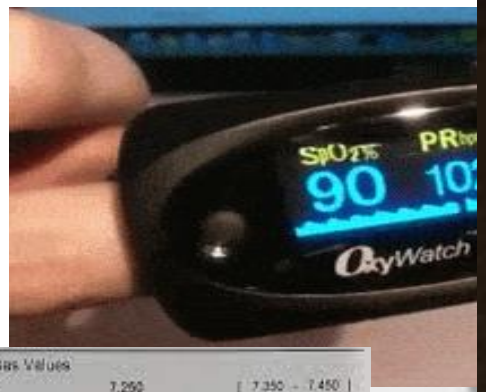
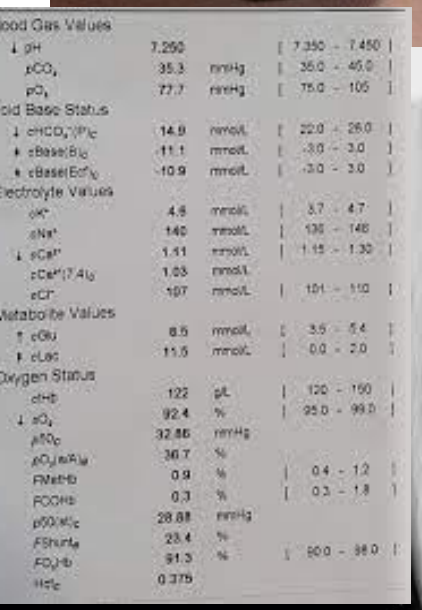
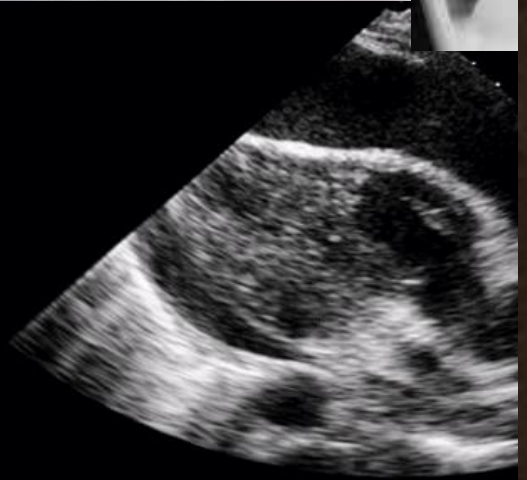
ΕΙΔΙΚΕΣ ΚΑΤΑΣΤΑΣΕΙΣ ΣΤΗΝ ΑΝΑΖΩΟΓΟΝΗΣΗ

ΔΗΛΗΤΗΡΙΑΣΗ

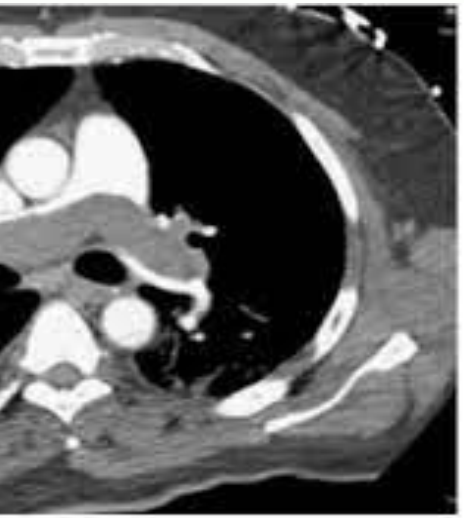
Χρήστος Νίχλος
Παθολόγος/Εξειδικευόμενος ΜΕΘ
ΓΝΑ Ευαγγελισμός


SpO2%
90
OxyWatch


ood Gas Values
↓ pH 7.250 [7.350 - 7.450]
pCO2 35.3 mmHg [35.0 - 45.0]
pO2 77.7 mmHg [75.0 - 105]
id Base Status
↓ cHCO3-(P)c 14.9 mmol/L [22.0 - 26.0]
+ cBase(B)c 11.1 mmol/L [-3.0 - 3.0]
+ cBase(Ecf)c 10.9 mmol/L [-3.0 - 3.0]
lectrolyte Values
cK+ 4.6 mmol/L [3.7 - 4.7]
cNa+ 140 mmol/L [136 - 146]
↓ cCa2+ 1.11 mmol/L [1.15 - 1.33]
cCa2+(7.4)c 1.03 mmol/L
cCl- 107 mmol/L [101 - 110]
etabolite Values
↑ cGlu 8.5 mmol/L [3.5 - 5.4]
+ cLac 11.5 mmol/L [0.0 - 2.0]
xygen Status
ctHb 122 g/L [120 - 160]
↓ sO2 92.4 % [95.0 - 99.0]
pH2Oc 32.86 mmHg
pO2(a/A)e 38.7 %
FMetHb 0.9 % [0.4 - 1.2]
FCOHb 0.3 % [0.3 - 1.8]
p50(st)c 28.88 mmHg
FShunte 23.4 %
FO2Hb 91.3 % [90.0 - 98.0]
Hctc 0.375




SHERLOCK
one




HR 69
LEAD II

Τι κοινό έχουν;




Resus

RSI DEAD

Resuscitation
Risk Assessment
Supportive care & monitoring
Investigations
Decontamination
Enhanced elimination
Antidotes
Disposition

