**Supplementary 1 Appendix**

**How to use Pediatric Perioperative-Transfusion-Trigger Score for scoring**

**Table 1. Pediatric Perioperative-Transfusion-Trigger Score, Pediatric POTTS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Points added | Adrenaline infusion rate  (μg kg−1 min−1) | Minimum FiO2 to keep SpO2≧ 95% | Core body Temperature \*\*\*\*\*\*(°C) | Age | Maximum score |
| 0 | Not required | ＜35% | ＜38 ℃ | 7~14y | 10 |
| +1 | ≤0.05μg/kg.min | 36~50% | 38~40 ℃ | 1~7y | 11 |
| +2 | >0.05μg/kg.min | ≥51% | ＞40 ℃ | 1m~1y | 12 |
| +3 | \_ | \_ | \_ | Newborn | 13 |

The final score is the sum of 6 basal points plus all added points.

**Adrenaline infusion rate:** Adrenaline infusion rate required to maintain an adequate cardiac output. **FiO2%:** Fraction of inspired oxygen, a clinical indicator for pulmonary function. **Core body temperature:** a clinical indicator of total body oxygen consumption. **Maximum score:** Every age group has a maximum score, the final score is no more than the maximum score.

(1) Pediatric Perioperative-Transfusion-Trigger Score is a dynamic score, which is assessed at the time specified in the CRF table and whenever the decision of allogeneic red-cell transfusion is needed.

(2) It is a real-time score which should be assessed when the blood volume is basically normal, mainly based on the clinical evaluation of attending anesthesiologist. Clinically, patients should be treated with fluid therapy without delay when blood volume is insufficient. Patients do not undergo acute high volume hemodilution therapy during the perioperative period in our study.

(3) Whether the cardiac output is normal or not is mainly evaluated by attending anesthesiologist, according to clinical indicators such as blood pressure and heart rate of children of different ages or by other assessment tools.

(4) Since the adrenaline infusion rate is a scoring factor, only continuous infusion of adrenaline should be used to increase cardiac output when it is lower than normal by clinical evaluation. For other reasons, such as transient heart rate slowdown and blood pressure reduction, acute blood loss , temporarily usage of other cardiovascular drugs (such as atropine, ephedrine, dopamine, m-hydroxylamine, norepinephrine, isoproterenol, phenylephrine, etc.) are not included in the Pediatric Perioperative-Transfusion-Trigger Scoreassessment.

(5) Method of measuring fraction of inspired oxygen (FiO2%) to maintain SpO2 ≥ 95%. The inhalation time of the oxygen is at least 10 minutes.

1. Nasal catheter oxygen inhalation, when oxygen flow is 3.5L / min, FiO2% is regarded as 35%;
2. Mask oxygen inhalation, when fresh oxygen flow is greater or equal to 6L / min, FiO2% is considered to be greater or equal to 50%;
3. Oxygen inhalation in the neonatal incubator, when fresh oxygen flow is greater or equal to 5L / min, FiO2% is considered to be greater or equal to 35%;
4. Neonatal hood oxygen inhalation,

when fresh oxygen flow is 3L / min, FiO2% is considered to be 35%;

when fresh oxygen flow is ≥5L/min, FiO2% is considered to be greater or equal to 50%;

1. Mechanical ventilation, FiO2% is determined according to ventilator parameters;
2. Mechanical ventilation by anesthesia machine (If there is no fraction of inspired oxygen monitoring parameter),

Oxygen flow 0.9L/min+ Air flow 4.1L/min—— FiO2% is 35%;

Oxygen flow 1.8L/min + Nitrous oxide flow 3.2L/min—— FiO2% is 35%;

Oxygen flow 1.8L/min+ Air flow 3.2L/min—— FiO2% is 50%;

Oxygen flow 2.5 L/min + Nitrous oxide flow 2.5 L/min—— FiO2% is 50%.

(6) Arterial blood gas analysis is recommended to determine SaO2 value ​​when SpO2 could not be obtained or accurately detected with pulse oximetry.

(7) Core body temperature can be measured by nasopharyngeal , oropharyngeal, tympanic membrane, rectal and esophageal route. Axillary temperature can be counted as core body temperature when adding 0.5 °C.

(8) The baseline score for each child is 6, which is added to the sum of above four scores as the total Pediatric Perioperative-Transfusion-Trigger Score.

(9) Maximum score. The maximum score of age group 7 ~14y is 10, that is, if the total score is above 10, 10 are counted. Age group 1 ~7y has a maximum score of 11 , age group 1month ~1y has a maximum score of 12, and the neonatal group has a maximum score of 13.