Hair of the Dog

How To Avoid Being Bitten
By Withdrawal Syndromes

Reference Information

- Copies of slides and modified CIWA (Clinical Institute Withdrawal Assessment) scale available at:

www.wellcon.net

Scope of the Problem

- 1 in 13 Americans abuses alcohol
- Alcohol is the 2nd leading cause of death in correctional facilities
- Economic losses from alcoholism exceed $185 Billion per year
- Alcohol is the proximate cause of 100,000 deaths per year

Treating Alcoholics

- Be Vewy, Vewy Careful
- Trust No One
- Assume Nothing
- Follow all 5 vital signs serially
- Treat withdrawal adequately
- R/O infection and metabolic imbalance
- Always consider CNS etiology

Drinking from a Firehose

- Treating withdrawal syndromes in correctional facilities is a problem of triaging a huge volume of patients to yield a low number of critical (but dangerous) cases
- Critical to have a predefined process
- Critical to have individualized therapy

Salt Lake City Withdrawal Protocol

- Patients identified in booking from history, physical, past medical records
- Serial CIWA exams performed twice daily
- Exams quantified to reduce inter-observer variation and to show trends
- Very aggressive medical treatment tied to CIWA score suppression

CIWA Scoring

- Reliable, reproducible, validated, and predictive of seizures and delirium
- Primarily intended for alcohol, but it works for other withdrawal syndromes
- Fully assesses physical and mental components of withdrawal syndrome
- Serial scoring drives individualized therapy

Modified CIWA Withdrawal Scale

- Temperature
- Pulse
- Respirations
- Blood pressure
- Nausea / vomiting
- Tremor
- Sweating

Modified CIWA Withdrawal Scale

- Hallucinations
- Mental status
- Agitation
- Thought disturbances
- Convulsions / seizures
- Headache

Stages of Alcohol Withdrawal Victor and Adams

- Stage 1: Tremulousness
  - 6-12 hours after last drink
- Stage 2: Hallucinations
  - 1-2 days after last drink
- Stage 3: Withdrawal Seizures
  - 1-2 days after last drink
- Stage 4: Delirium Tremens
  - 3-5 days after last drink

Alcohol Withdrawal

- Stage 1: Tremulousness
  - Seen when cellular tolerance to ETOH ingestion develops
  - Hypersympathetic state similar to hyperthyroidism
  - Often treated with another drink
  - 1-5% will progress to full DT's

Treatment of Tremulousness

- Detoxify patient over 3-5 days
- Use benzodiazepines
- Nutritionally fortify
- MVI (for niacin)
- Thiamine
- Reassess regularly for progression to higher stages

Volume Repletion

- Most alcoholics are dehydrated
- Fluid of choice = D5NS at 200/hr with:
  - MVI (1-2 amps)
  - Folate (1-5 mg)
  - KCL (40 mEq)
  - $MgSO_4$ (5 grams)
  - Thiamine (100 mg IV)

Nutritional Support

- Alcoholics have NO glycogen stores
- FEED THEM!!!
- Alcoholics tend to become hyperglycemic for several hours
- DO NOT GIVE INSULIN unless DKA or BS > 500

Benzodiazepines

- Significant reduction of seizures ($p=0.003$)
- Significant reduction of delirium ($p=.04$)
- All equally efficacious; longer half-lives preferred for smoother withdrawal, less abuse potential
- Librium is cheapest!!!

Medication Support

- Titrate medications to symptoms
- Generally give 5 days with taper
- Do not undermedicate
- Drug of choice is whatever you are comfortable using

Medication Options

Med	Dose	Route	t 1/2
Librium	25-100 mg	PO only	16 hours
Valium	5-10 mg	PO, IV	Pt's age
Ativan	1-2 mg	PO, IV, IM	12 hrs
Serax	15-30 mg	PO	5-20 hrs

Medication Options (Level 2)

- Barbiturates
  - Phenobarbital 5 mg / kg initial
    - Bolus initially
    - Redose q 30 minutes until lightly sedated
    - Average loading dose = 600 mg

Role of Phenytoin (Dilantin)

- Do not use routinely
- No role if no prior seizures
- No role if alcoholic seizures have already occurred
- Conflicting data in drinker with previous ETOH withdrawal seizure—MD choice
- Only patients who should be on phenytoin are drinkers with idiopathic epilepsy or previous history of CNS

Role of Other Medications

- Beta-adrenergic antagonists
  - Not recommended therapy
- Clonidine
  - Not recommended therapy
- Carbamazepine
  - Not recommended as monotherapy, can be used in conjunction with benzodiazepines

Role of Other Medications

- Neuroleptics (haldol, phenothiazines)
  - Increase incidence of seizures compared to placebo ($p=0.000002$)
  - Less effective than benzodiazepines
  - Can be used to calm agitated patients in combination therapy

