

# Den intensivtrengende intoxpasient

Dag Jacobsen

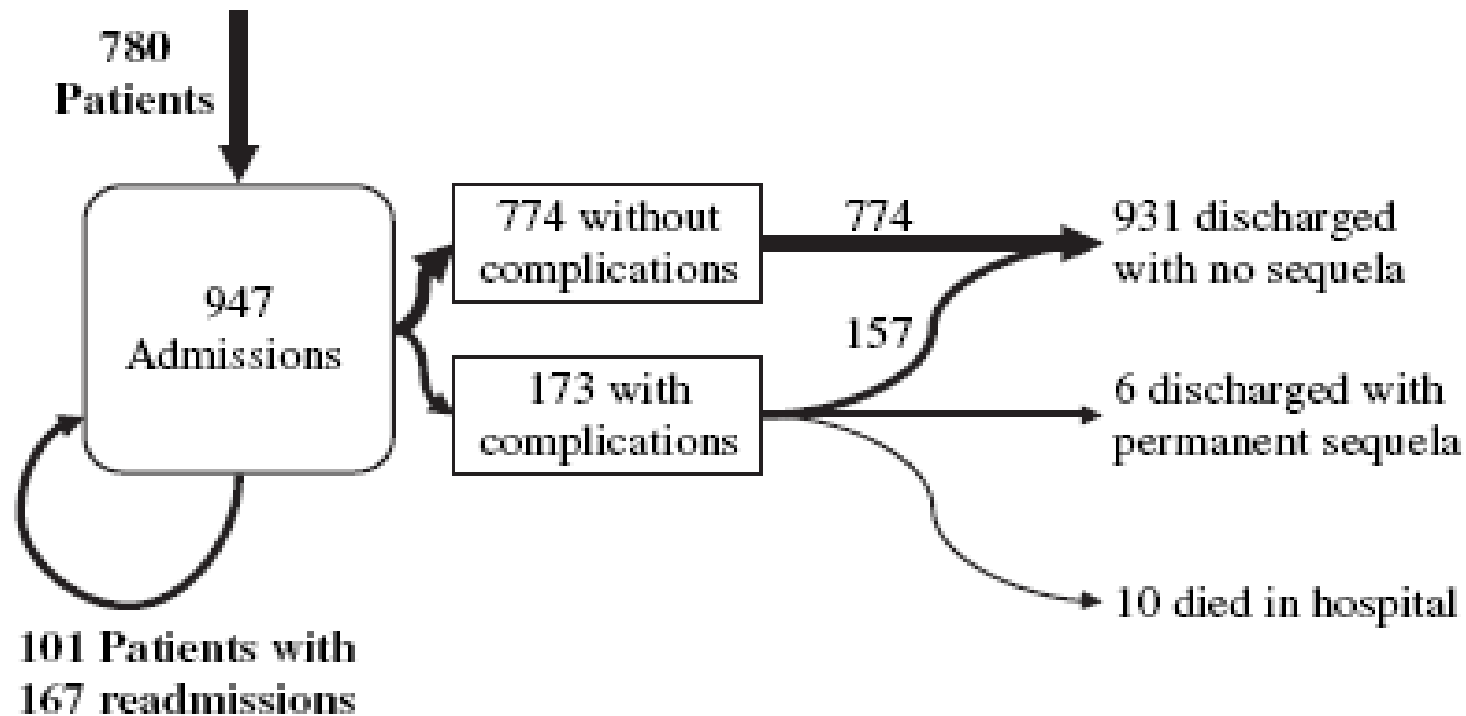
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Oslo universitetssykehus, Ullevål



# Disposisjon

- Epidemiologi
- Diagnostikk
- Behandling
- Noen spesielle forgiftninger
- Oppsummering – ”take home message”

