# Adjuvant Therapies

## IVIG

**Primary Humoral Immunodeficiency**

- Administer IV or SC
- Refer to formulary for further information on dosing
- Immunology approval required for administration of IVIG
- Consider polyclonal preparation of IVIG for patients with septic shock
- There is no strong evidence to support the use of IVIG in septic pediatric patients; however, small trials have shown a trend towards reduced mortality.

## Toxic shock

Off-label use of IVIG, some data from largely retrospective studies show benefit in mortality[1].

## Plasma exchange

If plasma exchange is considered, it has shown the most benefit when performed **early** (i.e. within 30 hours) after sepsis and organ dysfunction onset.

May be considered for patients with:

- TAMOF (≥ 3 organ system failures and Thrombocytopenia (platelet count < 100,000))2
- Septic shock with estimated mortality > 35%
    - Mortality rates > 35% have been reported in pediatric patients with septic shock requiring3,4:
- > 1 vasoactive infusion
- Invasive mechanical ventilation
- AND at least one additional severe organ dysfunction (e.g. renal, hepatic, hematologic, neurologic)
    - *Thrombocytopenia alone should not constitute the one additional severe organ dysfunction.*

Oncology patients who have undergone bone marrow transplant appear to be at increased risk of mortality compared to oncology patients without bone marrow transplant. Neutropenia alone does not appear to increase the risk of mortality from septic shock3. Plasma exchange should be discussed with the primary consulting service (e.g. Oncology or Immunology or Solid Organ Transplant team) for immunosuppressed patients.

## Diuresis

Evaluate % fluid overload (FO) daily:

- % FO=(Current weight-Admission weight)/Admission weight x 100

- Consider a trial of fluid restriction using a TFL prior to diuresis, while still maximizing nutrition.
- Hemodynamically stable patients with > 10-15% fluid overload, consider diuretic use[2]
- Furosemide–0.5- 1mg/kg/dose IV

## Consult nephrology if:

- Patient's creatinine doubles
- Urine output is < 0.5mL/kg/hour for greater than 12 hours (KDIGO Stage 2 AKI)
- If no baseline creatinine available, consider twice the upper limit of normal for age as doubled creatinine.

## Renal replacement therapies

Consider use in hemodynamically stable patients with oliguria/anuria and fluid overload unresponsive to diuretic therapy.

References:


1. Liang. Pediatr Drugs 2003; 5:673-684
2. Meisel, et al. Am J Respir Crit Care Med 2009; 180:640-648
3. Stephens, et al. Crit Care Med 2008; 36:448-454
4. Grigull, et al. Support Care Cancer 2006; 14:910-916