Resuscitation

A πρώιμη ή όψιμη διασωλήνωση; χειρουργικός αεραγωγός; χορήγηση HCO3 σε μεταβολική οξεωση

B ΥΠΕΡΑΕΡΙΣΜΟΣ (αντιρρόπηση μεταβολικής οξέωσης, στοχευμένη αλκαλαιμία), Paraquat

C **παρατεταμένη αναζωογόνηση,** ιδιαίτερα υψηλές ανάγκες σε αγγειοσυσπαστικά/ινότροπα, αντενδείξεις σε χορήγηση αντιαρρυθμικών, ανάγκη στοχευμένης εξειδικευμένης υποστήριξης, αντίδοτα, μηχανική υποστήριξη

D Do not ever forget GLUCOSE, ειδική αντιμετώπιση επιληπτικών κρίσεων, Flumazenil?, Naloxon?

E Υποθερμία/Υπερθερμία

Risk Assessment

- Προσπάθεια πρόβλεψης της πιθανής κλινικής πορείας του ασθενούς καθώς και των πιθανών επιπλοκών εξατομικευμένα για κάθε ασθενή στο συγκεκριμένο κλινικό σενάριο

- Όσο το δυνατόν συντομότερα

- Λήψη αποφάσεων σε σχέση με την διαχείριση βάσει των στοιχείων και τη διενέργεια εξειδικευμένων θεραπευτικών χειρισμών ή τη χορήγηση αντιδότων σε πρώιμο στάδιο

    1. Τοξίνη(-ες)
    2. Δόση
    3. Χρόνος από λήψη
    4. Κλινική εικόνα
    5. Ιδιαίτερα χαρακτηριστικά ασθενούς

Πληροφορίες από ασθενή, συνοδούς, ΕΚΑΒ, ηλεκτρονική συνταγογράφηση, κοινωνιοοικονομικά-επαγγελματικά στοιχεία

Risk Assessment

- Άλλου είδους επιπλοκές λόγω δηλητηρίασης
- Τοξίδρομα
- ΔΔ μη τοξικολογικής αιτίας

classic toxidromes

	Temp	Bp	HR	RR	= Diaphoretic / = Dry axilla	Tremor	Pupils	Clonus	Sz	Appearance*
Serotonin syndrome Sympathomimetic toxicity Baclofen withdrawal	↑	↑	↑	↑						
Anticholinergic	↑	↑	↑							
Tricyclic antidepressant	↑	↓	↑							
Alcohol withdrawal Benzodiazepine withdrawal	↑	↑	↑	↑						
Opioid withdrawal		↑	↑	↑						
Salicylate	↑			↑						
Lithium										
Carbon monoxide										
Cholinergic		↓	↓							
Beta-blocker Calcium Channel blocker		↓	↓							
Benzodiazepine, EtOH		↓	↓	↓						
Opioid		↓	↓	↓						

=anxious, =agitated, =sedated, =coma, =delirium, =mydriasis, =miosis, =urinary retention

Please note that these are *generalizations* which won't apply perfectly to every patient (e.g. not all patients with opioid intoxication have miosis). Furthermore, *mixed* intoxications will break these norms. In general, the toxidrome chart should be used to *broaden* the differential, but can't definitively exclude or prove specific intoxications.

-The Internet Book of Critical Care by @PulmCrit

Supportive care & monitoring

FAST HUGS IN BED Please

Fluid therapy and **F**eeding
Analgesia, **A**ntiemetics
Sedation and **S**pontaneous breathing trial
Thromboprophylaxis
Head up position (30 degrees)
Ulcer prophylaxis
Glucose control
Skin/ eye care and **S**uctioning
Indwelling catheter
Nasogastric tube
Bowel cares
Environment (e.g. temperature control, appropriate surroundings in delirium)
De-escalation (e.g. end of life issues, treatments no longer needed)
Psychosocial support (for patient, family and staff)

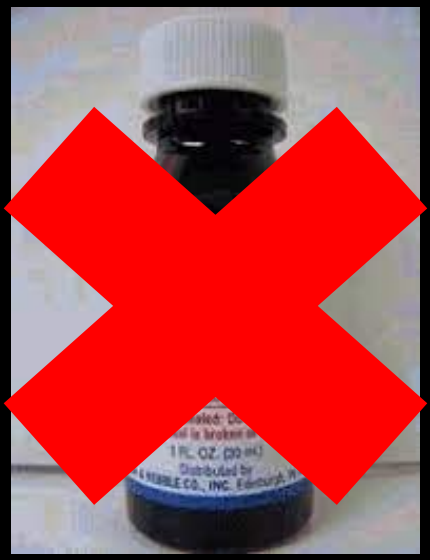
Investigations

- Γλυκόζη
- ΗΚΓ
- BGA
- Γενική αίματος
- Βιοχημικό (δείκτες νεφρικής-ηπατικής λειτουργίας, ηλεκτρολύτες)
- Επίπεδα παρακεταμόλης-σαλικυλικών
- Τεστ εγκυμοσύνης

- Έλεγχος πήξης
- CK
- COHb
- Επίπεδα φαρμάκων (carbamazepine, digoxin, lithium, methotrexate, phenobarbital, phenytoin, theophylline, valproic acid)