Tremors become seizures

- No treatment
  - 10% of patients with prior seizures will seize
- With treatment
  - Prior seizures = 0-5% seizure rate
- Progression of Tremors to DT's
  - Without treatment: 5-30%
  - With treatment: 1-6%

Stage 2: Hallucinosis

- Seen in 25% of "professional" drinkers
- Visual 5x more common than auditory
- Treatment
  - More aggressive benzodiazepine use
  - Hydration
  - Possible IM Haldol

Stage 3: Withdrawal Seizures

- Usually 1-6 seizures
- Usually tonic-clonic, rarely status
- Majority occur within 48 hours
- If patient medicated with benzodiazepine and has seizure, needs workup
- One study of 259 alcoholics with seizures showed that 6.2% of them had intracranial lesions by CT

Alcoholics just seize

- 308 patients, 294 controls
- 60% of seizures were random events
- Frequency of seizures increased with increasing ETOH:
  - 3x normal if ½ pint per day
  - 8x normal if 1 pint / day
  - 20x normal if 1 quart / day

Stage 4: Delerium Tremens Moore (1915-1935)

- 2375 Patients
- 1915 Mortality = 52%
- 1935 Mortalty = 14%
  - What changed:
    - No nurses
    - Dehydration
    - Physical restraints
    - Neuroleptics
- Be vigilant for pneumonia, GI bleeds, sepsis, CNS trauma, and meningitis
- TRANSFER to Emergency Department

Alcoholic Seizure Red Flags

- Focal seizures
- Febrile
- Status epilepticus

- Any of the above warrant workup in the ER

Altered Mental Status in Alcoholics

- 5 Basic Causes of Altered Mental Status
  - Vital Sign abnormalities
  - Toxic/Metabolic causes
  - Structural Abnormalities
  - Infectious Etiologies
  - Psychiatric Illness

Vital Sign Abnormalities

- BP—hypotension from ETOH, dehydration, sepsis
- Pulse—Holiday heart
- Resp—hypoventilation from CNS depression
- Temperature—hypothermia due to Wernicke's, sepsis, exposure, hypoglycemia, dehydration

Toxic / Metabolic Workup

- Na (high or low)
- K (high or low)
- Glucose (high or low)
- BUN/Cr (dehydration)
- ABG's (hypoxia, pneumonia)
- ETOH level—if below 200, look for other causes of mental status changes

Acidosis in Alcoholics

- Anion Gap
  - AG = Na – (HCO_3 + Cl) = 5-15
- Osmolar Gap
  - Calculated osmolarity = (2*Na) + (Glu/18) + (BUN/2.8)
  - OG = true osmolarity – calculated = 10-20
- Calculate in osmolar forces contributed by different alcohols

Methanol

- Each 3.2 mg% = 1 mosm
- Profound acidosis, blindness, retinal edema, pancreatitis
- Do not induce vomiting
- Charcoal is not effective
- Patients must be transferred to ER

Ethylene Glycol

- Each 6.2 mg% = 1 mosm
- No odor
- Profound acidosis
- Early symptoms = euphoria, seizures
- Cardiac symptoms = ST-T wave changes
- Renal symptoms = crystalluria, failure
- Transfer to ER

Isopropyl Alcohol

- Each 6.0mg% contributes 1 mosm
- Twice as drunk, twice as sick, twice as long
- Ketosis without acidosis
- No anion gap
- Symptoms mostly GI

Structural Causes

- CNS trauma
- Alcoholics have occult injuries
- Send out for CT, LP, EEG if necessary

Infectious Etiology

- CBC (sepsis, anemia)
- U/A (ketones, oxalate crystals)
- CXR (TB, Pneumonia, Lung abscess)
- LP (meningitis)

Psychiatric / Organic Pathology

- Diagnosis of exclusion
- 80% of seriously mentally ill have a co-morbid substance abuse problem

Wernicke's Encephalopathy

- Classic Signs
  - Ataxia
  - Ocular findings (nystagus, lateral rectus palsy)
  - Encephalopathy
- Atypical Signs
  - Coma
  - Miosis
  - Hypothermia
  - Hypotension
  - Bradycardia

Wernicke's Encephalopathy

- Due to thiamine deficiency
- 20% mortality rate
- Patients with AIDS, hyperalimentation, malnutrition, diabetes are at very high risk

Other Alcoholic Oddities

- Holiday Heart
  - Afib, Aflutter, PAT
- Rhabdomyolysis
- Myopathy
- Hypothermia

Summary

- Alcoholics are dangerous
- Assume nothing
- Educate your nurses and yourself
- Develop a serial screening tool and policy
- Treat aggressively
- Don't be afraid to refer them to ER

Reference Information

- Copies of slides and modified CIWA (Clinical Institute Withdrawal Assessment) scale available at:

www.wellcon.net