

АДАПТИРОВАННАЯ МЕТОДИКА
БЫСТРОГО СОГРЕВАНИЯ
ПОСЛЕ ГИПОТЕРМИЧЕСКОЙ
ОСТАНОВКИ КРОВООБРАЩЕНИЯ
ПРИ ТОТАЛЬНОЙ
РЕКОНСТРУКЦИИ ДУГИ АОРТЫ

Евдокимов М.Е., Россейкин Е.В., Базылев В.В., Гебгарт Т.В.

ФГБУ «ФЦССХ» Минздрава Росси (г. Пенза)

РосЭКТ 2018



CSS
Cardiovascular
Surgical
Symposium

ZÜRS, AUSTRIA

Acute Type A Dissection -
Optimal Temperature

M. Ehrlich, S. Mahr, M. Stelzmüller
Aneurysm Program Team
Dept. Cardiac Surgery
Univ. of Vienna

Results Postoperative

	Overall	HCA (18°)	HCA + RCP (18°)	MHCA + ACP (25°)	p-Value
30-Day Mortality	19 %	26 %	16 %	12 %	*0.04
PND	11%	16 %	10 %	5.0 %	*0.02
Hospital Stay (days)	25± 19	23± 15	27± 22	24± 19	0.24
Hemiplegia	6.7%	9.8%	7.8%	3.8%	0.191
Paraplegia	3.7%	7.8%	2.6 %	1.9%	0.085

Totally Normothermic Aortic Arch Replacement Without Circulatory Arrest

Gilles D. Touati, MD, Nicolas Roux, MD, Doron Carmi, MD, Alexandra Degandt, MD, Amar Benamar, MD, Paul Marticho, MD, Alphonse Nzomvuama, MD, and Henri J. Poulain, MD

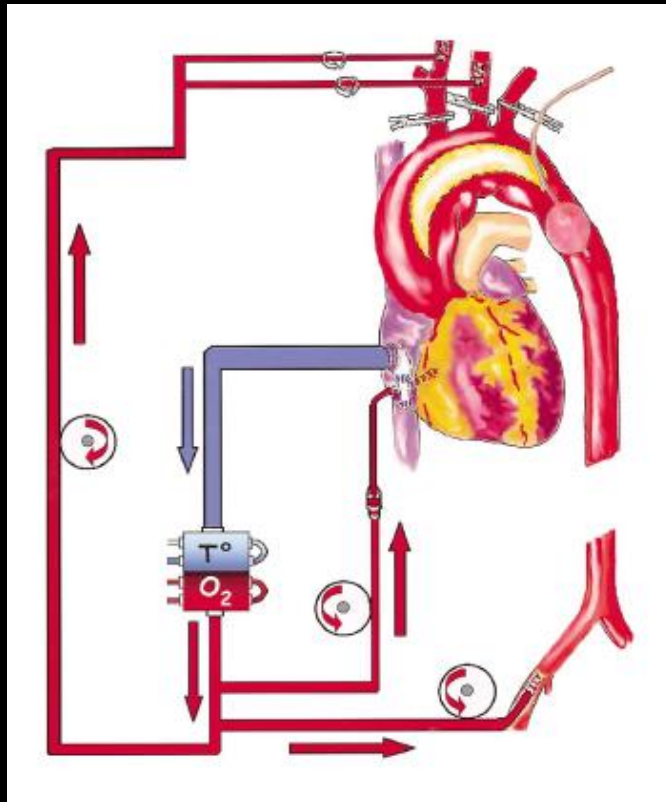
Departments of Cardiovascular Surgery and Anesthesiology, Centre Hospitalier et Universitaire d'Amiens, Amiens, France

The authors propose a new strategy of normothermic perfusion for replacement of the aortic arch to avoid the complications of profound hypothermic circulatory arrest. Six patients underwent complete replacement of the aortic arch under normothermia using two pumps for the body (one for the brain and the thoracoabdominal aortic branches) and one for the heart. The surgical procedure was performed with no time limit. There were no oper-

ative or late deaths. No patients had neurologic deficit and all were rapidly extubated with uneventful postoperative courses. The method preserves autoregulation of cerebral blood flow and maintains body perfusion without high vascular resistances.

(Ann Thorac Surg 2003;76:2115-7)

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Original Research Article

AORTA

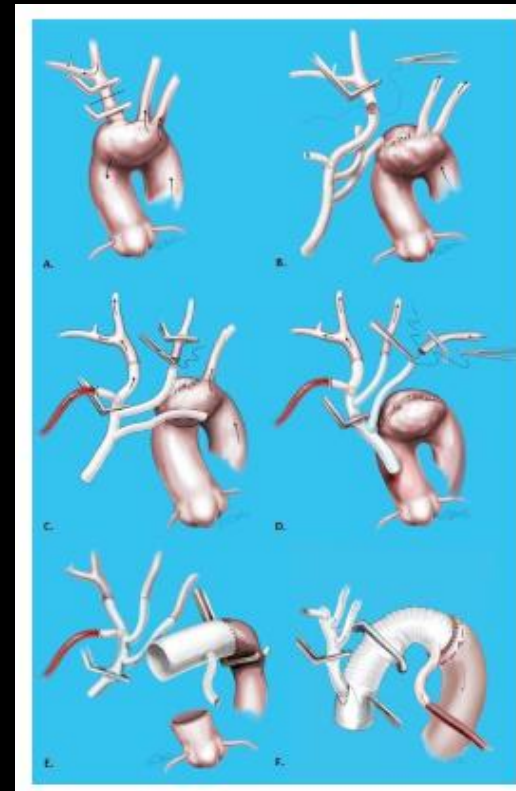
Aorta, July 2013, Volume 1, Issue 2: 102-109
DOI: <http://dx.doi.org/10.12945/aorta.2013.12.007>