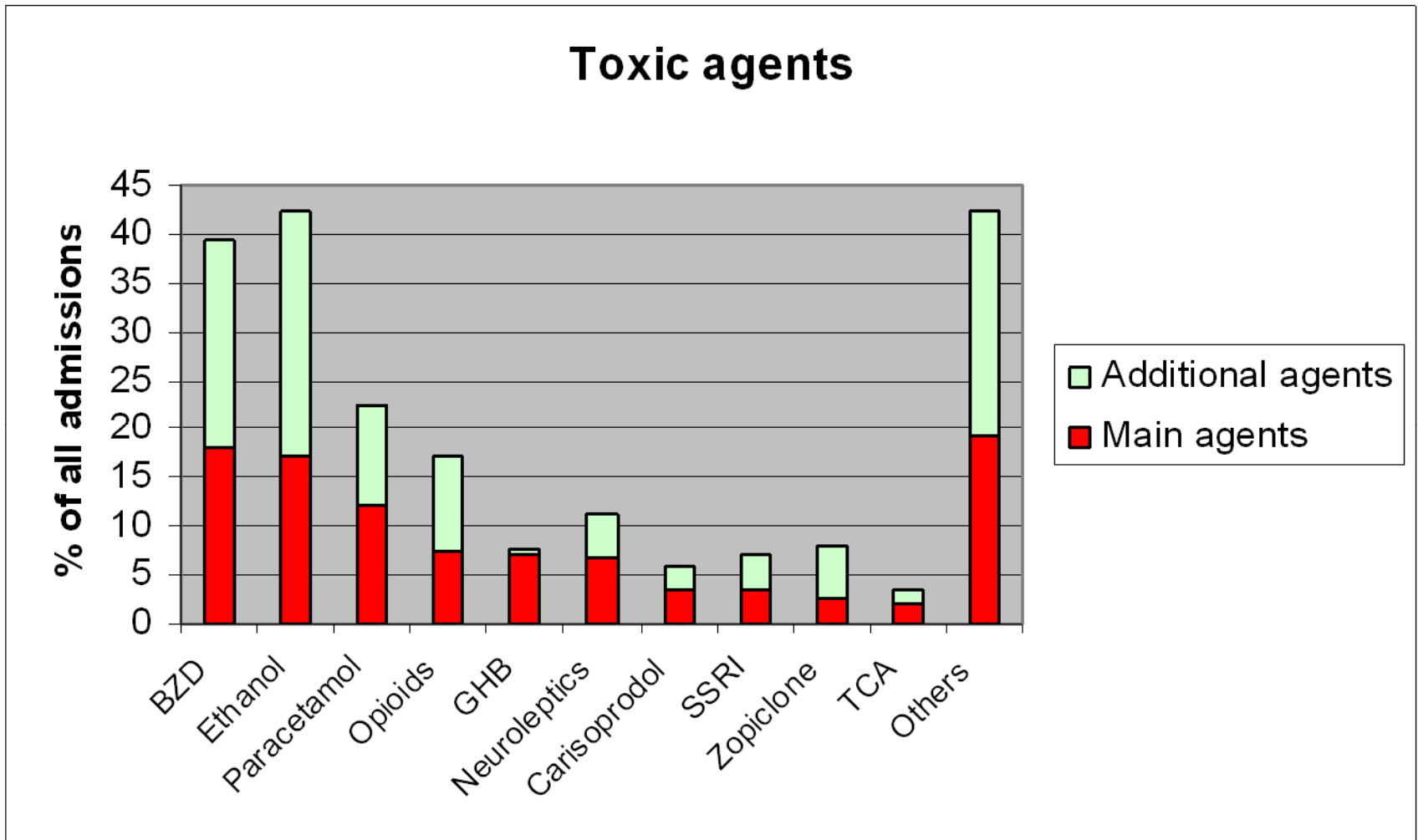
## Oslo intox 2003 – Sykehus i Oslo



**Fig. 1.** Complications and outcome in acutely poisoned adults admitted to hospital during one year.

Heyerdahl et al. Acute poisonings treated in hospitals in Oslo: A one-year prospective study (II): Clinical outcome. Clin Toxicol 2008;46(1):42-9.

# Oslo intox 2003 – Sykehus i Oslo



Hovda et al. Acute poisonings treated in hospitals in Oslo: A one-year prospective study (I): Pattern of poisoning. Clin Toxicol 2008;46(1):35-41.

# Forgiftningsbehandling - feil

- Glemmer intox som diff. diagnose
  - koma
  - metabolsk acidose
  - ”noe som ikke stemmer”
- Undervurderer alvoret ved inntak av
  - paracetamol
  - salicylater
- Glemmer å kontakte Giftinformasjonen



