Empiric Treatment of Suspected Hospital-Onset Infection in Pediatric Patients with Acute Liver Failure or Early Post-Liver Transplantation

Applies to non-neonatal patients with acute liver failure > 48 hours into hospitalization and/or pediatric patients < 2 months s/p liver transplantation (for any indication)

Pediatric Hepatology service should be consulted if not already aware of patient

See separate algorithm for neonatal and pediatric patients with suspected infection at initial evaluation for acute liver failure

See separate algorithm for suspected infection in pre-transplant patients wtih biliary atresia

Initial Evaluation:
Obtain cultures before antibiotics when possible

Physical examination
Blood culture - all CVC lumens + peripheral
U/A with reflex to culture

If respiratory signs/symptoms:
Routine culture of endotracheal aspirate if intubated
Chest X-ray
SARS-CoV-2 and other respiratory virus testing per hospital site algorithm

If ascites present: Paracentesis if able

If > 1 month post-transplant, send blood for CMV PCR, EBV PCR; adenovirus PCR if febrile

Additional evaluation should be considered based on patient characteristics + focal signs/symptoms

ID consult recommended for:
- Severe/evolving presentation
- Evaluation for opportunistic infection if > 1 month post-transplant or with previous transplant
- Evaluation for donor-derived infection based on presentation + risk factors

Systemic inflammatory response criteria and specific evidence of hypo-perfusion or organ dysfunction not explained by an alternative process

Patient with severe sepsis/ septic shock?

YES

Start Meropenem* + Vancomycin + Caspofungin OR Micafungin (restricted - need ID code)

Follow Pediatric Dosing Guideline

Modify therapy as needed if patient has prior history of multi-drug resistant organism(s)

ID consult recommended

NO

Start Piperacillin-tazobactam*

ADD Vancomycin if patient has central venous catheter or findings of soft tissue infection

Follow Pediatric Dosing Guideline

Modify therapy as needed if patient has prior history of multi-drug resistant organism(s)

*Consult ID or Antimicrobial Stewardship Program for empiric therapy recommendation if patient has severe beta lactam allergy. For Piperacillin-tazobactam, ASP/ID authorization needed at BCH OAK.

Stable/Improving at 48 hours*?

NO

ID consult recommended

Repeat cultures before modifying therapy

Stable/Improving at 48 hours*?

NO

YES

YES

*For unexplained deterioriation on initial therapy before 48 hours, modification of therapy may be indicated - ID consult is recommended

Limit duration of Vancomycin & Piperacillin-tazobactam concurrent therapy to <=48 hours. If indicated to continue both for longer, consult clinical pharmacist for alternative options to reduce nephrotoxicity risk.

Infectious source identified?

YES

Target antibiotics to identified source - follow Pediatric Guidelines at idmp.ucsf.edu

NO

Alternative (non-infectious) etiology identified?

YES

Stop antibiotics

NO

Infectious source identified?

YES

Target antibiotics to identified source - follow Pediatric Guidelines at idmp.ucsf.edu

NO

ID consult recommended
Anticipate narrowing therapy

These are guidelines only and cannot be applied to every situation. They reflect consensus of the UCSF Pediatric Liver Transplant Program and Pediatric Antimicrobial Stewardship Program based on available evidence and hospital antibiogram data.

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