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Published online: July 2013

Outcomes of Aortic Arch Replacement Performed Without Circulatory Arrest or Deep Hypothermia

Nisal K. Perera, MBBS¹, William Y. Shi, MBBS¹, Rhiannon S. Koirala, MBBS¹, Sean D. Galvin, FRACS¹, Peter R. McCall, FRANZCA², George Matalanis, FRACS^{1*}

¹Department of Cardiac Surgery, Austin Hospital, University of Melbourne, Victoria, Australia; ²Department of Anaesthesia, Austin Hospital, University of Melbourne, Victoria, Australia



2008

Less invasive quick replacement for octogenarians with type A acute aortic dissection

Mitsumasa Hata, MD, PhD, Mitsunori Suzuki, CE, Akira Sezai, MD, Tetsuya Niino, MD, Satoshi Unosawa, MD, Nobuyuki Furukawa, MD, and Kazutomo Minami, MD

Objective: We assessed the efficacy of our newly modified technique, namely, less

The Journal of Thoracic and Cardiovascular Surgery • Volume 136, Number 2 489

2009

Japanese Circulation Society

ORIGINAL ARTICLE Cardiovascular Surgery

Circ J 2009; 73: 69–72

Outcome of Less Invasive Proximal Arch Replacement With Moderate Hypothermic Circulatory Arrest Followed by Aggressive Rapid Re-Warming in Emergency Surgery for Type A Acute Aortic Dissection

Mitsumasa Hata, MD; Mitsunori Suzuki, CE; Akira Sezai, MD; Tetsuya Niino, MD; Isamu Yoshitake, MD; Satoshi Unosawa, MD; Kazuma Shimura, MD; Kazutomo Minami, MD

Table 2 Operative Outcome

	Group I	Group II	P value
Core temperature (°C)	20.4(2.1)	26.9(1.3)	<0.001
Brain exclusion (min)	63.8(13.0)	20.6(5.1)	<0.001
CPB (min)	182.1(25.1)	85.3(17.2)	<0.001
OPT (min)	305.0(56.4)	150.8(32.9)	<0.001
Ventilation (h)	44.3(25.7)	9.1(4.7)	<0.001
HP (day)	31.4(39.4)	9.7(1.9)	<0.001
TND	6 (14.0%)	1 (2.4%)	0.0466
Permanent brain damage	5 (11.8%)	1 (2.4%)	NS
Re-exploration	3 (7.0%)	0	NS
AEF	6 (14.0%)	3 (7.1%)	0.0101
Paralysis	8 (18.6%)	2 (4.8%)	0.029
Tracheostomy	5 (11.8%)	0	0.0196
Mortality	4 (9.3%)	0	0.0429

CPB, cardiopulmonary bypass; OPT, operating time; HP, postoperative hospital stay; TND, temporary neurological dysfunction; NS, not significant; AEF, acute renal failure.



Mitsumasa Hata
Nihon University School of Medicine
Tokyo, Japan

2013

Hata et al

Acquired Cardiovascular Disease

Early and midterm outcomes of quick proximal arch replacement with mild hypothermia and rapid rewarming for type A acute aortic dissection

Mitsumasa Hata, MD, PhD, Kenji Akiyama, MD, Hiroaki Hata, MD, Akira Sezai, MD, Isamu Yoshitake, MD, Shinji Wakui, MD, and Motomi Shiono, MD

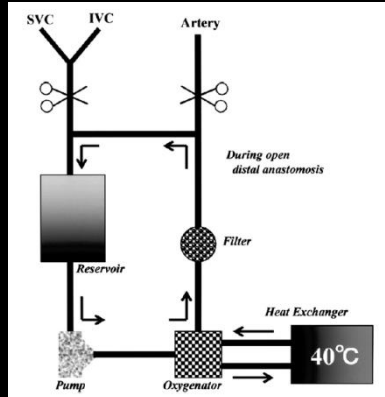


Figure 1. CPB circuit during open distal anastomosis. During open distal anastomosis, circulating blood in the CPB circuit was warmed to 40°C. SVC, Superior vena cava; IVC, inferior vena cava.

