

Recruitment Microcirculatory - Mitochondrial through a permissive systemic perfusion pressure combats microcirculatory - mitochondrial distress syndrome. Cases report

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Abstract

Systemic Perfusion Pressure, SPP disorders cause ischemia of the affected microcirculation with critical mitochondrial damage, manifested by a hypercarbia $p\text{CO}_2 \text{ AV} > 6 \text{ mm Hg}$. Thus, $p\text{CO}_2$ has become an alarm signal, used as a marker of ischemia in terminal states with the generation of microcirculatory-mitochondrial distress syndrome, MMDS, and the installation of multiorgan organ dysfunction syndrome, MODS. Definition of SPP ($\sim 70 \text{ mm Hg}$), there is a difference between mean arterial pressure, MAP (90 mm Hg), and capillary resistance pressure, CRP (20 mm Hg) [1]. According to Maria Vasilieva's study [2,3], a tear can be used as a diagnostic test for various



Photo No1 Maria Vasilieva.Vinnytsia the International Student Conference. May 10, 2017

diseases and CRP in the practice of the doctor on duty can be compared with intraocular pressure, by the Kalmakov method, except for oculist glaucoma, consultation of which is essential for examining the fundus in these patients. Permissive optimization of perfusion pressure through Microcirculatory - Mitochondrial recruitment, MMR reduces the AV gap < 6 mm Hg, thus reducing MMDS. Mitochondria promote energy homeostasis by improving the functions of biosystems and pauses the expansion of MODS. Maintaining permissive SPP in critically terminal states in daily emergency clinical practice contributed to their survival [1-5]. Thus, the decisive success of Multi-organ Supportive Therapy (MOST) in Extracorporeal Life Support Organizations (ELSO) has perfusion pressure.

Cases report

Successful cardiopulmonary resuscitation in a newborn.

A 14-day-old newborn was hospitalized for clinical death with asystole after an acute respiratory viral infection complicated by neonatal acute respiratory distress syndrome (NeoAcutRDS, NARDS). Cardiopulmonary resuscitation according to the ABC system. Simultaneously, Alveolar Recruitment [6] was performed, and Microcirculatory - Mitochondrial recruitment [7]. Initial parameters of Artificial lung ventilation after the restoration of cardiac activity in a newborn PIP - tidal volume 4 ml/kg (maximum inspiratory pressure, cm of water column) -16; PEEP (Positive End Expiratory Pressure - 5); VR (ventilation frequency in 1 min) in min 50; Tinsp (inspiration time, s) 0.3; Flow (flow rate, l / min) 8; FiO₂ (O₂ fraction in the inhaled gas mixture 0.5). Trigger Sensitivity Flow (L/min) 0.2 Pressure (cm of water column) 0.1 was. At the same time, the pressure/volume loop of the trachea is also considered, which is presented in 4 types (cucumber, pod, pear, tomato), which means that the more the loop surface is expanded, the more the respiratory pattern, as well as the definition of the dynamic pulmonary-thoracic compliance (C_{dyn.}) and static pulmonary-thoracic compliance (C_{st.}) compliance confirming damage to the respiratory organ [1]. Tinsp and the ratio of inspiratory time to expiratory time (I/E) were chosen from the Flow/Vt loop and the Flow/Time curve. After stabilization of the SPP, the white nail spot disappeared, the skin turned pink, the skin became warmer, and diuresis was restored. Permissive SPP also contributed were taken to preventing the development of cerebral edema and increased intracranial pressure. Normalized blood gases. Extubated and switched from artificial lung ventilation to non-invasive assisted ventilation in CPAP, PEEP 4 mode. And 6 hours after CPR, the newborn had the nasogastric tube removed for decompression and abdominal pressure and began sucking milk from a bottle on his own. The newborn's successful CPR was further supported by Alveolar Recruitment (non-invasive CPAP) and Microcirculatory - Mitochondrial recruitment (SPP 70 mmHg). Maintaining a rapidly non-invasive

Case report No1



Photo No2. Alveolar Recruitment and Microcirculatory - Mitochondrial Recruitment.

Detectable SPP in CPR and Critical Care Medicine is the gold standard not limited in time compared to the definition of the Hemodynamic Support Algorithm used by the ARDS Network in the “Prospective, Randomized, Multi-Center Trial of (Fluid Conservative” vs. (Fluid Liberal) Management of Acute Lung Injury and Acute Respiratory Distress Syndrome To determine: Pulmonary artery wedge pressure Cardiac index Pulmonary diastolic pressure. Then the newborn was transferred from general resuscitation to the neonatology center.



Photo No3. The newborn's successful CPR was further supported by Alveolar Recruitment (non-invasive CPAP, PEEP 4) and Microcirculatory - Mitochondrial recruitment (SPP - 70 mmHg).

