Alcohol Withdrawal Management

Recognition and Management of DTs, Seizures and Wernicke’s Encephalopathy
The challenge

We need to improve the hospital management of patients with alcohol problems

This is nurse led in much of NHS

Screening, medical management, brief & specialist interventions, referral processes

RCP (2001) good starting point but inadequate

Understanding of health professionals is limited

Evidence base is incomplete & often contradictory
My Name’s England and I have a Drink Problem!

7.1M have alcohol use disorder
32% men, 15% women

½ of these at harmful levels
>50u men /35u women

Alcohol-Related Deaths increase year on year
6.9 to 13 per 100,000 between 1991 & 2004

1.1million thought to be alcohol dependent
3:1 male to female
Hospital Interventions

All patients require screening

70+% of people need nil more than screening

20% adults drink problematically: benefit from interventions

Around 15-20% likely to require BI only

1-2% alcohol dependent: need: AWSS, AWS & WKS management
Alcohol Dependence

The exact neurobiological mechanisms involved are not fully understood.

Involves both inhibitory (GABA) and excitatory (NMDA) neurotransmitters: Dopamine, serotonin, opioid.

Occasional non-dependent use leads to the positive experiences of intoxication.

With prolonged use tolerance occurs: alcohol is then necessary to maintain neuronal functioning.

Neuroadaptation to regain a ‘homeostatic balance’.

Alcohol Dependence
Alcohol Withdrawal Syndrome

Follows a drop in blood alcohol concentration after a period of prolonged heavy use

A reverse neuroadaptation as the body again seeks to rebalance

Results in the rebound stimulatory effect of autonomic hyperactivity

This neuronal hyperactivity causes the well defined collection of symptoms

Variable in intensity between individuals and episodes

Ranges from mild to severe

Kindling phenomenon: an increasing sensitisation so that each repeated AWS become progressively more severe
Schematic Diagram of Alcohol Withdrawal Syndrome
(Adapted from McKinley, 2005).

- Short term effect of alcohol
- Long term effect of alcohol
- Cessation of drinking
- Homeostatic balance line

Cessation of drinking:

0 hours
24 hours
48 hours
72 hours
96 hours
120 hours

CNS excitation

Time line
AWS Symptoms

• Tremor of the tongue, eyelids, or outstretched hands
  • Sweating
  • Nausea, retching, or vomiting
  • Tachycardia or hypertension
  • Psychomotor agitation
    • Headache
    • Insomnia
  • Malaise or weakness
• Transient visual, tactile, or auditory hallucinations or illusions
  • Grand mal convulsions

(WHO 2007)
AWS main complications

Alcohol Withdrawal Seizures
5-10%

Alcohol Withdrawal Delirium (DT)
5-10%

Wernicke-Korsakoff Syndrome
35%

Re-feeding syndrome & other vitamin deficiencies
AWS complications

Limited understanding amongst health professionals

Research evidence is incomplete & often contradictory

All occur on similar timescale

Share many common characteristics

All potentially devastating
Patient one

- 41 yr old male: seizure: no confusion noted
- Absconded day 2 represented to A&E day 3
- Pulse 132bpm, Temp 37.8°C, tremulous
- Hallucinating visual & auditory
- Believes demons and shape-shifters after him
- Highly suspicious of all staff
- DT suspected

In A&E: Chlordiaz 30mg PO haloperidol 5mg
Pabrinex IV one pair ampoules (1st dose)

Next 4 hours: ADLN IV lorazepam 2-4mg: total 14mgs: IV haloperidol 5mg tds: total 5mgs
Asleep: 2 x IV diazepam 5mg, tds pabrinex 2 pairs
Patient one continued