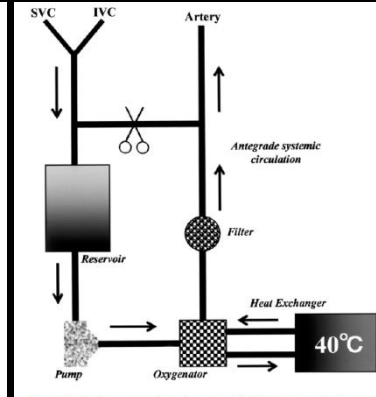
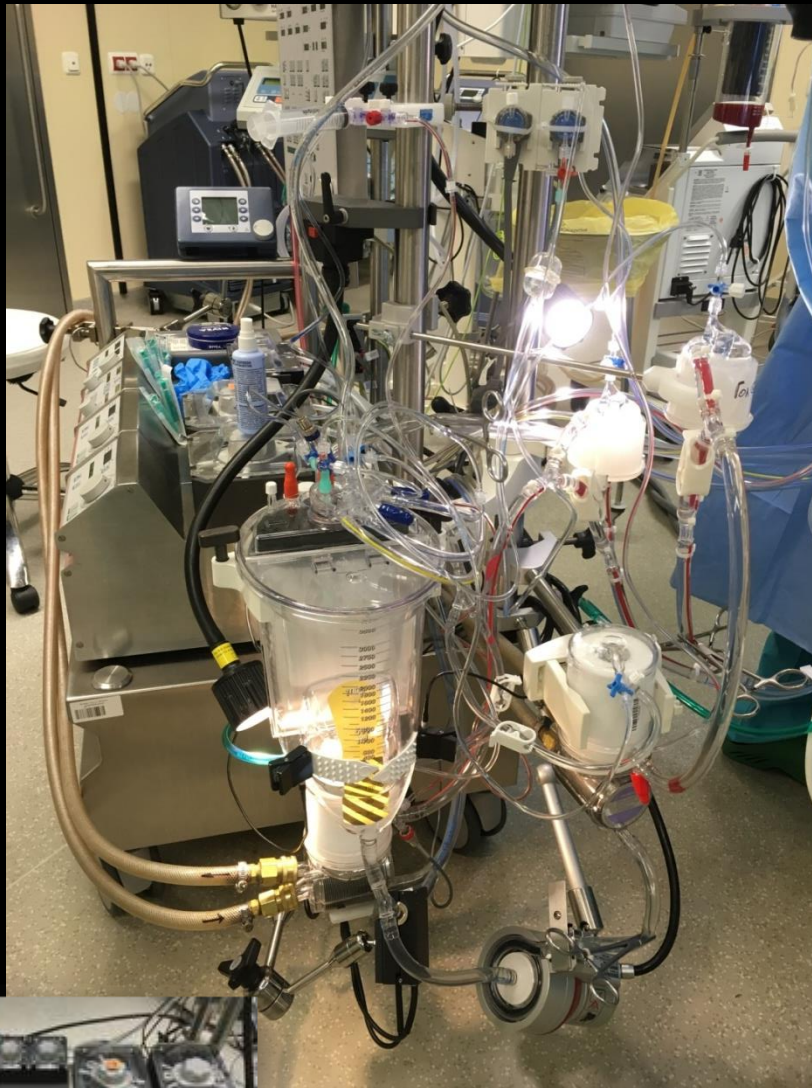


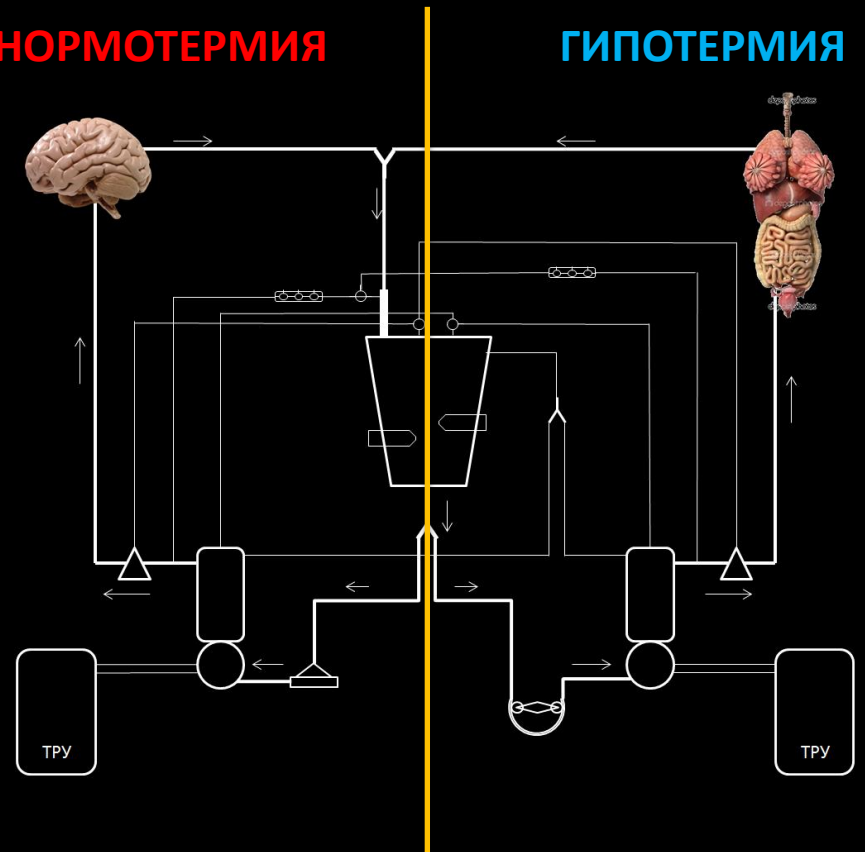
Figure 2. Rapid rewarming after open distal anastomosis. As soon as the distal anastomosis was completed, antegrade systemic circulation was established and rapid rewarming was initiated by perfusion with blood at 40°C. SVC, Superior vena cava; IVC, inferior vena cava.

