



Antidote and Specific Drugs

Antidote	Route	Mechanism	Indication	Comment
N-Acetylcysteine	Oral IV	Mucolytic agent acts as SH-group in glutathione which bind with toxic metabolism NAPQI to eliminated.	Acetaminophen overdose	Regiment and Administration method: 72-hour regimen: Consists of 18 doses; total dose delivered: 1,330 mg/kg. ❖ <u>Loading dose:</u> 140 mg/kg. ❖ <u>Maintenance dose:</u> 70 mg/kg every 4 hours 21-hour regimen: Consists of 3 doses; total dose delivered: 300 mg/kg. ❖ <u>Loading dose:</u> 150 mg infused over 1 hour. ❖ <u>Second dose:</u> 50 mg/kg infused over 4 hours. ❖ <u>Third dose:</u> 100 mg/kg infused over 16 hours.
Antivenin polyvalent	IV	Antibodies against two types of snakes.	<u>Significant envenomation</u> Clobridae: Hemorrhage Elapidae: neurotoxic (paralysis skeletal muscle including respiratory)	❖ Don't use as empiric for prophylaxis to avoid hypersensitivity reaction. ❖ Only for treatment in ICU. ❖ If the patient has hypersensitivity reaction, continue with low infusion rate and antihistamine. Also, prepare epinephrine. ❖ Monitor the asymptomatic patient for 6 hours.
Atropine (Toxic and Antidote)	IV IM Amp.	Parasympatholytic agent that competitively blocks the action of acetylcholine at muscarinic receptor.	Organophosphate poisoning (irreversible) Carbamate poisoning Reversal muscarine symptoms with (Clitocybe or mushroom)	S.E: Anticholinergic symptoms (<u>Dry mouth, urinary retention, constipation, blurred vision, mydriasis, tachycardia</u>) ❖ Treat any toxicity of medication induced bradycardia like BB or Digoxin. ❖ Decrease secretion.
Pralidoxime (2-PAM)	IV	Reactivity the <u>phosphorylated cholinesterase enzyme</u>	Organophosphate poisoning (Not for carbamate because it works on the enzyme only)	Aged enzyme due to delay treat Organophosphate poisoning (most effective early treatment but can use also at delay)



		Effect nicotinic receptor to prevent paralysis of muscle	Muscle weakness with nicotinic manifestations	
Physostigmine = Carbamine	IV	Reversible inhibitor of acetylcholinesterase	Anticholinergic syndrome	Pass BBB
BAL (Dimercaprol) (oily solution)	IM ONLY	2 SH-group Dithiol-chelating agent	Toxicity of arsenic, mercury, Lead (Encephalopathy), Plumbism, acute lead poisoning and gold.	Need adequate renal function Plumbism (chronic lead poisoning): use with Ca EDTA or DMSA
EDTA Calcium	IV	Chelating agent and Mobilize lead from soft tissue to blood.	<ul style="list-style-type: none"> ❖ Symptomatic lead poisoning ❖ Asymptomatic with high lead blood level 	Better than BAL due to: <ul style="list-style-type: none"> ❖ Not eliminate endogenous metal >> less S.E ❖ Mobilize lead from soft tissue to blood (good for chronic cases) If the lead level in the blood very high : give first dose of BAL and then start with EDTA to avoid the complication as encephalopathy or convulsion due to mobilize the lead to the blood.
DMSA (Succimer)	Oral			The same as EDTA Ca but only oral form available so cannot use in encephalopathy or coma.
Penicillamine	Oral			Not used due to a lot of S.E
Deferoxamine	SC IV	Chelating agent Only linked with free iron in circulation and produce ferrioxamine complex (vin rose color)	<ul style="list-style-type: none"> ❖ Sever Iron toxicity with sever shock or metabolic acidosis ❖ Test dose 	SC in thalassaemia patients
Benzodiazepines	Oral IV		<u>Treat symptoms of toxicity: (sympathomimetic syndrome)</u> <ul style="list-style-type: none"> ❖ Anxiety and Agitation ❖ Convulsions ❖ Muscle relaxant ❖ Chloroquine poisoning 	



