Acute alcohol poisoning (ethyl, methyl, ethylene glycol).Pathogenesis, clinical presentation and progression.(general and specific symptoms).diagnostic criteria and differential diagnose. Treatment approaches. Risks associated with poor outcome in alcohol poisonings .

I.Alcohols in general

1.1. chemistry basics- structure, chemical features, reactivity
1.2. 1.2.physical features of the individual alcohols, solubility, dew points, taste
1.3. Use in domestic households and industry- examples
1.4.Social impact of alcohol use and abuse
-direct health effects
- indirect economic effects
-comorbidities associated and impact on society

II.General toxicokynetic features – absorption, distribution, metabolism and excretion

*.specificities in biotransformation, the role of the ADH

III. Common toxicodynamic effects on CNS

IV Ethanol poisoning

1.stages of ethanol poisoning and diagnostic criteria. Plasma concentration thresholds
2.pathogenetical mechanism involved
3.Clinical presentation
-onset of symptoms
-progression
-severe and life threatening poisoning
-specific presentation and risks in peadiatric population
-concomitant use of other CNS active drugs
4.Diagnostic work up and laboratory findings
5.Treatment approach
*ABCDE
*symptomatic supportive treatment- milestone are seizure control and hypoglycaemia associated
*GIT decontamination – when is it indicated
*haemodialysis – why and when is it indicated

1.3. V Methanol poisoning
1.physical and chemical features,toxic dose
2. Similarities to alcohol in toxicokynetics and dynamics
3. Specific metabolism and its relation to toxicity

4.Clinical presentation
*early onset similar to ethanol poisoning
* metabolic acidosis – potentially life threatening, differential diagnose, clinical symptoms
*optic nerve necrosis- patognomic
5.Treatment plan
*ABCDE
*early heamodialysis , intubation and ventilation required
*aggressive treatment of the metabolic acidosis with bicarbonate
*antidote treatment- mechanism of action, dose regimen
-ethanol – iv and po regimen
-fomepizol

1.4. VI Etylenglycol poisoning
1.physical and chemical features, toxic dose
2. Similarities to alcohol in toxicokynetics and dynamics
3. Specific metabolism and its relation to toxicity
4.Clinical presentation
*early onset similar to ethanol poisoning
*** metabolic acidosis – potentially life threatening, differential diagnose, clinical symptoms**
*Acute kidney Injury due to oxalate crystals build up and tubular necrosis on a later stage- patognomic
*laboratory findings

5.Treatment plan
*ABCDE
*early heamodialysis , intubation and ventilation required
*aggressive treatment of the metabolic acidosis with bicarbonate
*antidote treatment- mechanism of action, dose regimen
-ethanol – iv and po regimen
-fomepizol
-long term hemodialysis if AKI becomes chronic

CLINICAL CASE

A 59 y/o known alcohol abuser, frequent flyer to the local A&E is found unconscious in his flat, 28hours after he has last been seen by his family. In A&E he presents with GCS of 8, RR 38s /min, BP 75/45, HR 135/min. urine sample has been requested , but no residual urine present when he was catheterized, ABG showed BE -20, pH 7,16 pCO_2 12mm.

a)based on the MH, blood results and vital signs what is most likely causing patient's symptoms
b)how much $NaHCO_3$ would be needed if patient's body weight is 60kg
c)what antidote would be needed and what invasive method of decontamination might be still required