ДВА НЕЗАВИСИМЫХ КОНТУРА ИК



НОРМОТЕРМИЯ

ГИПОТЕРМИЯ

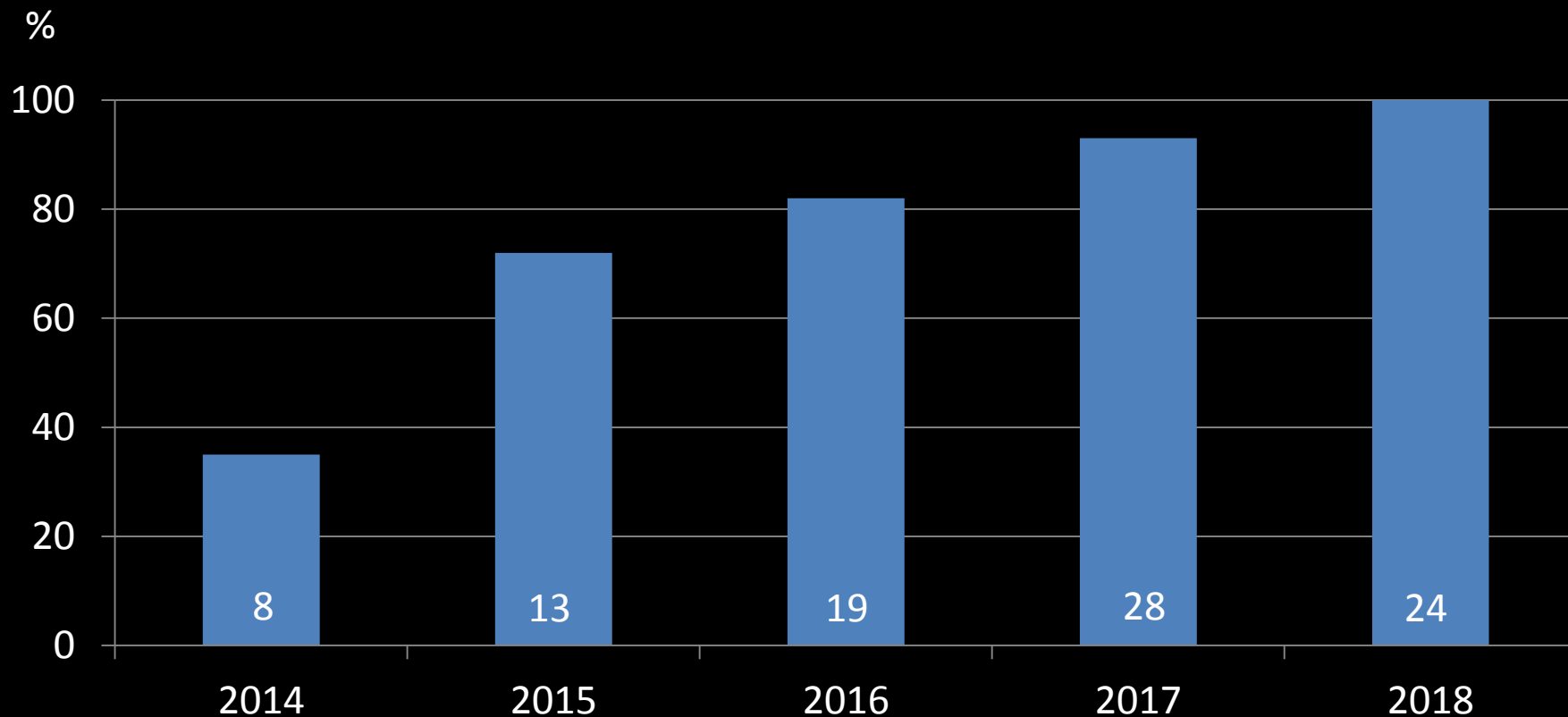


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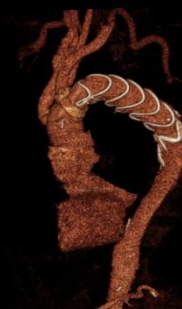
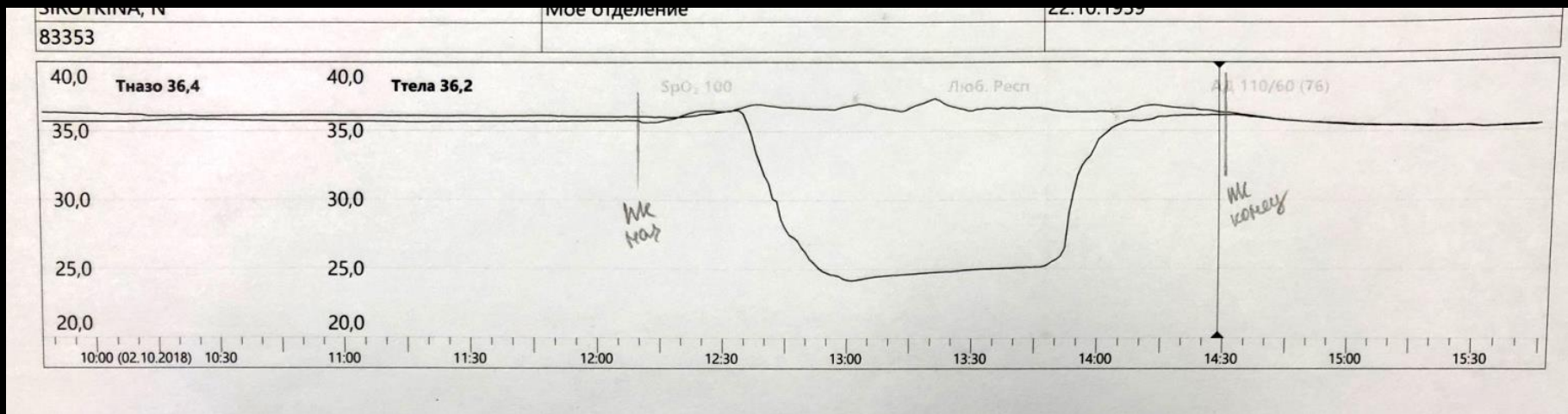
2014-2018

92 пациента (78%)

