];
```

Colloids -1500 ml.
(13,2%)

Fresh-frozen plasma-
1040 ml. (9,1%)

Crystalloids-8800 ml.
(77,6%)

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Врач:

Результаты исследований

Мат.: Кровь венозная ()

Рег.: 25.05.2017 18:54

Вып.: 25.05.2017 19:04

ID:

715532

Откл.	Показатель	Результат	Ед.изм.	Реф.интервал
Изосерология				
	pH	7.276		(7.260 - 7.360)
<	pCO2	33.60 мм рт.ст.		(37.00 - 58.00)
<<	pO2	20.00 мм рт.ст.		(37.00 - 42.00)
	mOsm, c	292.70 ммоль/кг		
I<	ctHb	10.60 г/дл		(120.00 - 160.00)
I<	sO2	25.40 %		(95.00 - 99.00)
<	cK+	3.10 ммоль/л		(3.50 - 5.00)
	cNa+	142.00 ммоль/л		(130.00 - 145.00)
<<	cCa2+	1.12 ммоль/л		(1.15 - 1.35)
	cCl-	112.00 ммоль/л		(97.00 - 115.00)
	cGlu	8.50 ммоль/л		
	cLac	1.20 ммоль/л		
	pH(T)	7.276		
	pCO2(T)	33.60 мм рт.ст.		
	pO2(T)	20.00 мм рт.ст.		
	cHCO3-(P, st), c	15.20 ммоль/л		
	SBE, c	-10.30 ммоль/л		

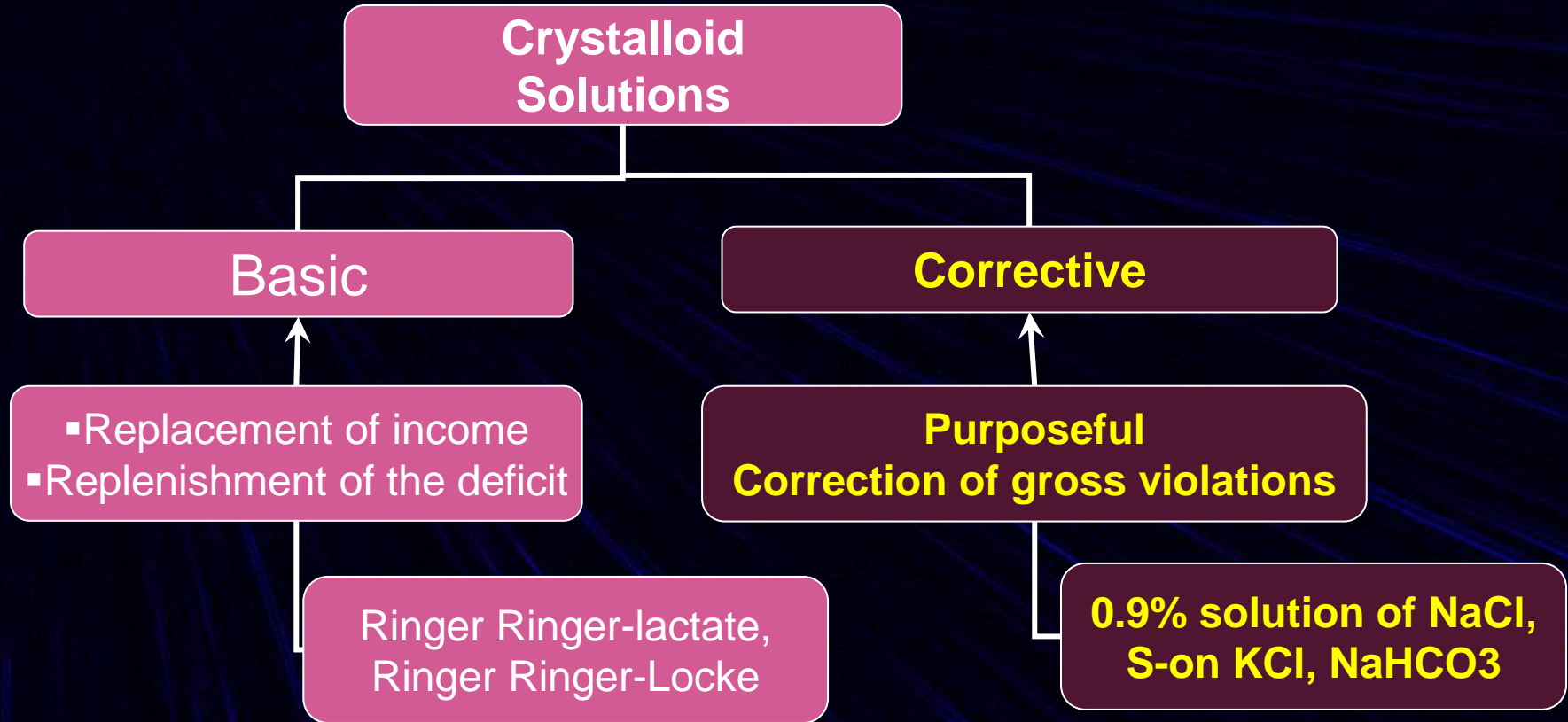
We were confronted with a question:
«What crystalloids should we use for
high-volume infusion therapy?»



