Multi system inflammatory syndrome-children (MIS-C) Management (WHO/2019-nCoV/Sci_Brief/Multisystem_Syndrome_Children)

Management of MIS-C includes Immuno-modulatory, antiplatelet and anticoagulation therapy, Cardiac and Supportive management. A stepwise progression of immunomodulatory therapies should be used with IVIG (2 gm/kg) considered first tier therapy. Low moderate dose glucocorticoids (1-2 mg/kg/day) should be given with IVIG as adjunctive therapy if shock and/or organ threatening disease present.

In patients not responding to IVIG and low moderate dose glucocorticoids, high dose, IV pulse glucocorticoids (10 30 mg/kg/day) may be considered. Anakinra (4 mg/kg/day IV or SQ) may be considered for treatment of MIS C refractory to IVIG and glucocorticoids. Anticoagulant anti platelet therapy in MIS-C includes low dose aspirin (3-5 mg/kg/day; max 81 mg/day), continued until normalization of platelet count and confirmed normal coronary arteries at ≥4 weeks after diagnosis. Patients with abnormal BNP and/or troponin T at diagnosis should have these laboratory parameters trended over time until they normalize. ECGs should be performed at a minimum of every 48 hours in hospitalized patients and during follow up visits. Echocardiograms should be repeated at a minimum of 7-14 days and 4-6 weeks after presentation. Patients with left ventricular (LV) dysfunction and/or CAA will require more frequent echocardiograms.

Lung-protective ventilation in pediatric acute respiratory syndrome (PARDS) (Pediatr Allergy Immunol Pulmonol. 2019;35-44)

The goals of ARDS management are to treat the underlying cause, provide adequate oxygenation and ventilation, and protect the lungs from ventilator-induced lung injury (VILI). The aims of lung-protective ventilation are to avoid overdistension (volutrauma and barotrauma), minimize atelectrauma and minimize biatrauma.

Standard of care for mechanical ventilation in the PICU is generally consistent with the ARDS Network study, and the PALICC guidelines recommend tidal volumes of 3–6 and 5–8 mL/kg for patients with poor and more preserved respiratory compliance, respectively, along with limiting inspiratory plateau pressure to 28 cm H2O.

PALICC strongly recommends the use of PEEP up to 15 cm H2O or greater for severe PARDS. To minimize the potential toxicity of ventilatory support required to oxygenate and ventilate PARDS patients, permissive hypoxemia and hypercapnia should be considered. PALICC also recommends oxygen saturation goals of 92%-97% for mild PARDS and 88%-92% and PEEP >10 cm H2O for severe PARDS.

PALICC recommendations include considering permissive hypercapnia for moderate to severe PARDS to minimize VILI, maintaining pH 7.15–7.30 using lung-protective strategies.

Recommendations for nutritional support for children during critical illness (Intensive Care Med. 2020;46:411-425)

The assessment of nutritional status is recommended in critically ill children at admission and throughout their PICU admission. It is recommended to perform anthropometric measurements on admission and regularly during admission.

Early commencement of enteral nutrition within 24 h of admission unless contraindicated, and increase enteral nutrition in a stepwise fashion until goal for delivery is achieved using a feeding protocol or guideline. Early enteral nutrition is recommended in term neonates and children who are stable on ECLS (extracorporeal life support), term neonates and children who are stable on pharmaceutical haemodynamic support.

In the acute phase, energy intake provided to critically ill children should not exceed resting energy expenditure, but after the acute phase, it should account for energy debt, physical activity, rehabilitation and growth. Minimum enteral protein intake of 1.5 g/kg/d to be given to avoid negative protein balance. In fluid-restricted critically ill children protein and energy dense formulations to be considered.

Surviving sepsis guidelines (2020) (Pediatric Critical Care Medicine, 2020;21:e52-e106)

This guideline has emphasized using serial trends instead of a single isolated value of lactate. It promotes use of restrictive fluid up to 40 mL/kg (previously up to 60 mL/kg) and each bolus of 10-20 mL/kg (previously 20 mL/kg) during resuscitation in settings where there is no support of ICU.

A time frame of 3 hour for initiation of antibiotics in children with sepsis but without shock has been set. Removal of intravenous line which is confirmed source of infection after establishing alternative access. Epinephrine or nor-epinephrine in place of dopamine as preferred inotrope.

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