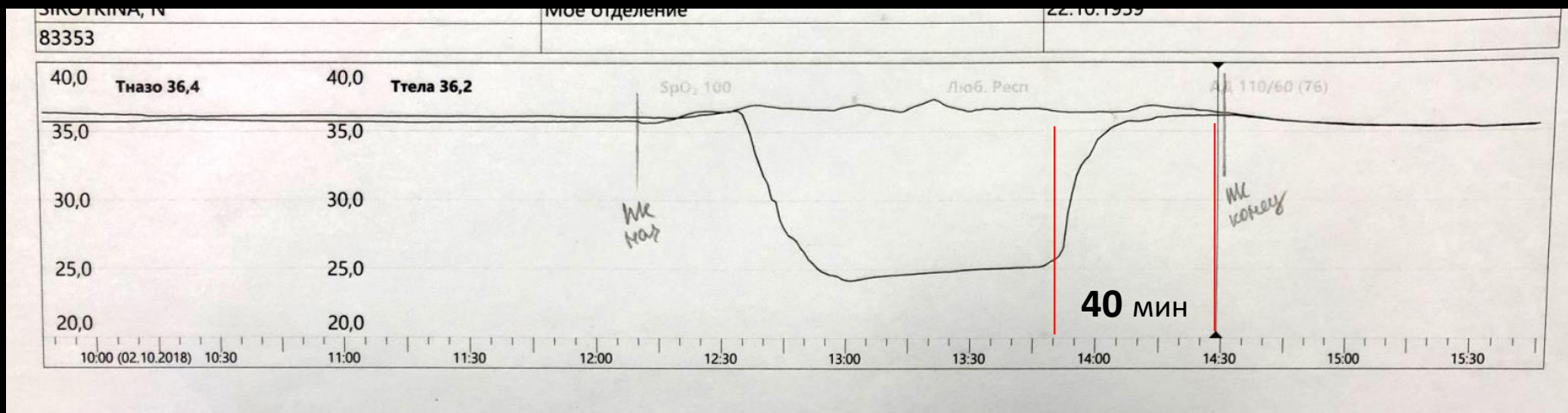
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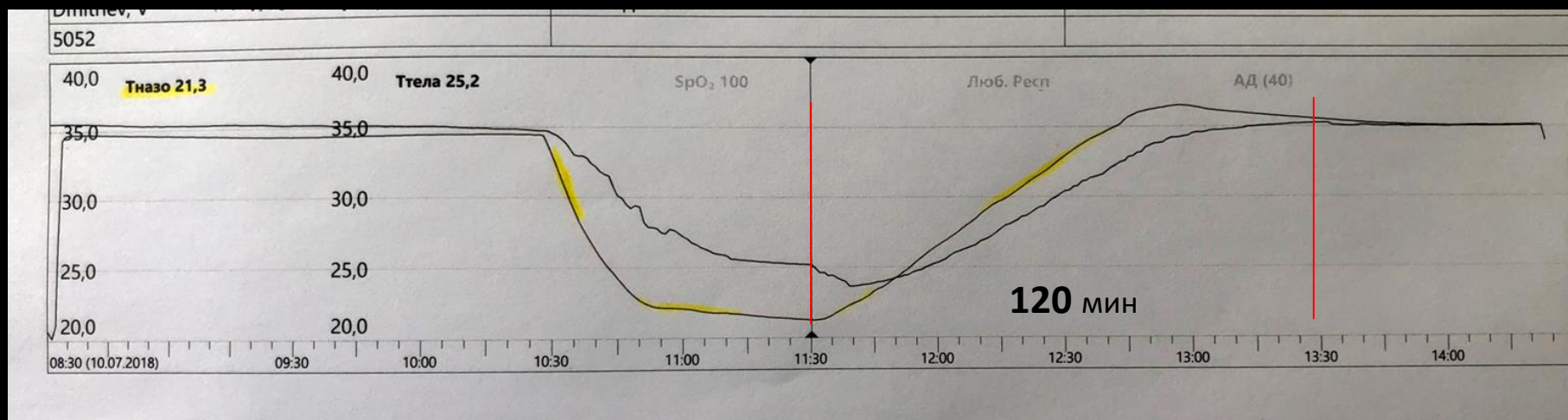