- **Day 4:** sedatives withheld as ‘too drowsy’
- Midday, patient absconded for 2 hours
- Continue PO chlordiazepoxide / haloperidol
- **Day 5:** nil alcohol withdrawal symptoms but remains confused
- Stop benzodiazepines
- Pabrinex 2 pairs tds given for 8 days
- **3 weeks after stopping benzos:** poor short term memory persists - Korsakoff’s Psychosis diagnosed
- **3 months:** discharge to institutional care
Wernicke-Korsakoff Syndrome
WERNICKE-KORSAKOFF SYNDROME

COMMON
Up to 35% of chronic drinkers

THIAMINE DEFICIENCY
Poor diet, decreased absorption, increased demand
cofactor in carbohydrate utilisation
30-80% of chronic ‘alcoholics’ worldwide have clinical or biochemical signs of thiamine deficiency

HOSPITALISATION = high risk
AWS increases thiamine requirements
Stop drinking; onset can take <5 days
 Probably a combination of thiamine deficiency, excess alcohol intake and genetic susceptibility

Inadequately treated acute WE leads to KP: chronic severe short term memory loss

Much USA literature recommends 100mg thiamine / day

WE patients treated with 50-100mg / day parenteral thiamine: 16% fully recover, 84% develop KP, & 17-20% die

Post mortem studies WE lesions in around 1.5% of general population, 12.5% of alcohol misusers
5-14% of WE diagnosed in life and only 17% KP previously diagnosed with WE

KP symptoms can improve for up to 10 years
25% KP patients require long term institutionalisation
WKS

Classic triad of symptoms only in 10% patients
Often mistaken for drunkenness

Mental impairment 82%, ataxia 23% opthalmoplegia 29%

Relationship to re-feeding syndrome: e.g. Low magnesium or phosphate can lead to similar symptoms: magnesium cofactor required to utilise thiamine (refractory patients)

WE deaths usually attributed to accompanying conditions ‘logical to assume nutritional depletion contributed to patient deaths’

Treatment based on uncontrolled trials and empirical clinical practice

Parenteral thiamine (pabrinex) oral treatment is insufficient
WKS – treatment group

- ANY EVIDENCE OF ALCOHOL ABUSE AND ANY OF:
  - decreased consciousness
  - acute confusion
  - ataxia
  - opthalmoplegia
  - hypothermia with hypotension
  - DTs
  - Hypoglycaemia

WKS – at risk prophylactic group

- ANY EVIDENCE OF ALCOHOL MISUSE AND ANY OF:
  - significant weight loss
  - poor diet
  - signs of malnutrition
  - concurrent illness
  - seizures
  - Drinking 20+ units/day
  - Peripheral neuropathy
Delirium Tremens
Alcohol Withdrawal Delirium (DT)

- 5% patients withdrawing
- Medical emergency
- 1-5% mortality: previously around 20%
- Onset: 1-5+ days
- Can persist >10 days: typically 1-3 days
- Extremely difficult to manage
DT Literature findings

- Complex – poorly understood & lack of consensus
- Lack of evidence based protocols
- ‘Interesting case studies’
- High dose benzodiazepines (+ haloperidol?)
- No consensus on dose or type/s
- Fluid & Electrolytes
- Pabrinex essential
- Behavioural-legal aspects
DT Symptoms

Develop over a short period of time

Clouding of consciousness & fluctuating cognitions

Delusions, confusion, inattention & disorientation

Hallucinations: visual, auditory, tactile

Paranoid ideation / suspiciousness / combativeness

Agitation and sleep disturbances

Usually: autonomic hyperactivity
DT related deaths

Unlikely to die from DTs
Deaths due to complications

Accidents & violence
Cardiac arrhythmias
Respiratory arrest
Dehydration
Hyperthermia
Circulatory collapse
Alcoholic ketoacidosis
Treating Delirium Tremens

- **Aim:** to maintain patient safety until has run its course
- May need to sedate
- IV Loraz 1-4mg or Diaz 10-40mg every 15mins
- IM lorazepam 1-4mg every 30 mins
- Haloperidol 5mg tds (5mg every 30-60mins)
- How best to maintain sedation?
- Propofol / HDU if not responding to BZD (USA)
- Pabrinex tds
Maximum reported doses for DT treatment

