

A novel technique of cerebral-body separate perfusion combine with mild hypothermia during Acute Stanford A Aortic Dissection

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Key factors for successful surgical treatment

- **Surgical treatment**
- **Brain protection and other organ protection**
- **Temperature: intraoperative temperature**



Methods of cardiopulmonary bypass in the second hospital of Jilin University

- **Arterial intubation: right axillary artery and femoral artery intubation**
- **Venous intubation: direct intubation of superior and inferior vena cava**
- **Left ventricular drainage: intubation through right upper pulmonary vein**

Study on temperature and organ protection during circulatory arrest

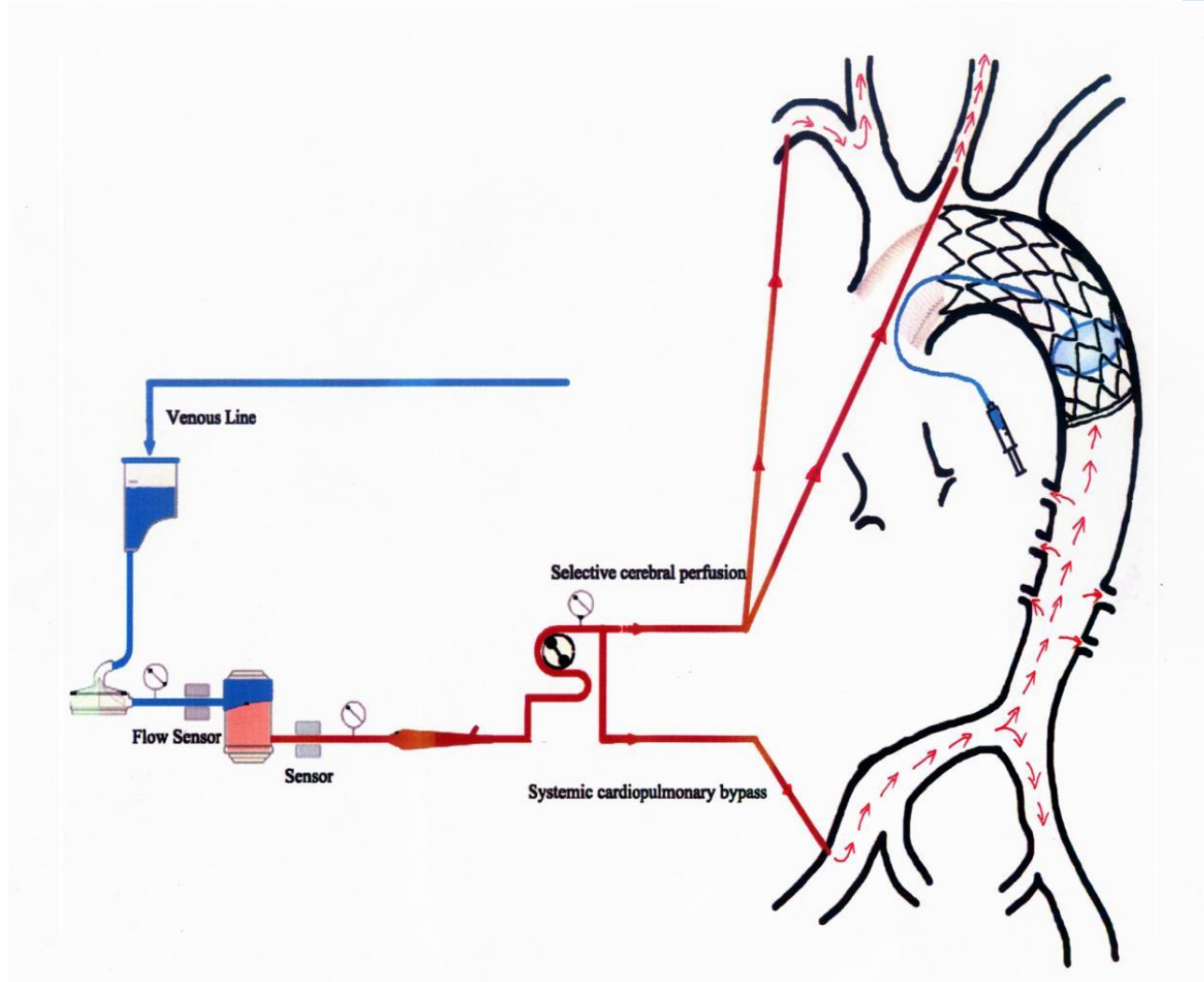
- **1. Is 32 degree during circulatory arrest the limit?**
- **2. If raise the temperature above 32 degree, what should we do about organ protection ?**

Key factors for successful surgical treatment

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Organ protection by brain body separation perfusion under mild hypothermia



Clinical data

- **2018-10 to 2019-9, 88 cases**
- **Cerebral oxygen saturation monitoring was used to guide the regulation of perfusion flow**
- **When we summarize, we think the data is not reliable enough, which may be due to each electrode sticking will produce certain errors**

Intraoperative data

Time (minute)	Case (176)
Temperature fall time	4.3±0.3
Circulatory arrest time	5.79±0.6
Brain-body separation perfusion time	40.07±8.78
Cerebral perfusion time	46.2±8.6
Aortic cross-clamp time	110.8±21.7
CPB time	141.8±19.3

Superior vena cava oxygen saturation		Inferior vena cava oxygen saturation		Perfusion
Before CPB:	70.03 ± 11.46 %	Before CPB:	72.53 ± 12.75 %	
5 minutes after CPB:	82.83 ± 8.65 %	5 minutes after CPB:	80.17 ± 16.06 %	2.49
10minutes after Brain-body separation perfusion:	70.95 ± 11.51 %	10minutes after Brain-body separation perfusion:	63.95 ± 14.25%	1.73
20minutes after Brain-body separation perfusion:	71.30 ± 9.21 %	20minutes after Brain-body separation perfusion:	62.94 ± 14.78 %	1.83
30minutes after Brain-body separation perfusion:	72.03 ± 9.77 %	30minutes after Brain-body separation perfusion:	63.92 ± 11.84 %	1.82
20 minutes resuming CPB:	72.74 ± 12.2 %	20 minutes resuming CPB:	64.32 ± 11.9 %	2.44

Postoperative results

Item	Case (176)
Death (cases)	11 (6.25%)
Consciousness recovery time(h)	4.85 ± 1.97
Ventilator assisted ventilation time (hours)	23.8 ± 24.46
CRRT (cases)	19 (10.8%)
Transient consciousness disorder (cases)	4 (2.27%)
Stock (cases)	2 (1.14%)
Paraplegia (cases)	0

Discussion

- **Each person's cerebrovascular resistance is different at different temperatures.**
- **The flow of selective cerebral perfusion at different temperatures is also unknown.**
- **At present, the flow of selective cerebral perfusion is selected according to experience.**

Discussion

- **The protection of organs at any temperature cannot be perfect.**
- **Excessive hypothermia will lead to tissue edema, postoperative brain edema, hypoxemia, postoperative renal insufficiency, and the destruction of coagulation will lead to postoperative bleeding.**

Discussion

- **The effect of brain protection can be ensured by adjusting the flow of brain body separation perfusion according to the oxygen saturation of superior vena cava.**
- **At present, no blood transfusion rate during Stanford A aortic dissection in the second hospital of Jilin University is more than 50%**