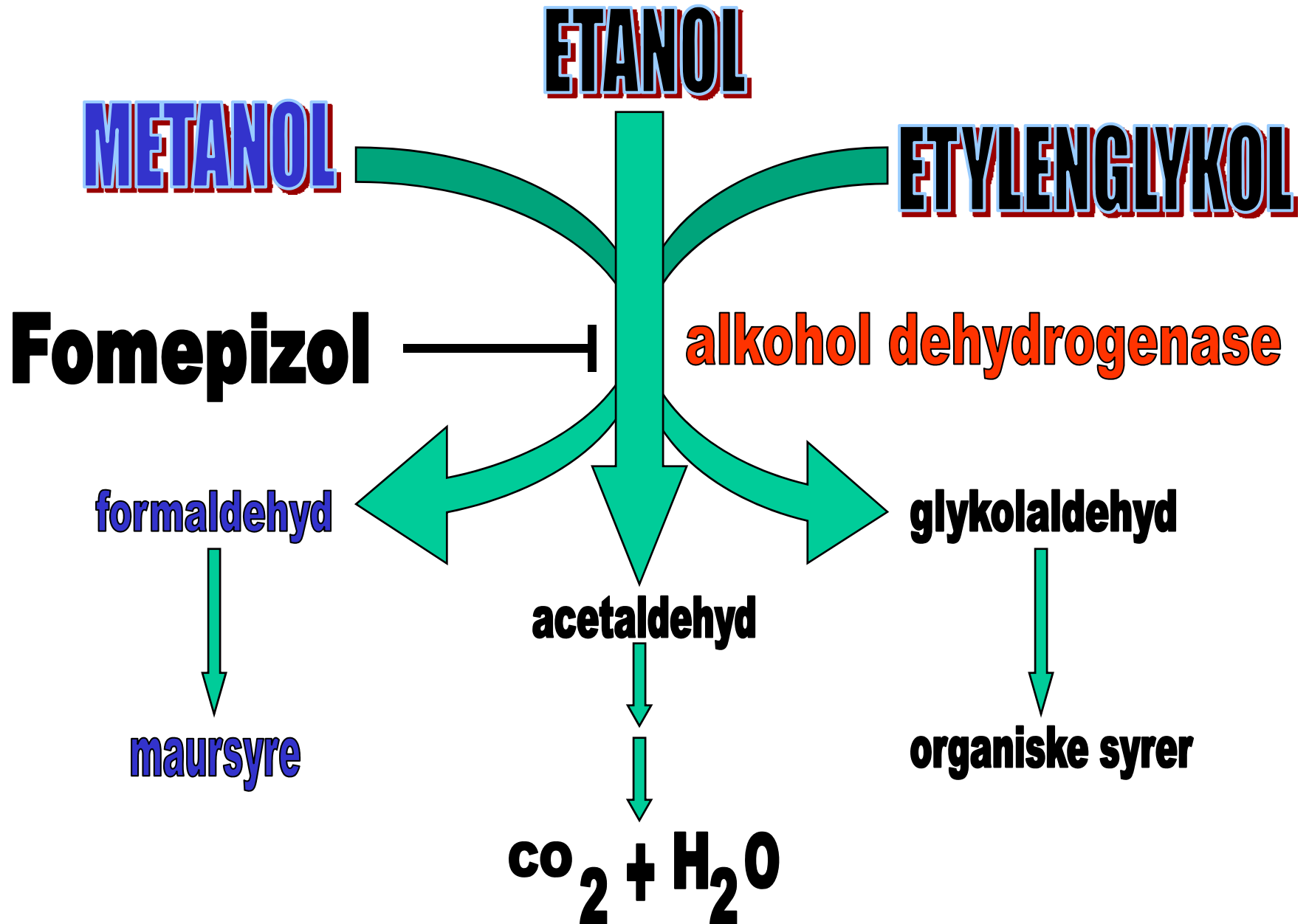
# Giftinformasjonen

- Det nasjonale rådgivnings- og kompetanseorganet vedrørende akutte forgiftninger og forgiftningsfare.
- Avdeling i Helsedirektoratet
- Lokalisert ved Ullevål universitetssykehus
- Finansiert over statsbudsjettet
- 27 årsverk
- Kliniske bakvakter



# Diagnostic challenges (I)

- **M 42**, comatose, RR 26/min, pH 6.92, pCO<sub>2</sub> 1.7 kPa, BD 28 mM.
- NaHCO<sub>3</sub> IV aiming at full correction of MA
- Died 6 hrs later; "bicarbonate resistant MA"
  
- **F 32**, comatose, seizures, RR 28/min, pH 6.88, pCO<sub>2</sub> 1.5 kPa, BD 30 mM, lactate 26 mM.
- MA due to seizures? NaHCO<sub>3</sub> & intubation
- NPIC: Proper lactate measurement...?
- Blood gas lactate may be glycolate – or other anions..?