Decontamination

- Απομάκρυνση της ουσίας πριν την ολοκλήρωση της απορρόφησης στην συστηματική κυκλοφορία
- Όχι διαδικασία ρουτίνας, διενέργεια βάσει Risk assesment
- Απομάκρυνση ρούχων, δέρμα, μάτια



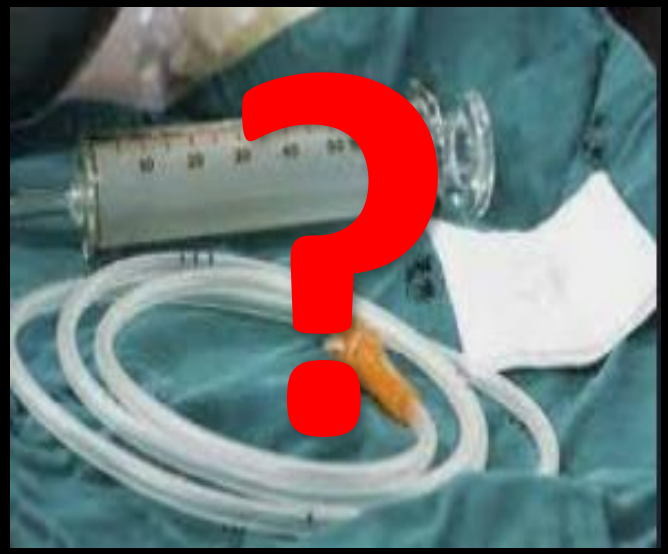


TABLE 5–3 Risk Assessment: When to Consider Orogastric Lavage

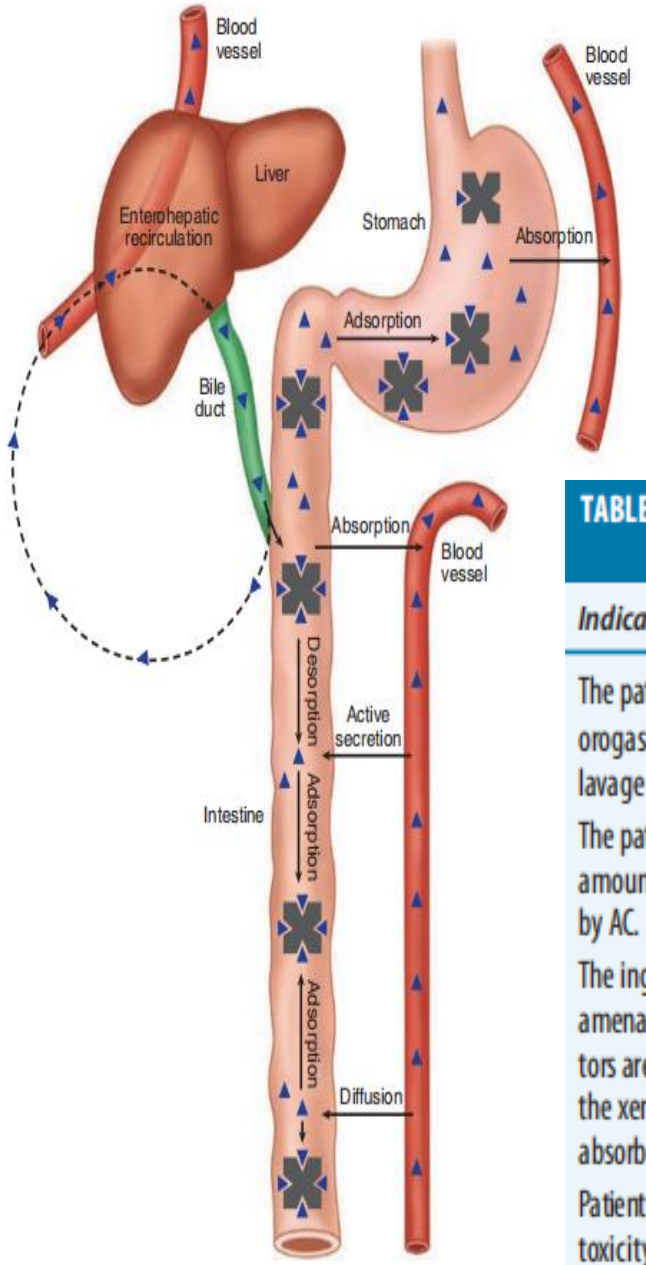
Orogastric Lavage Is Usually Not Indicated[a]	*Orogastric Lavage Is Indicated*[b]
The xenobiotic has limited toxicity at almost any dose. Although the xenobiotic ingested is potentially toxic, the dose ingested is likely less than that expected to produce significant illness. The ingested xenobiotic is well adsorbed by AC, and the amount ingested is not expected to exceed the adsorptive capacity of AC. Significant spontaneous emesis has already occurred. The patient presents many hours postingestion and has minimal signs or symptoms of poisoning. The ingested xenobiotic has a highly efficient antidote (eg, APAP and *N*-acetylcysteine). The procedure cannot be accomplished appropriately or safely (wrong tube size, lack of provider skill, anticipated extant esophageal or gastric injury, etc.)	The ingested xenobiotic is known to produce life-threatening toxicity *or* the patient has obvious signs or symptoms of life-threatening toxicity and ■ There is reason to believe that, given the time of ingestion, a significant amount of the ingested xenobiotic is still present in the stomach *or* ■ The ingested xenobiotic is not adsorbed by AC or AC is unavailable *or* ■ Although the ingested xenobiotic is adsorbed by AC, the amount ingested exceeds the AC–xenobiotic ratio of 10:1 even when using a dose of AC that is twice the standard dose recommended *and* ■ The patient has not had spontaneous emesis *or* ■ No highly effective specific antidote exists or alternative therapies (eg, hemodialysis) pose a significant risk to the patient.