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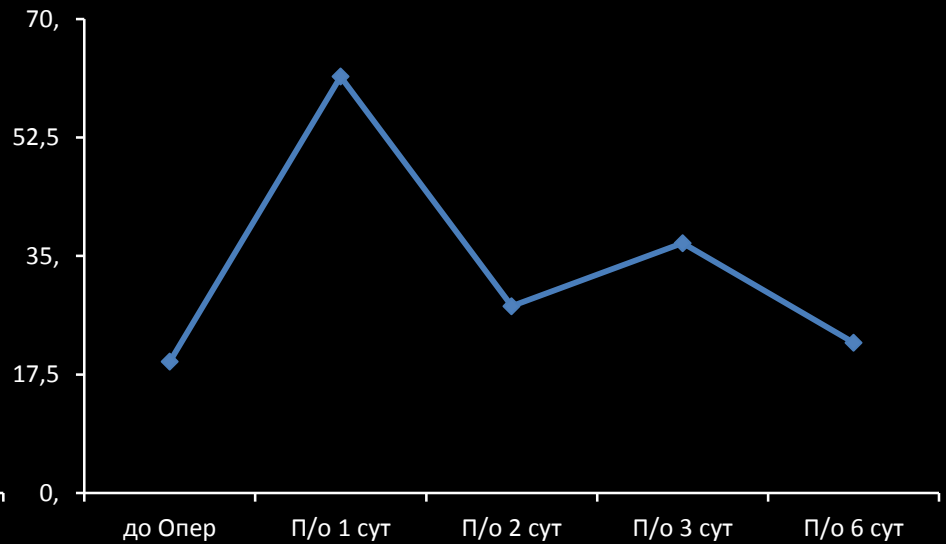
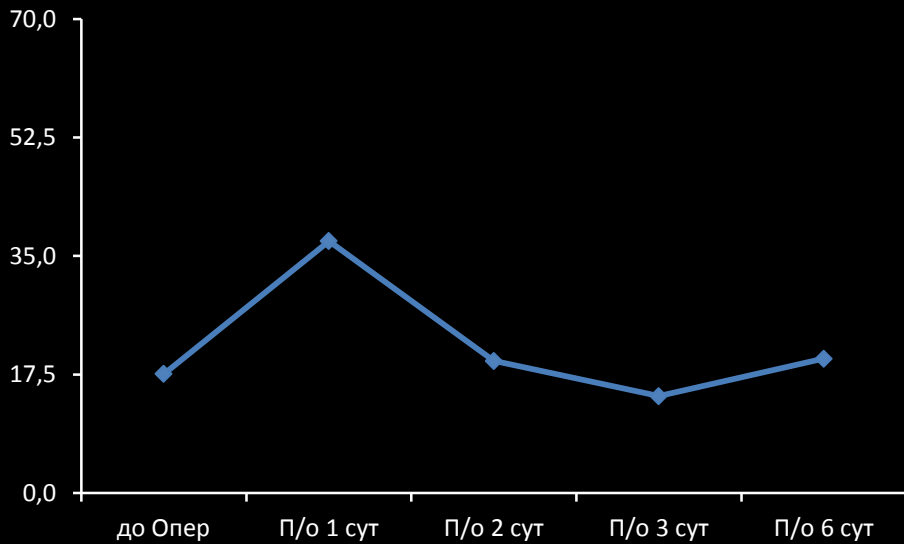
КЛАССИЧЕСКОЕ СОГРЕВАНИЕ