# Poisoning - diagnosis

- Anamnesis
  - Be curious – ask why... even about wines... if something is strange (!)
  - Munchausen syndrome (self-injury for secondary gain) & MS by proxy
- Laboratory (direct or indirect methods)
- Clinical diagnosis
  - Toxicological syndromes (“toxidromes”)
- Pharmacological diagnosis
  - Naloxone, flumazenil, physostigmin

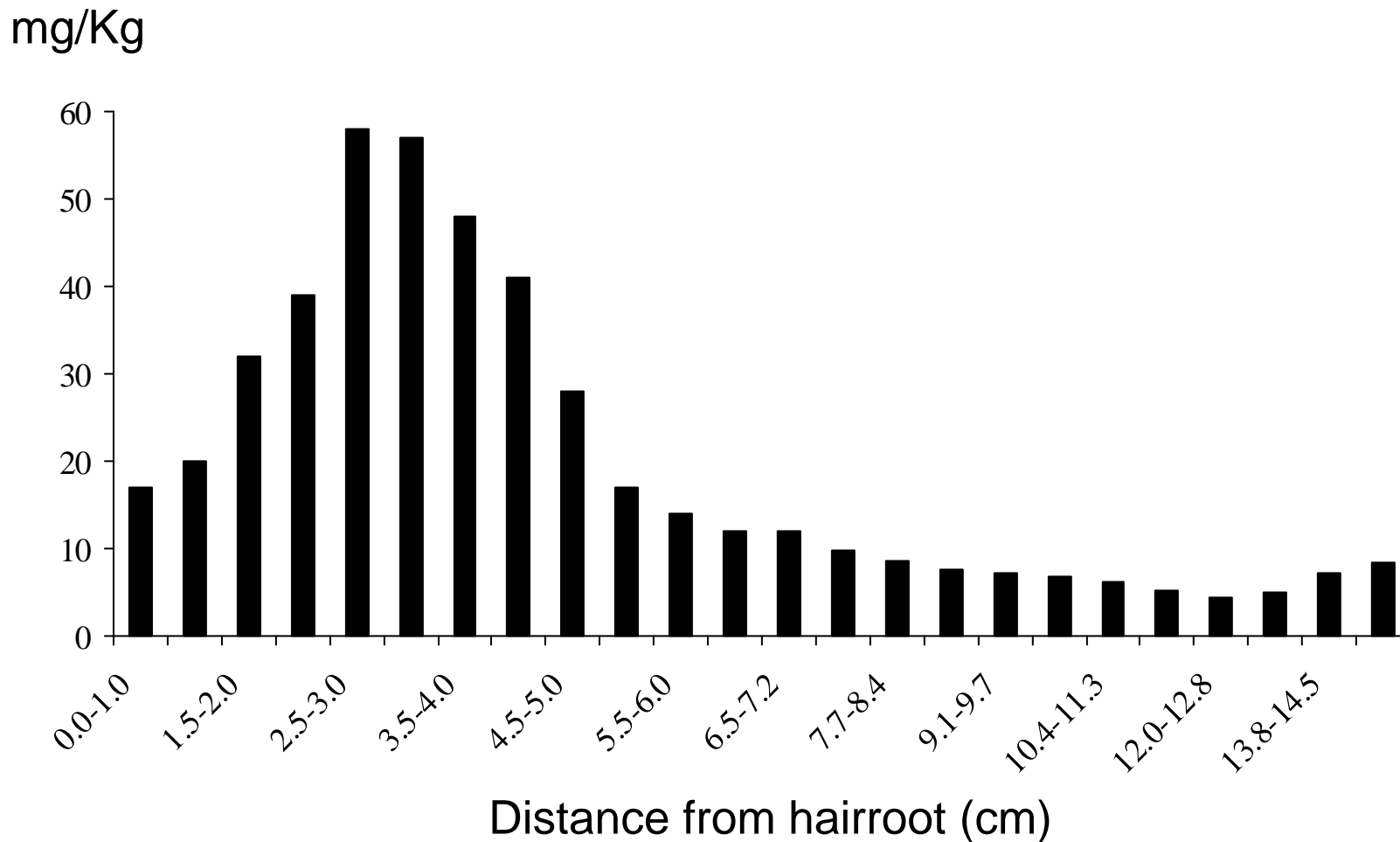
# Clinical diagnosis ("toxidromes")

- Miosis, coma & respiratory depression = ?
- Coma, respiratory depression & bradyarrhythmia = ?
- Hyperventilation (metabolic acidosis)
  - Methanol
  - Ethylene glycol (antifreeze)
  - Others; salicylates, cyanide...
- Pink skin color
  - Cyanide
  - CO
- Chocolate cyanosis = ?