[a]Patients who fulfill some of these criteria can be decontaminated safely with activated charcoal alone or in many cases require no decontamination at all. [b]Patients who fulfill these criteria should undergo orogastric lavage *if* there are no contraindications or other compelling time-dependent interventions. For individuals who meet some of these criteria but who are judged not to be candidates for orogastric lavage, single- or multiple-dose activated charcoal or whole-bowel irrigation (or both) should be used.

AC = activated charcoal; APAP = acetaminophen.

TABLE 5–4 Orogastric Lavage: Indications and Contraindications

Indications	*Contraindications*
The patient meets some of the criteria for orogastric lavage (Table 5–3). The benefits of orogastric lavage outweigh the risks.	The patient does not meet any of the criteria for orogastric lavage (Table 5–3). The patient has lost or will likely lose his or her airway protective reflexes without being intubated. (After intubation, orogastric lavage can be performed if otherwise indicated). Ingestion of a xenobiotic with a high aspiration potential (eg, a hydrocarbon) in the absence of endotracheal intubation. Ingestion of an alkaline caustic. Ingestion of a foreign body (eg, a drug packet). The patient is at risk of hemorrhage or gastrointestinal perforation because of underlying pathology, recent surgery, or another medical condition that could be further compromised by the use of orogastric lavage. Ingestion of a xenobiotic in a form known to be too large to fit into the lumen of the lavage tube (eg, many modified-release preparations).



-Ενήλικες 50-100gr (1g/kg BW, 1:10-1:40), 1-2h από την λήψη
-Βραδεία αποδέσμευση, εντεροηπατική-εντεροεντερική κυκλοφορία: **MDAC**
-Κίνδυνος εισρόφησης/πνευμονίτιδας, πιθανή μειωμένη απορρόφηση αντιδοτου, απόσπαση προσοχής από αναζωογόνηση
-ΟΧΙ σε: υδρογονάνθρακες, αλκοόλες (Ethanol,Isopropyl alcohol,Ethylene glycol,Methanol), μέταλλα (Lithium,Iron,Potassium, Lead, Arsenic,Mercury), διαβρωτικές ουσίες

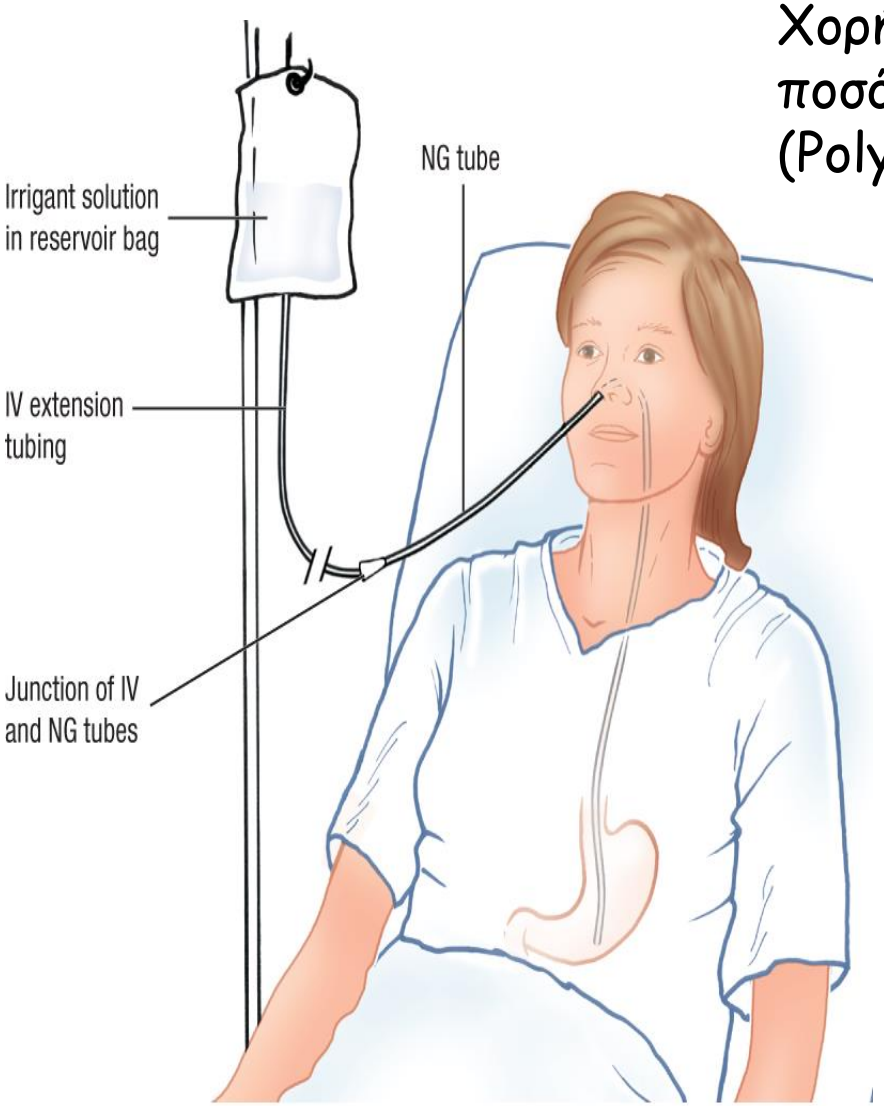
TABLE 5–7 Single-Dose Activated Charcoal Therapy: Indications and Contraindications