БИЛИРУБИН ОБЩИЙ

Нормотермическая перфузия

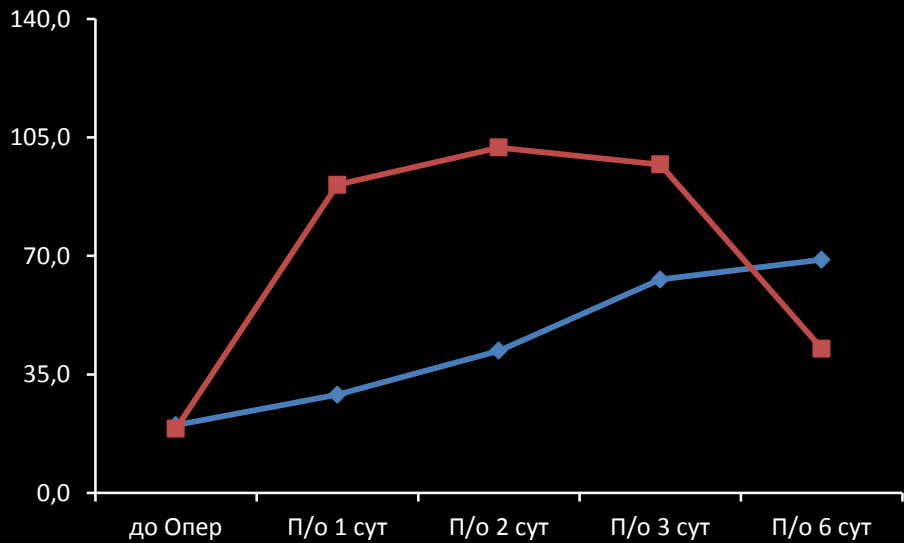
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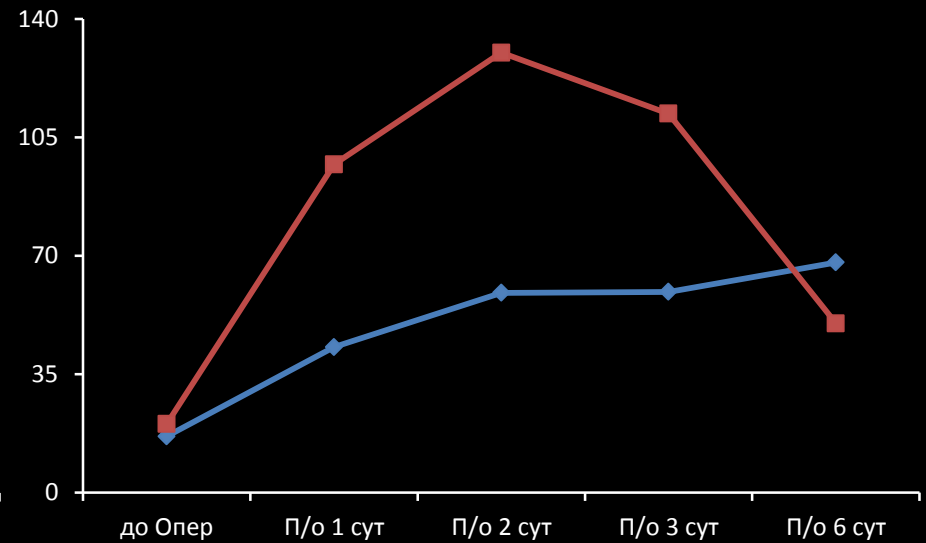
(мкмоль/л)

АЛТ АСТ

Нормотермическая перфузия



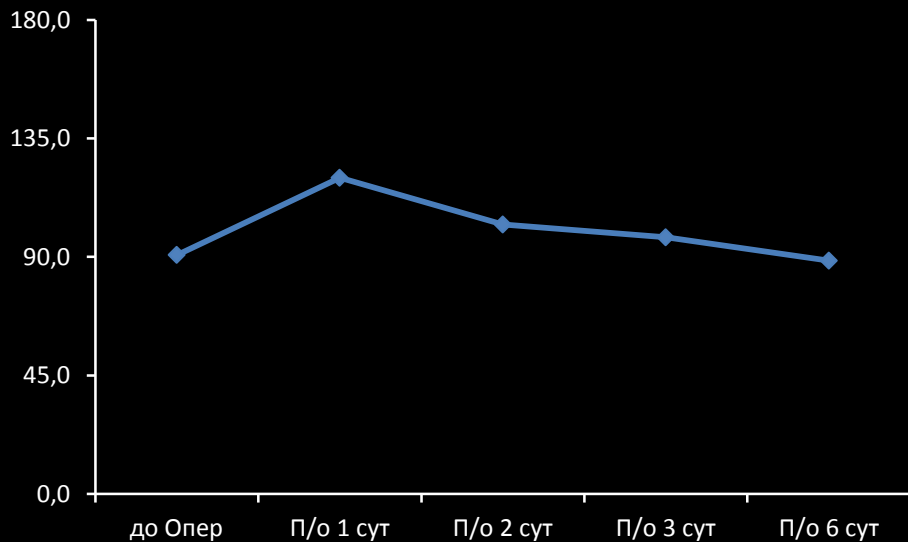
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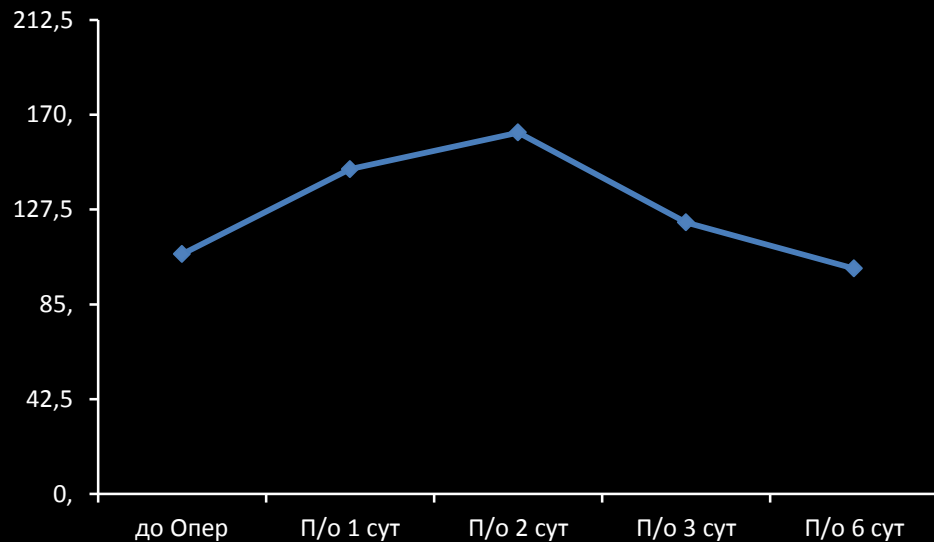
Ед/л