# Poisoning - diagnosis

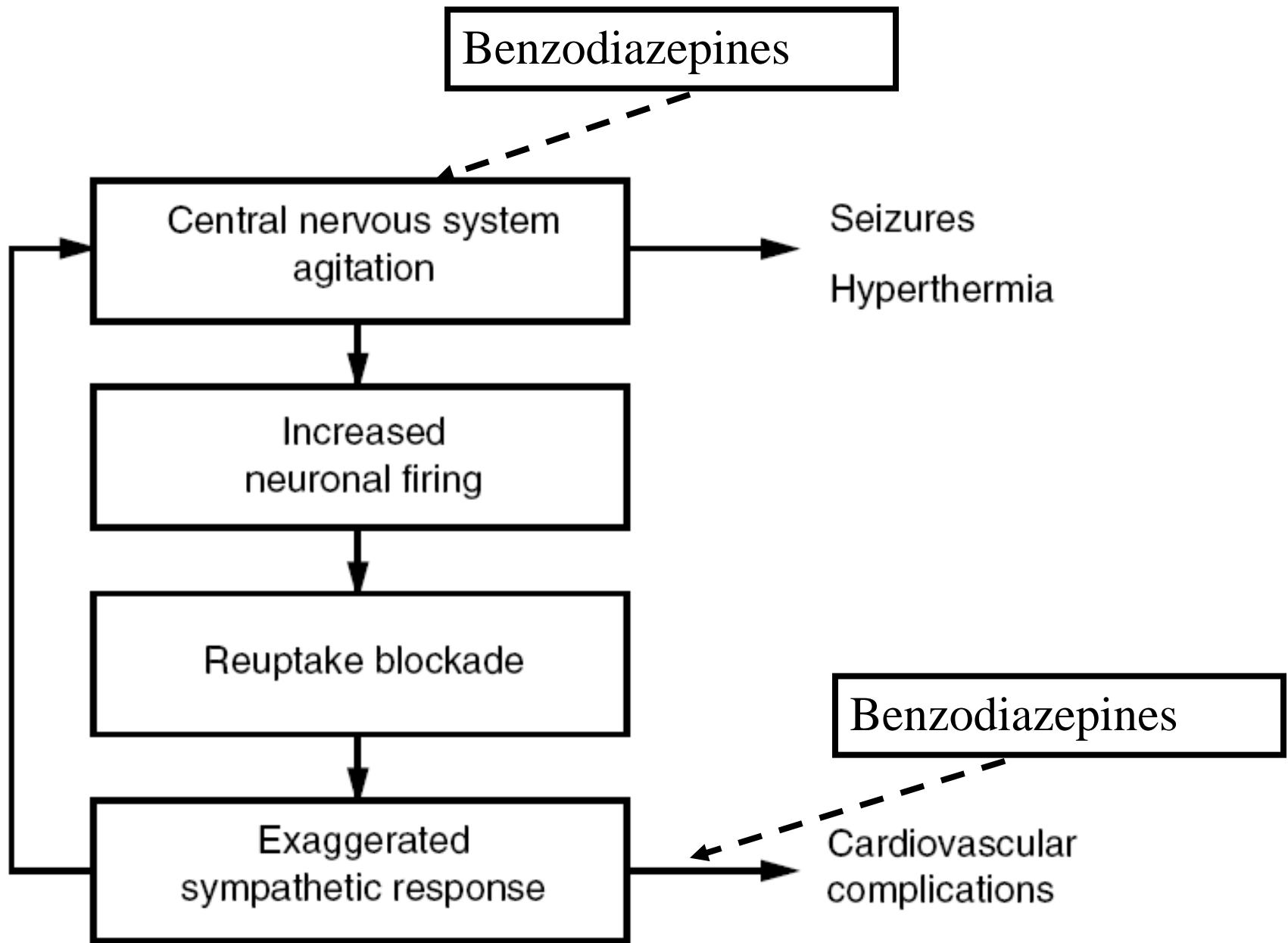
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- **Other investigations (X-ray, hair..)**

# Arsenic concentration in hair



# Cocaine – cardiac effects

- 25% of AMIs in 18-45yrs associated with recreational cocaine abuse
- Acute coronary syndromes due to:
  - Coronary vasoconstriction
  - Intracoronary thrombosis
  - Accelerated atherosclerosis (19 vs. 0.5 %)
- If AMI, most often non-Q, therefore:
  - Less arrhythmias, hypotension & cardiac failure
- EF often close to normal; most often open arteries.