Case Report No2

Successful resuscitation of severe anemia posts hemorrhagic shock in a 2-year-old child.
Hemoglobin 53g/L, Ht 16.5%, Er 2.16×10^{12} /L

Keeping the child alive was due to Hemostatic resuscitation in context Resuscitation of coagulation-anticoagulant-fibrinolytic balance; Volemic resuscitation, where instead of permissive hypoperfusion provided by protocols, was guided by permissive SPP, with prevention of dilutional coagulopathy with limitation of fluid use. Of the fluids, intravenous Ringer was preferred [8]. The hemorrhagic stop was resolved conservatively, being vigilant in early surgery. Not used hem transfusion to unstoppable bleeding. Since coagulopathy has been prevented, blood products were welcome only in the active phase of the hemorrhage. When available, erythropoietin also proved to be useful. We draw attention to the fact that the permissive SPP decided disputes about large or low liquid volume resuscitation. Eliminating, thus, the problems of hyper or hypo hydration. Back in 2007, we noted the successful stabilization of the "metabolic stage" of Coagulation Resuscitation, while we are still far from the methods of "no fluid resuscitation" or "low-volume resuscitation" [9]. The decisive in the dispute, in this case, was SPP.

Item	Result	Reference	Note
WBC	$13.49 \times 10^9/L$	4.00-10.00	H
LPH	$3.98 \times 10^9/L$	0.60-4.10	
MDH	$0.83 \times 10^9/L$	0.10-1.80	
GRH	$8.68 \times 10^9/L$	2.00-7.80	H
LY%	29.5 %	20.0-50.0	
MD%	6.2 %	1.0-15.0	
GR%	64.3 %	40.0-70.0	
RBC	$2.16 \times 10^{12}/L$	3.80-5.80	L-
HGB	53 g/L	110-165	L-
MCH	320 g/L	320-360	
MCH	24.4 pg	26.5-33.5	L
MCV	76.2 fL	80.0-99.0	L
RDW-CV	13.6 %	10.0-15.0	
RDW-SD	41.1 fL	35.0-56.0	
HCT	16.5 %	30.0-50.0	L-
PLT	$220 \times 10^9/L$	100-300	
MPV	9.3 fL	7.0-11.0	
PW	13.3 %	10.0-18.0	
PCT	0.204 %	0.100-0.500	
P-LCR	25.6 %	13.0-43.0	

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Photo No3. Successful resuscitation of severe anemia posts hemorrhagic shock in a 2-year-old child. Hemoglobin 53g/L, Ht 16.5%, Er 2.16×10^{12} /L.

Case Report No3

ACKNOWLEDGMENTS and CONGRATULATION Junior of the World Academy of Medical Sciences Member WAMS National Committee from Moldova IRINA VASILIEVA and MARIA

VASILIEVA for successful neuro resuscitation of Acute Brain Infarction and Intravascular Disseminated Coagulation in the context of the second epidemic in the world, complications of cardiovascular diseases that take millions of lives from heart attacks, strokes and other forms of cardiovascular diseases.

The art of life support of cerebral infarction at Acute Vascular Distress Syndrome with the intravascular disseminated syndrome, thrombohemorrhagic course, thrombophilia, hypertensive disease turned into hypotension with serious heart rhythm and conduction disturbances, bradycardia with an extended QRS complex. Opportunities in critical-terminal medicine in determining the allowable loco-regional Perfusion Pressure would be a golden fund in capillary science. The constancy of ΔVP compliance of the brain is ensured according to the Monroe Kelly Doctrine, a balance between cerebral blood flow, cerebrospinal fluid, and mass of the brain. Cerebral perfusion pressure not less than 100 mmHg, designed to provide a metabolic rate in the gray matter at 75 mL/100 g/min, in white at 30 mL/100 g/min, and an average of 55 mL/100 g/min. In situations of falling blood flow up to 25 mL/100 g/min, there is a diffuse decrease in the electrical neural activity of the cerebral cortex. And when the blood flow is ~ 15 mL/100g/min, there is a slowdown/disappearance of the bioelectric nervous activity of the cerebral cortex < 10 mL/100 g/min. Irreversible, hypoxic, and ischemic cerebral lesions are observed stopped for 8-10 seconds, the consciousness is lost.

We rejoiced at the use of permissive SPP, carrying out Microcirculatory - Mitochondrial recruitment, thus supporting microcirculation and metabolome in the space of the capillary - cells - mitochondria. Thus eliminating Microcirculatory - Mitochondrial distress syndrome and preventing MODS. At the same time, the Resuscitation of coagulation-anticoagulant-fibrinolytic balance was performed, exclusively under the control of a coagulogram, in the fight against intravascular coagulation syndrome, avoiding ischemic transformation into hemorrhagic. In the context of Multi-organ Supportive Therapy (MOST) in Extracorporeal Life Support Organization (ELSO) [10], taking into account damage to the small vessels of the brain [11], where the maintenance of permissive SPP was of particular importance.



Photo No4 Irina Vasilieva. In critical life support.

Thus, against the background of normal blood gases, permissive SPP, Resuscitation of coagulation-anticoagulant-fibrinolytic balance, MOST - ELSO, Neurovegetative correction mezencefal - hypokinetic (anabolic cholinergic) syndrome [12] we were able to maintain the life support of the brain, the body as a whole, reduce cerebral edema and intracranial pressure, restore consciousness and cognitive functions of the brain.

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Photo No1
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