Indications	*Contraindications*
The patient does not meet criteria for orogastric lavage (Table 5–1) or orogastric lavage is likely to be harmful.	Activated charcoal is known not to adsorb a clinically meaningful amount of the ingested xenobiotic.
The patient has ingested a potentially toxic amount of a xenobiotic that is well adsorbed by AC.	Airway protective reflexes are absent or expected to be lost, and the patient is not intubated.
The ingestion occurred within a time frame amenable to adsorption by AC or clinical factors are present that suggest that not all of the xenobiotic has already been systemically absorbed.	Gastrointestinal perforation is likely, as in cases of caustic ingestions.
Patients who have potentially life-threatening toxicity regardless of the time since ingestion as long as no absolute contraindications exist.	Therapy will likely increase the risk and severity of aspiration, such as in the presence of hydrocarbons with a high aspiration potential.
	Endoscopy will be an essential diagnostic modality (caustics).

TABLE 5–8 Multiple-Dose Activated Charcoal Therapy: Indications and Contraindications

Indications	*Contraindications*
Ingestion of a life-threatening amount of *Amanita* spp., amiodarone, amitriptyline, carbamazepine, colchicine, dextropropoxyphene, digitoxin, digoxin, disopyramide, dosulepin, duloxetine, diquat, *Gymnopilus penetrans*, lamotrigine, nadolol, phenobarbital, phenylbutazone, phenytoin, piroxicam, quetiapine, quinine, sotalol, theophylline, valproic acid, verapamil, or vinorelbine.	Any contraindication to single-dose activated charcoal.
Ingestion of a life-threatening amount of a xenobiotic that undergoes enterohepatic or enteroenteric recirculation and that is adsorbed to activated charcoal.	The presence of an ileus or other causes of diminished peristalsis.
Ingestion of a significant amount of any slowly released xenobiotic or of a xenobiotic known to form concretions or bezoars.	

Χορήγηση μεγάλης ποσότητας (συνήθως 1-2 L ανά ώρα, έως συνολική ποσότητα 5-10 L) ισοωσμωτικού διαλύματος πολυαιθυλενογλυκόλης (Polyethylene glycol)

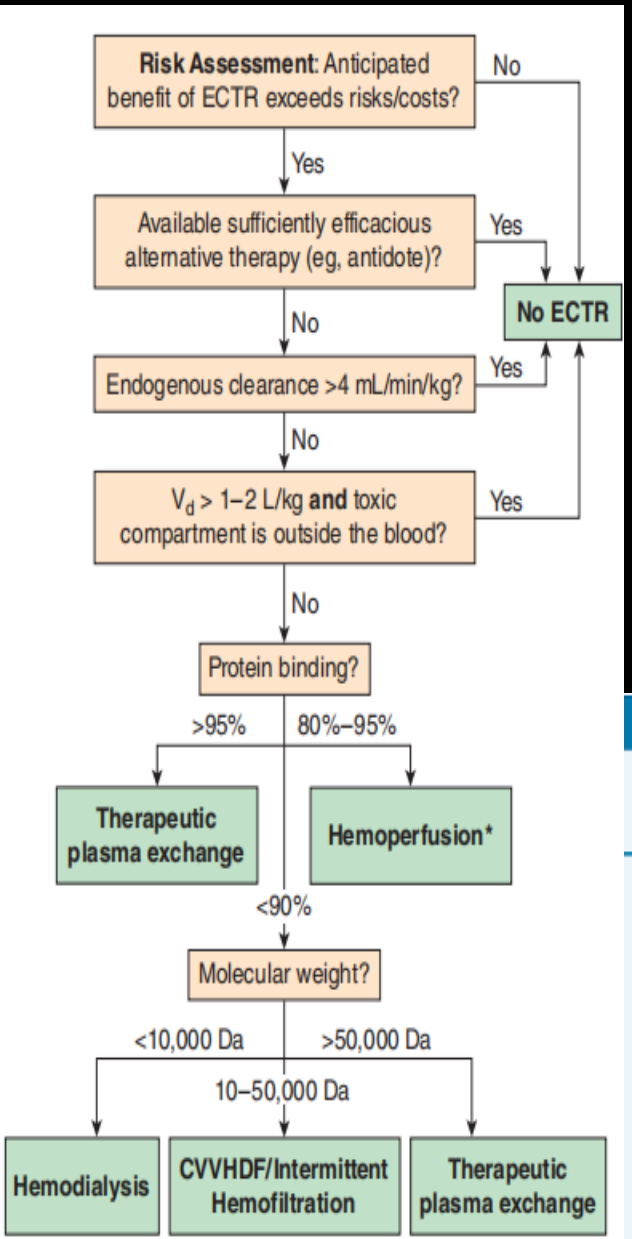


Source: Reichman EF: *Emergency Medicine Procedures, Second Edition:* www.accessemergencymedicine.com

TABLE 5–10 Whole-Bowel Irrigation: Indications and Contraindications

Indications	*Contraindications*
Potentially toxic ingestions of sustained-release and modified release drugs.	Airway protective reflexes are absent or expected to become so in a patient who is not intubated.
Ingestion of a toxic amount of a xenobiotic that is not adsorbed to AC when other methods of GI decontamination are not possible or not efficacious.	The GI tract is not intact. There are signs of ileus, obstruction, significant GI hemorrhage, or hemodynamic instability that might compromise GI motility.
Removal of illicit drug packets from body packers.	Persistent vomiting.
	Signs of leakage from cocaine packets (indication for surgical removal).