Lorazepam = 710mg / 24 hours

Diazepam = >1000mg / 24 hours

Chlordiazepoxide = 350mg
Adjunctive Tests & Treatments

**Investigations**
- BP, Temperature, Pulse, Pulse Oximetry
- BAC, LFT, FBC, U&E
- Magnesium, Calcium, Phosphate, Potassium

**Interventions**
- Fluid and Electrolyte Replacement
- WKS shares characteristics with DTs
- Pabrinex IV
Predicting DT and Seizures

- Recent high daily alcohol intake
- Previous DT or seizures (kindling)
- Seizures or hallucinations
- Raised AWSS & Autonomic Hyperactivity (BAC)
- Delays in treatment
- Concurrent medical illness
- Other drug use (e.g. sedatives)
- Number of previous ‘detox’ episodes
- Genetic polymorphisms, ethnicity, age
- LFT, U&E (Mg), FBC, blood/breath alcohol levels
Prophylaxis for DT

- Well lit, uncluttered, low stimulation environment, help to reduce disorientation
- Reorientation and a familiar face (relative) can often be helpful
  - Alcohol Withdrawal Severity Scales
  - Correct vitamins, electrolyte imbalances
  - Treat co-morbidities
- PO Benzos: e.g. chlordiaz 20-40mg 1 hr interval
- Consider IV lorazepam or diazepam
Behaviour Management

- Capacity vs mental health law
- Lacks Capacity: detain & treat - common law (doctrine of necessity)
- Essential to evidence capacity testing
- Ward reports to senior manager asap
- Senior Manager: takes overall control: redeploy; calls security & police; ensures appropriate support to department
- Patient safe havens
- Debrief when necessary
Patient Two

- Admitted with seizure; GGT 779
- 6 litres white cider / day 45u/day. Nil alcohol for 24 hours
- Previous admission with seizure and DT on day 2
  - chlordiazepoxide 180mg, Lorazepam 62mg, haloperidol 15mg, midazolam 4mg = poor sedation
- RAPA
- Tachycardia 125bpm; pyrexia 37.5; Normotensive, resps 16-21bpm, sats 95+%
- Chlordiaz 300mg in first 48 hours, 2 pairs pabrinex tds
- DT on day 2 of hospitalisation
- >600mgs diazepam / 24 hours, propofol in ITU
- Phosphate and magnesium both needing supplementation
- Day 7: MMSE 28/30 – doctors reluctant to stop benzos
- Day 9: discharged to community follow up
Re-feeding syndrome

- Limited understanding by health professionals
- Follows period of starvation
- Vitamin & electrolyte deficiencies
- Major complications: e.g. cardiac, neurological, disorientation, confusion, death
- Alcohol dependent major risk factor
- Deficiencies: Thiamine, Magnesium, Phosphate, Potassium, Calcium
Schematic Diagram of Alcohol Withdrawal Syndrome with major complications (Adapted from McKinley, 2005).

DTs  Seizures  Mild AWS  WKS  Refeeding Syndrome

Time line

CNS excitation

Withdrawal

Cessation of drinking

Tolerance

Short term effect of alcohol

Long -term effect of alcohol

Homeostatic balance line

0 hours  24 hours  48 hours  72 hours  96 hours  120 hours
Screen all patients for alcohol

70+% nil alcohol misuse
- Document Nil further action

1-5% potentially alcohol dependent

<30% alcohol misuse but not dependent
- Brief interventions LFT, advice giving, leaflets, signpost / refer

Refer to ADLN
Basic Investigations
AWSS
Assess for AWS complications risks: DT/ WKS / RFS
Prophylaxis / treatment
What needs to happen?

- Collaborate nationally
- Share best practice: e-forum?
- Conduct local research
- Lobby for more attention: NICE
Contact

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Questions?
References