			<ul style="list-style-type: none"> ❖ Alcohol or sedative-hypnotic withdrawal ❖ Conscious sedation 	
Flumazenil	IV	Selective competitive inhibitor of CNS system benzodiazepine receptors.	Benzodiazepines overdose Postoperative	
Naloxone Nalmefene (IV ONLY)	IM IV Endo-trach	Pure opioid antagonist that Competitive block opiate receptor	<ul style="list-style-type: none"> ❖ acute opioid poisoning ❖ In coma cocktail 	Naltrexone not use for acute opioid poisoning because it has agonist effect BUT helpful in opioid addicted
Benzotropine	Oral IV	Antimuscarinic agent similar to Atropine	Extrapyramidal S.E with antipsychotics , metoclopramide and neuroleptics.	
Bicarbonate Na			<ul style="list-style-type: none"> ❖ Sever rhabdomyolysis as urinary alkalization to increase the eliminate myoglobin ❖ Eliminate medication induced acidosis by urinary alkalization (Salicylate, phenobarbital) ❖ Metabolic acidosis with oral hypoglycaemic like metformin) ❖ Tricyclic toxicity and Antiarrhythmic Ia, Ic as membrane stabilizer to treat Na channel block and to treat acidosis. 	Prevent salicylate on the cell to decrease the toxicity intracellular



			<ul style="list-style-type: none"> ❖ Hyperkalaemia to shift K intracellular. ❖ Cardiotoxicity ❖ Iron ingestion by lavag 	
Botulin antitoxin	IV	Antibodies of C.botulium inactivate freely botulin toxin	Botulin toxicity by C.botulium Affect nerves system and cause paralysis.	Give it as soon as possible to avoid respiratory failure due to muscle paralysis.
Bromocriptine			Neuroleptic malignant syndrome	
Calcium			<ul style="list-style-type: none"> ❖ Ca antagonist overdose with hypotension (Verapamil). ❖ Symptomatic hypocalcaemia ❖ Sever hyperkalaemia with cardiotoxic. 	Don't use with Digitalis toxicity
Cyanide antidote package				
Nitrite Na, Amyl		Change oxy-Hb to Met-Hb which will bind with Cyanide to produce Cyano-met Hb	Cyanide poisoning	
Thiosulfate Na		Bind with Cyano-met Hb to produce non-toxic complex Na thiocyanate		
Hydroxocobalamin	IM	Exchange -OH group with free Cyanide >> non-toxic complex (cyanocobalamin)	<ul style="list-style-type: none"> ❖ Cyanide poisoning ❖ Pernicious anemia 	Slow effect
Methylene blue			<ul style="list-style-type: none"> ❖ Eliminate Met-Hb after use Cyanide antidote package 	



			❖ methemoglobinemia	
Dantrolene			Malignant hyperthermia syndrome	
Octreotide	IV	Antagonise insulin release	Oral sulfonylurea hypoglycaemia overdose	
Glucose			Coma cocktail for hypoglycemia	
Diazoxide			Oral hypoglycaemia overdose	Similar to Octreotide
Digoxin specific antibodies	IV	Antibodies	Life- threatening arrhythmias hyperkalemia	
Ethanol				
Fomepizole (4-MP)	IV	Competitive inhibitor of alcohol dehydrogenase	Methanol or ethylene toxicity which cause RF by metabolic acidosis.	
Protamine	IV		Heparin overdose	
Vit K1 (phytonadione)	Oral IV	Reverses inhibitory effect of Coumarin and indanedione derivative.	<ul style="list-style-type: none"> ❖ Excessive anticoagulation by Coumarin and indanedione derivative ❖ Hypoprothrombinaemia by salicylate 	Need fresh frozen plasma or whole blood in serious Hemorrhage because Vit K need 1-2 days to see the effect and the duration of effect 5-10 days