Enhanced elimination



- Απομάκρυνση τοξίνης από όργανο-στόχο μετά την συστηματική της απορρόφηση, σε πολύ ταχύτερο ρυθμό από την ενδογενή κάθαρση και όταν άλλες θεραπευτικές μέθοδοι δεν προσφέρουν θετική έκβαση.
- Αφορά συγκεκριμένες τοξίνες και εξαρτάται από τα χαρακτηριστικά της φαρμακοκινητικής τους.
- MDAC, αλκαλοποίηση ούρων, ρητίνες, αιμοκάθαρση
- Αιμοκάθαρση: Τοξικές αλκοόλες, θεοφυλλίνη, σαλικυλικά,λίθιο, φαινοβαρβιτάλη, μετφορμίνη,βαλπροϊκό οξύ, καρβαμαζεπίνη, άλατα καλίου, θάλιο (παρακεταμόλη, ατενολόλη, σοταλόλη,φαινυτοϊνη)

TABLE 6–1 Potential Methods of Enhancing Elimination of Xenobiotics

Occurring Inside the Body	*Occurring Outside the Body (Extracorporeal)*
Cerebrospinal fluid replacement	Exchange transfusion
Forced diuresis	Hemodialysis
Manipulation of urine pH	Hemofiltration and hemodiafiltration
Metal chelators	Hemoperfusion (charcoal, resin)
Multiple-dose activated charcoal	Liver support devices
Peritoneal dialysis	Plasmapheresis
Resins (Prussian blue, sodium polystyrene sulfonate, cholestyramine, colestipol)	

EXTRIP
THE EXTRACORPOREAL TREATMENTS IN POISONING WORKGROUP

Blood Purification in Toxicology: *Reviewing the Evidence and Providing Recommendations*