КРЕАТИНИН

Нормотермическая перфузия



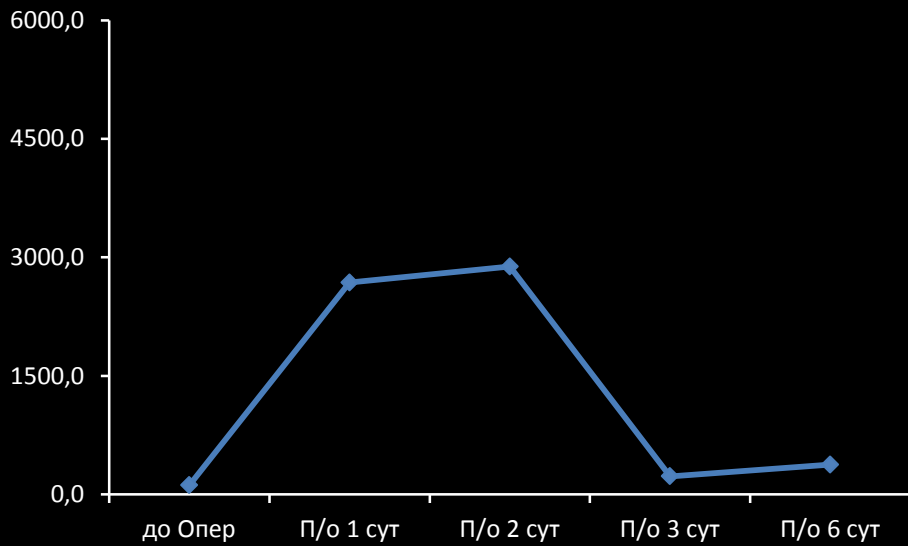
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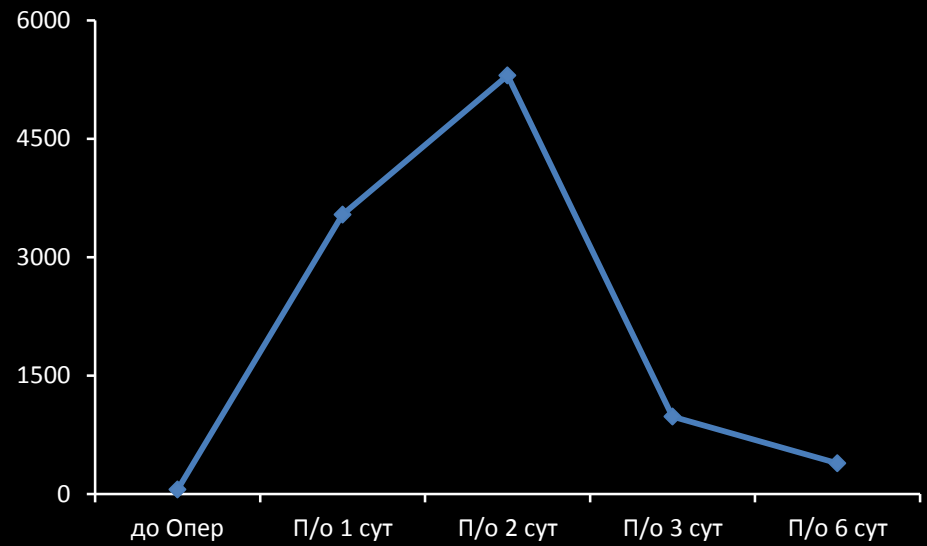
$\mu\text{mol/L}$

КФК

Нормотермическая перфузия



Быстрое согревание



БЫСТРОЕ СОГРЕВАНИЕ

ПАРАМЕТР	2014-2018 медиана (мин-макс)
Пациенты n (%)	92 (78)
Время ИК мин	192 (92-314)
Время ИМ мин	102 (30-175)
Время АСЦП мин	150 (72-314)
Время остановки кровообращения тела мин	24,5 (9-55)
Темп остановки кровообращения тела °С	24,5 (23-26,2)
п/о Инсульт n (%)	1 (1,08) 3 сут п/о
п/о ПНМК n (%)	2 (2,17) 7-10 сут п/о
п/о Спинальные нарушения n (%)	0
п/о Гемодиализ n (%)	5 (5,4)
Госпитальная летальность n (%)	3 (3,2)



