Altered Mental Status

Definition

Delirium/Acute Confusional State/Encephalopathy: acute change in thought content and/or arousal. Delirium/ACS imply no clear cause, encephalopathy when known cause (eg toxic).
Delirium Subcategories: Hyperactive, Hypoactive or Mixed Delirium.
Lethargy/Obtundation/Stupor/Coma spectrum of decreased responsiveness/arousal, coma is unarousable.
Dementia: subacute, progressive. Predisposes to delirium. **Psychosis:** typically oriented, nl vitals, h/o prior psy.

Approach

VITALS- monitor, pulse ox, vitals, rectal temp (cool/warm accordingly), finger stick
AIRWAY- GCS<9 (probably needs intubation for airway protection if narcan/D50 not effective)
BREATHING- keep sat>90%, Narcan for bradypnea/pinpoint pupils/track marks, assess CO2 by ETCO2 or VBG
CIRCULATION- fluids, pressors for hypotension, nicardipine for SBP>220 w/ susp. hypertensive enceph/CVA
DISABILITY- Document GCS, assess for focal motor deficit, pupil deficit.
EXPOSURE- Remove all clothing, look for occult injuries (eg trauma, stab wound)

History	**Exam**	**Workup**
What exactly is different from baseline? Disoriented? Memory? (med) Thought content (tangential, paranoia, hallucinations)? (psych) Onset? Abrupt (CVA) Past Medical Hx? Medications? Med change? Substance Abuse?	Head: trauma? Pupils, nystagmus, ophthalmoplegia (Wernicke) ENT- intraoral lac? Sz Tox: Toxidromes Infection: rectal temp, Kernig's (extend knee), Brudzinski (flex neck, hip no flex) Neuro: complete exam including reflexes.	Head CT without contrast, CXR UA/Ucx, Drug Screen, EKG CBC, Chem 7, LFTs, ETOH, Osm level, PT/PTT, Ammonia, Hcg Acet/ASA/Lithium Level VBG+COHgB, TSH, TP-EIA or RPR CSF- cell count, india ink, crypto ag, enterovirus and hsv pcr, gram stain, cx, cytology, csf prot/gluc EEG, MRI with and without contr

Differential

Alcohol- check ETOH level, check osmolar gap, if anion gap and osmolar gap wide then contact poison control.
Acidosis
Autoimmune- vasculitis, neuropsychiatric lupus, autoimmune limbic encephalitis
Electrolytes- HyperNa, HypoNa, HyperCa (stones, abd groans, psych moans often>14), HypoCa (<7.5)
Epilepsy- pts may be altered when post-ictal, if AMS is persistent, consider subtle nonconvulsive status epilep.
Endocrine- Glucose (high/low), Myxedema Coma (TSH), Thyrotoxicosis.
Encephalopathy Hepatic- often caused by GIB or SBP, asterixis, diagnose with ammonia level
Encephalopathy Hypertensive- dx of exclusion, made retrospectively when condition improves w/bp control
Encephal Wernicke's- B1 defic. Confusion/ataxia/ophthalmoplegia/nystagmus/CN palsy. KS is chronic s/p WE.
Infection- abscess, meningitis, encephalitis, septic encephalopathy, uti, pneumonia.
Opiates
Uremic encephalopathy
Toxicology- meds (list p2), W/D from ETOH, benzos, barbs, SSRIs, Lithium toxicity
Trauma
Increased ICP- hydrocephalus, mass, hemorrhage
Poisoning- look for toxidrome, CO poisoning, NMS/Serotonin Syndrome/Anticholinergic poison, Cyanide
Psychosis
Pulmonary- hypoxia, hypercarbia (pulse ox, VBG)
Shock, syncope- hypoperfusion**,** heart failure, MI (POCUS, EKG, troponin)
Stroke (c-spine, CT, MRI)

Drugs believed to cause or prolong delirium or confusional states*

Analgesics
NSAIDs
Opioids (especially meperidine)
Antibiotics and antivirals
Acyclovir
Aminoglycosides
Amphotericin B
Antimalarials
Cephalosporins
Cycloserine
Fluoroquinolones
Isoniazid
Interferon
Linezolid
Macrolides
Metronidazole
Nalidixic acid
Penicillins
Rifampin
Sulfonamides

Corticosteroids
Dopamine agonists
Amantadine
Bromocriptine
Levodopa
Pergolide
Pramipexole
Ropinirole
Gastrointestinal agents
Antiemetics
Antispasmodics
Histamine-2 receptor blockers
Loperamide
Herbal preparations
Atropa belladonna extract
Henbane
Mandrake
Jimson weed

Anticholinergics
Atropine
Benztropine
Diphenhydramine
Scopolamine
Trihexyphenidyl
Anticonvulsants
Carbamazepine
Levetiracetam
Phenytoin
Valproate
Vigabatrin
Antidepressants
Mirtazapine
Selective serotonin reuptake inhibitors
Tricyclic antidepressants
Cardiovascular and hypertension drugs
Antiarrhythmics
Beta blockers
Clonidine
Digoxin
Diuretics
Methyldopa

Jimson weed
St. John's wort
Valerian
Hypoglycemics
Hypnotics and sedatives
Barbiturates
Benzodiazepines
Muscle relaxants
Baclofen
Cyclobenzaprine
Other CNS-active agents
Disulfiram
Cholinesterase inhibitors (eg, donepezil)
Interleukin-2
Lithium
Phenothiazines

NSAIDs: nonsteroidal antiinflammatory drugs; CNS: central nervous system.

Who To LP?

Per Emcrit 28, 95% of meningitis cases with have 2 of 4 (fever, AMS, HA, stiff neck). NEJM 2004. Per UPTODATE and IBCC Meningitis, routine LP may not be necessary in all febrile older patients with delirium as long as other infectious foci are obvious. UPTODATE says do LP when the cause of delirium is not obvious. IBCC Meningitis says suspect meningitis/encephalitis when:

1) Evidence of infection (e.g. fever/hypothermia, leukocytosis, or left-shift).
2) Evidence of neurologic involvement (e.g. altered mental status, severe headache, nuchal rigidity, photophobia, focal neurologic signs).
3) No well-established diagnosis to account for #1-2.When in doubt, it's generally better to err on the side of getting a lumbar puncture (especially if intubated).

LP Contraindications	Treatment for possible meningitis/encephalitis	AMS Treatment
Plavix per ASRA 2018 Anticoagulants INR>1.4, Plts<50k Elevated ICP Overlying skin infn Susp. epidural abscess	Ceftriaxone 2g IV Acyclovir 10mg/kg if high RBC count, obtunded, sz, focal neuro Dexamethasone 10mg IV IBCC Meningitis says add these if LP suggests BM: Vanco 1g IV, Ampicillin 2g IV if >50yo	D50 Narcan Thiamine 300-500mg IV Antibiotics/Antivirals/Steroids Antidotes Nicardipine for HTN Encephalopathy Temperature control- cool/warm tPA or ASA for CVA