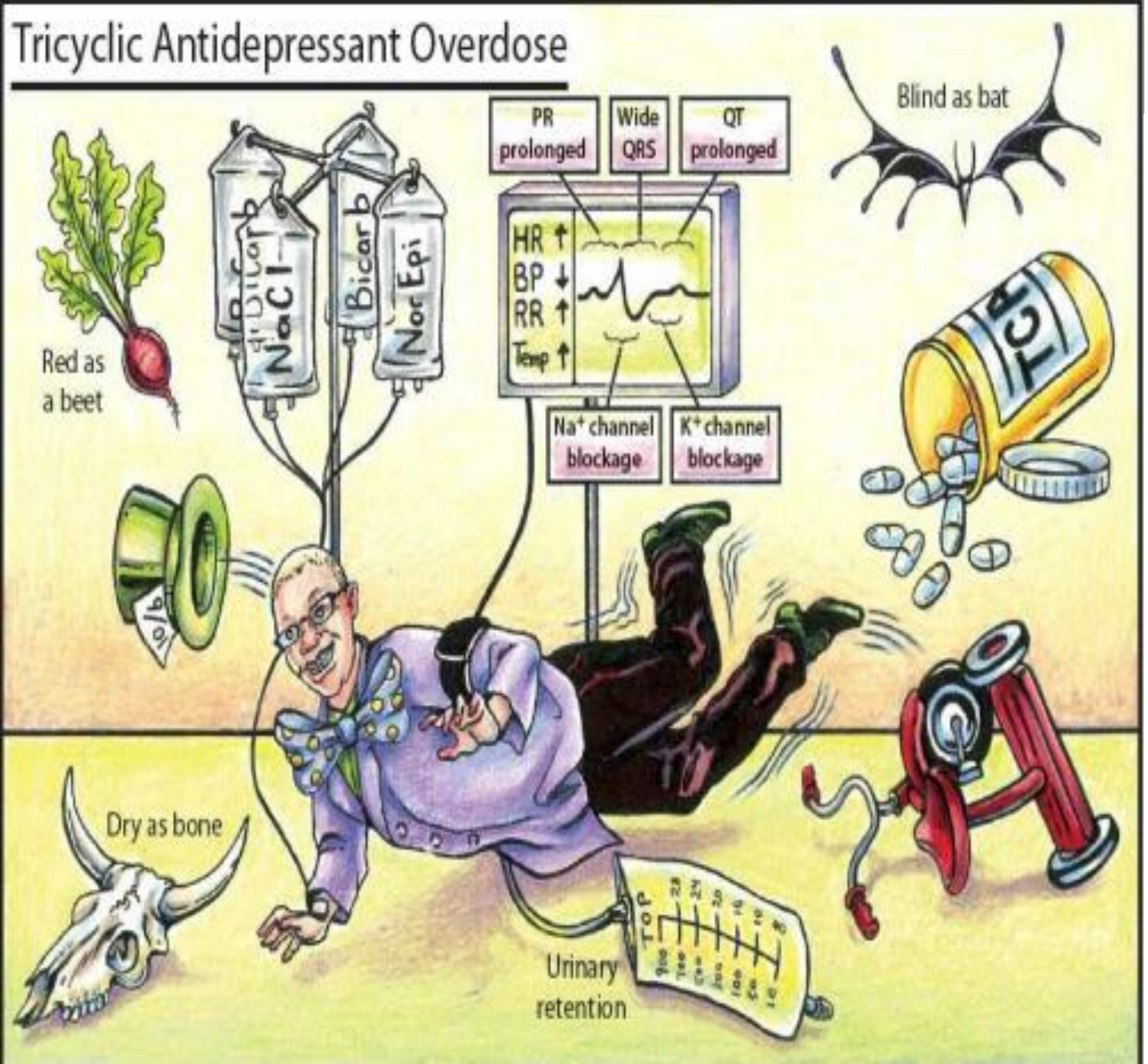
Antidotes

No.	Antidotes	Poisoning indication(s)	Urgency of availability			Recommended classification of antidote*
			Must be available within 6 hr	Must be available within 2 hr	Must be available immediately† (with 30 min)	
1	Activated charcoal	Most therapeutic drugs (for absorbable poisons)	No	No	Yes	IIA
2	Amyl nitrite	Cyanide poisoning	No	No	Yes	IA
3	Antivenin	Venomous snake bite	No	Yes	No	IIB
4	Anti-rabies immunoglobulin	Non-vaccinated dog bite	Yes	No	No	IC
5	Atropine	Organophosphate, carbamate etc.	No	No	Yes	IA
6	Benzylpenicillin	Amatoxin	No	Yes	No	IIIB
7	Beta-blockers	Beta-adrenergic agonists	No	No	Yes	IA
8	Calcium gluconate gel	Hydrofluoric acid	No	No	Yes	IA
9	Calcium gluconate or other calcium salts	Hydrofluoric acid, fluorides, oxalates	No	No	Yes	IA
10	Dantrolene	Drug-induced hyperthermia	No	Yes	No	IIB
11	Deferoxamine	Iron	No	Yes	No	IB
12	Diazepam	Organophosphorus compounds	No	No	Yes	IIA
13	Digoxin-specific Fab antibody fragments	Digoxin, digitoxin, natural cardioactive steroids	No	No	Yes	IA
14	Dimercaprol	Arsenic	No	Yes	No	IIIB
15	Ethanol	Toxic alcohols (methanol, ethylene glycol etc.)	No	No	Yes	IA
16	Flumazenil	Benzodiazepine	No	No	Yes	IIA
17	Folinic acid	Methotrexate	No	No	Yes	IA
18	Fomepizole	Toxic alcohols (methanol, ethylene glycol etc.)	No	No	Yes	IA
19	Glucagon	Beta-blocker	No	No	Yes	IA
20	Glucose (hypertonic)	Insulin	No	No	Yes	IA
21	Hydroxocobalamin	Cyanide	No	No	Yes	IA
22	Methylene blue (methylthioninium chloride)	Methemoglobinemia inducer	No	Yes	No	IB
23	*N*-acetylcysteine	Acetaminophen	No	No	Yes	IA
24	Naloxone	Opioid	No	Yes	No	IB
25	Neostigmine	Nondepolarizing neuromuscular blocking agents	No	No	Yes	IIA
26	Phentolamine	MAOI interaction, cocaine, epinephrine and ergot alkaloid	No	Yes	No	IIIB
27	Physostigmine	Anticholinergic syndrome (amanita muscaria mushroom etc.)	No	Yes	No	IIIB
28	Phytomenadione (Vitamin K1)	Warfarin, brodifacum	No	Yes	No	IIB
29	Pralidoxime	Organophosphorus compounds	No	No	Yes	IA
30	Protamine sulphate	Heparin	Yes	No	No	IIC
31	Pyridoxine	Isoniazid, cycloserine	NC	NC	NC	NC
32	Rabies vaccine	Non-vaccinated dog bite	Yes	No	No	IC
33	Sodium bicarbonate	Tricyclic antidepressant	No	No	Yes	IA
34	Sodium nitrite	Cyanide	No	No	Yes	IA
35	Sodium thiosulfate	Cyanide, nitroprusside	No	No	Yes	IA
36	Succimer (DMSA)	Lead, arsenic, inorganic methyl mercury	Yes	No	No	IC

*The antidotes were classified according to the degree of proven effectiveness (I, II, or III) and the urgency of availability (A, B, or C) (Table 2); †In most hospitals, immediate availability means that the antidote should be stocked in the emergency department. DMSA, dimercaptosuccinic acid; MAOI, monoamine oxidase inhibitors; NC, panel could not reach consensus.