# Cocaine overdose - treatment

- BZD are 'drugs of choice'
  - Break the vicious cycle of cocaine toxicity, augment adenosine-induced vasodilation, stim BZD receptors
- External cooling (max 15 min at >42C)
- Phentolamine against persistent HT & vasospasms
- Avoid b-blockers: excess alpha-stim may cause hypertensive crises
  - BP 200/120, P 124/min - BP 230/180, P 88/min
- If Na-channel blockade: Hypertonic NaHCO<sub>3</sub> iv

# M 21 – Chest pain

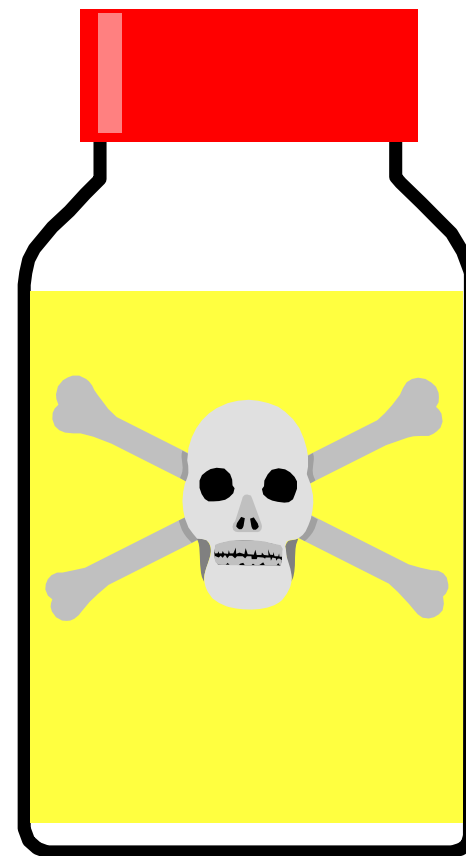
- Recreational abuser of coke & amphetamine
- ECG: ischemia & ST elevation
- ACA: vasospasms of LAD & CX, but no occlusion; EF < 40%
- Treatment with diazepam, aspirin & NG
- Non-Q AMI; EF 50% at discharge

# Behandling av forgiftninger

- **Livreddende førstehjelp**
- **Motgifter**
- **Ventrikkeltømming?**
- **Aktivt kull**
- **Forsert gifteliminering**
- **Symptomatisk behandling**
- **Videre oppfølging**

# Symptomatisk behandling (n=947)

• Respirasjonsdepresjon	67 (7%)
• Hypotensjon	43 (5%)
• Pneumoni	39 (4%)
• Arytmier	27 (3%)
• Hypotermi	19 (2%)
• Kramper	11 (1%)
• Rhabdomyolyse	11 (1%)
• Hjertestans	10 (1%)
• Nyresvikt	6
• Andre	52
• Totalt	285 (30%)



# HVA ER PARTYDOP?

- Amfetaminer
- GHB
- Ecstasy
- Kokain
- ”Designer drugs”
- Andre



# GHB (gamma-hydroxybutyrate)

- Developed as an anesthetic & used in narcolepsy (Xyrem)
- Neurotransmitter or neuromodulator?
- Dopaminergic effect on CNS.
- Easily made by mixing gamma-butyrolactone, KOH & NaOH
- Rapid metabolism to CO<sub>2</sub> & H<sub>2</sub>O; half-life 30 min
- Euphoria, better sex, feeling 'high'
- In overdose: Coma, respiratory depression & bradyarrhythmias (of all types)

# GHB - Pasient

- K18; på by'n med veninner
- Plutselig fjern & rar, synkoperer, amb til sykehus
- Intuberes, respirator 4 timer, extuberer seg selv, aspirasjon med aspirasjonspneumoni
- Bradyarytmi i 5 timer (26/min)
- Etanol 0.3 promille, toxisk GHB-kons.
- 'Date rape drug'

# Summary – ”party dopes”

- Cardiac complications are one of the most common complications to ”modern” drug abuse & ”party-dopes”
- Most significant are the acute coronary syndromes & dysrhythmias associated with amphetamine & cocaine abuse
- Although commonly seen, the bradyarrhythmias associated with GHB-abuse are less severe and usually need no specific treatment