DO NOT PLACE IN THE MEDICAL RECORD

ADMISSION AND DIAGNOSIS ALF CHECKLIST

THE FOLLOWING ARE TO BE DONE ON ADMISSION AND DAILY IN ALL CASES OF ALF:

- ❑ **Neuro checks every 1-2 hours**
- ❑ **Head of the bed at 30°**
- ❑ **Head in neutral position**
- ❑ **Minimize stimulation (tracheal suctioning, chest physiotherapy, sternal rubbing)**
- ❑ **N-acetylcysteine (NAC) IV until INR <1.5 or resolution of encephalopathy***
- ❑ **CXR and surveillance cultures (blood, urine, sputum) on admission and every 24-48 hrs**
- ❑ **Monitor blood glucose every 1-2 hours**
- ❑ **Avoid nephrotoxic drugs (aminoglycosides, NSAIDs, neomycin, etc) and IV contrast**
- ❑ **DVT prophylaxis (sequential compression device) despite coagulopathy; avoid heparin**
- ❑ **PPI for stress ulcer prophylaxis**
- ❑ **Communication: 1) intensivist and/or transplant hepatologist, 2) nurse, 3) patient's family**

POSSIBLE ETIOLOGY	DIAGNOSTIC ITEMS TO DO IN *ALL* CASES OF ALF	DIAGNOSTIC ITEMS TO *CONSIDER*	SPECIFIC THERAPIES
Drug/toxin	❑ **Obtain 6-month medication/toxin/ingestion history including OTC supplements, herbals, wild mushrooms, weight loss drugs** ❑ **Urine and serum toxicology screens** ❑ **Acetaminophen level**		Acetaminophen toxicity: NAC Mushroom poisoning: Charcoal, NAC, penicillin G and/or silibinin**
Viral	❑ **Anti-HAV IgM** ❑ **HBsAg, anti-HBc IgM, HBV DNA (quantitative)** ❑ **Anti-HCV, HCV RNA**	Anti-HEV HSV DNA EBV DNA CMV DNA Anti-HDV/HDV RNA	HBV: Entecavir HSV: Acyclovir
Autoimmune	❑ **Antinuclear antibody** ❑ **Anti-smooth muscle antibody/anti-actin antibody** ❑ **Immunoglobulin G**	Anti-liver/kidney microsomal antibody Liver biopsy	Corticosteroids
Vascular **Budd Chiari** **Ischemia**	❑ **Abdominal ultrasound with Doppler**	CT/MRI Assess for hypercoagulable state including search for malignancy Interventional radiology consultation Echocardiography/ECG	Budd Chiari: Anticoagulation, TIPS
Wilson	❑ **Check for hemolytic anemia (high indirect bilirubin), low alkaline phosphatase, renal failure, acidosis**	Ceruloplasmin 24-hour urine for copper Serum copper Ophthalmology consultation to look for Kayser-Fleischer rings	Consider early CRRT
AFLP / HELLP		β-HCG Obstetrics consultation	Early delivery
Malignancy		CT/MRI Liver biopsy	
Indeterminate		Liver biopsy	

OTC, over-the-counter; NAC, N-acetylcysteine; CRRT, continuous renal replacement therapy

*For all patients with ALF and encephalopathy grade I/II regardless of etiology, and for all cases of suspected acetaminophen toxicity

**Not FDA approved

Instructional video:
http://youtu.be/H6yyTA-yNqc

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ADMISSION AND DAILY ALF CHECKLIST

THE FOLLOWING ARE TO BE EVALUATED AT THE TIME OF ADMISSION AND DAILY:

1. NEUROLOGIC

Abrupt deterioration in mental status?

- ❑ Yes➟ Head CT to look for intracranial hemorrhage

Serum sodium <145 mMol/L?

- ❑ Yes➟ Consider using hypertonic saline for prophylaxis of intracranial hypertension to maintain serum Na between 145-150 mMol/L; carefully monitor rate of Na rise; discuss serum Na goal with healthcare team if patient on CRRT

Intubated, agitated or in pain?

- ❑ No ➟ Avoid sedating medications (benzodiazepines, narcotics, central-acting anti-emetics)
- ❑ Yes➟ Use propofol and/or fentanyl

Spontaneous hypothermia (34-37 °C)?

- ❑ Yes➟ Do not warm patient

Encephalopathy grade III/IV?

- ❑ Yes➟ Consider mannitol 0.25-0.5 g/kg IV q6 hours if serum osmolality <320 mOsm/L or hypertonic saline boluses for treatment of suspected intracranial hypertension
- ❑ Yes➟ Consider intracranial pressure monitoring
  - Goal intracranial pressure <25 mm Hg
  - Goal cerebral perfusion pressure 50-80 mm Hg

2. PULMONARY

Encephalopathy grade III/IV?

- ❑ Yes➟ Intubate; prefer low tidal volume ventilation to avoid acute lung injury

Intubated and spontaneously hyperventilating?

- ❑ Yes➟ Do not correct ventilation

3. INFECTIOUS DISEASE

1) Progression of encephalopathy or grade III/IV or 2) SIRS or 3) clinical deterioration or 4) patient listed for transplant?

- ❑ Yes➟ Consider broad-spectrum antibiotics

4. CARDIOVASCULAR

Mean arterial pressure (MAP) <75 despite volume repletion AND encephalopathy grade III/IV?

- ❑ Yes➟ Begin vasopressors (prefer norepinephrine over epinephrine or vasopressin)
- ❑ Yes➟ Consider trial of hydrocortisone

5. RENAL

1) Oliguria or 2) rise in creatinine >0.3 mg/dL or 3) ammonia >150 μM or 4) volume overload or 5) established/suspected intracranial hypertension?

- ❑ No ➟ Consider renal consultation/early hemodialysis line placement
- ❑ Yes➟ Initiate CRRT (CRRT preferred over intermittent HD even if hemodynamically stable)

6. HEMATOLOGY

Clinically significant bleeding?

- ❑ No ➟ Do not correct INR
- ❑ Yes➟ Correct thrombocytopenia, hypofibrinogenemia and coagulopathy

Planned invasive procedure?

- ❑ No ➟ Do not correct INR
- ❑ Yes➟ Correct thrombocytopenia and hypofibrinogenemia (INR does not predict bleeding risk in patients with ALF)

7. ENDOCRINE

Glucose <80 mg/dL?

- ❑ Yes➟ Dextrose

Glucose >180 mg/dL?

- ❑ Yes➟ Insulin

8. GASTROINTESTINAL

Enteral feeding possible (PO or NG)?

- ❑ Yes➟ Begin as early as possible

9. EARLY TRANSPLANT EVALUATION

Encephalopathy?

- ❑ Yes➟ Consult transplant center/transplant hepatologist early

Potential liver transplant candidate?

- ❑ Yes➟ Begin transplant evaluation per center protocol

All criteria for Status IA listing met?

All 3 of following criteria must be met:

1. Onset of encephalopathy within 8 weeks of first symptoms of liver disease
2. In the ICU
3. a) INR >2 or b) intubated or b) on CRRT

- ❑ Yes➟ Consider listing, in consultation with transplant team

NAC, N-acetylcysteine; CRRT, continuous renal replacement therapy

Last updated 3/24/2013

Instructional video:
http://youtu.be/H6yyTA-yNqc