Analyzed properties of crystalloids

- Osmolarity,
- Isotonicity,
- Ionicity
- Reserve alkali.

Classification of crystalloids



Sterofundin isotonic

Characteristics of basic polyionic solutions

Solution	Content in 1000 ml, mmol / l						Osmolarity, (MOsm)
	Na	K	Ca	Mg	Cl		
Blood plasma	136-143	3,5-5	2,38-2,63	0,75-1,1	96-105	-	280-290
Interstitials	145	4	2,5	1	116	-	298
NaCl 0,9%	154	-	-	-	154	-	308
Ringer's	147	4	6		155	-	309
Acesol	110	13	-	-	99	Acetate	240
Potassium magnesium asparaginate	-	58,5	-	27,7	-	DL-aspartic acid	310
Normofundin G5	100	18	2	3	90	Acetate glucose	530
Sterofundin isotonic	140	4	2,5	1	127	Malate acetate	304

The base solution for infusion therapy is sterolundin isotonic



The base solution for intra-abdominal administration was a hemodiafiltration solution "Duosol", with a high content of sodium bicarbonate (3.59 g / l).



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Результаты исследований

Мат.:	Кровь венозная (Кровь из вены)	IDs:	
Рег.:	21.06.2017 21:40	718357	
Вып.:	21.06.2017 21:48		

Откл.	Показатель	Результат	Ед.изм.	Реф.интервал
<u>Изосерология</u>				
>	pH	7.417		(7.260 - 7.360)
<	pCO2	28.90 мм рт.ст.		(37.00 - 58.00)
>	pO2	50.90 мм рт.ст.		(37.00 - 42.00)
	mOsm, c	284.10 ммоль/кг		
! <	ctHb	7.90 г/дл		(120.00 - 160.00)
<	sO2	83.90 %		(95.00 - 99.00)
<	cK+	3.30 ммоль/л		(3.50 - 5.00)
	cNa+	139.00 ммоль/л		(130.00 - 145.00)
<	cCa2+	1.09 ммоль/л		(1.15 - 1.35)
	cCl-	109.00 ммоль/л		(97.00 - 115.00)
	cGlu	6.20 ммоль/л		
	clac	1.30 ммоль/л		
	pH(T)	7.417		
	pCO2(T)	28.90 мм рт.ст.		
	pO2(T)	50.90 мм рт.ст.		
	CHCO3-(P,st), c	20.00 ммоль/л		
	SBE, c	-5.40 ммоль/л		

Complications HIPEG

- Leukopenia less than $4.0 \times 10^9 / L$
- Thrombocytopenia less than $150 \times 10^9 / L$
- Anemia less than 90 g / l
- Acute Renal Failure
- Impaired liver function
- Hypoproteinemia
- Gastrointestinal paresis
- Nausea and vomiting
- Prolonged pain abdominal syndrome
- Diarrhea
- General Hyperthermia

Thank you for attention!