Disposition

Risk assessment
Ανάγκη εξειδικευμένης υποστήριξης



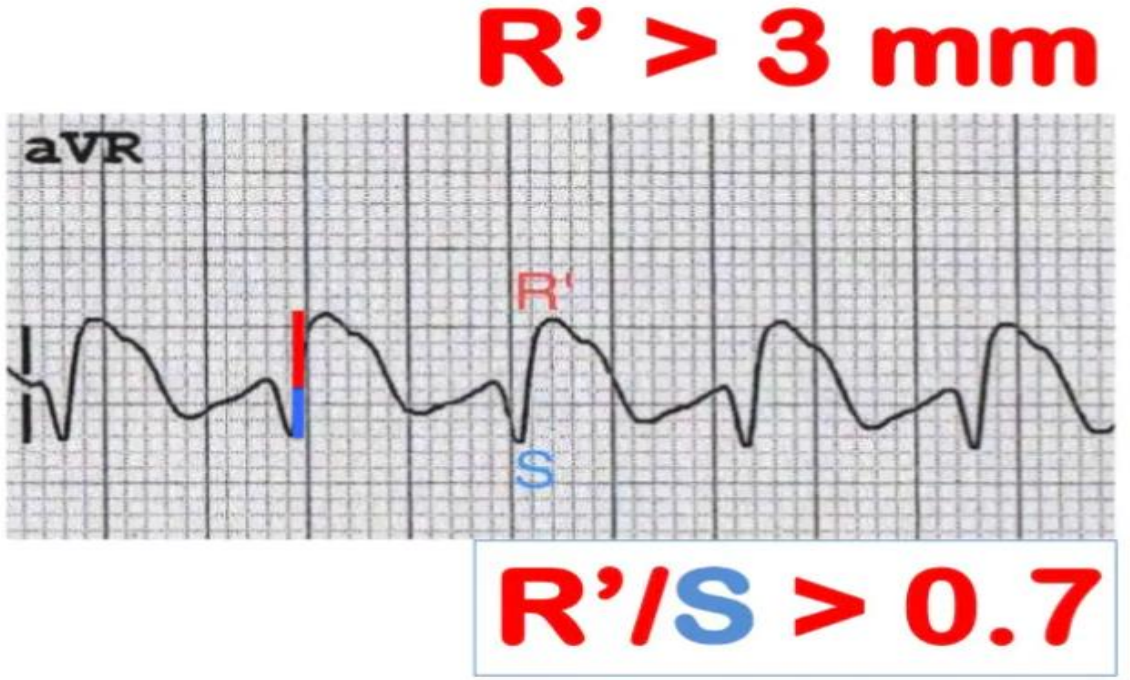
1)Sodium channel blockade
2)Anticholinergic activity (anticholinergic toxidrome)
3)Blockade of peripheral alpha-1 adrenergic receptors (hypotension)
4)Central antihistamine activity (somnolence)
5)Antagonism of central GABA-A receptors (seizure)
6)Inhibition of presynaptic reuptake of dopamine, norepinephrine, and serotonin.

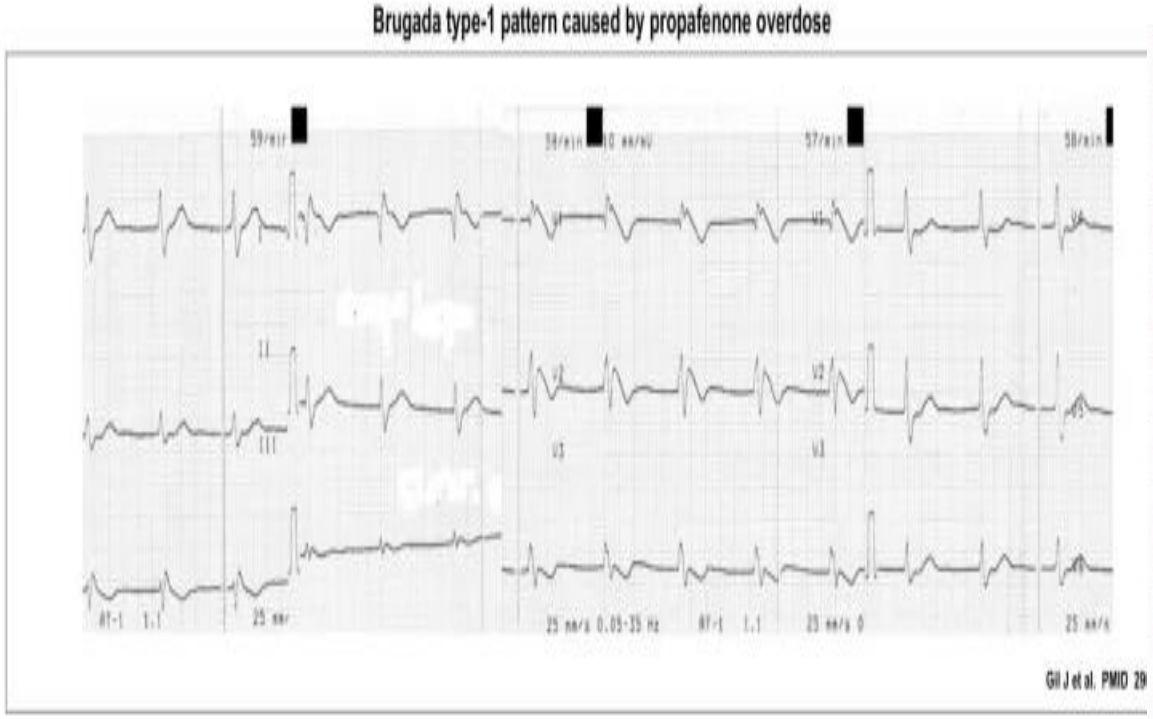
ΗΚΓ:

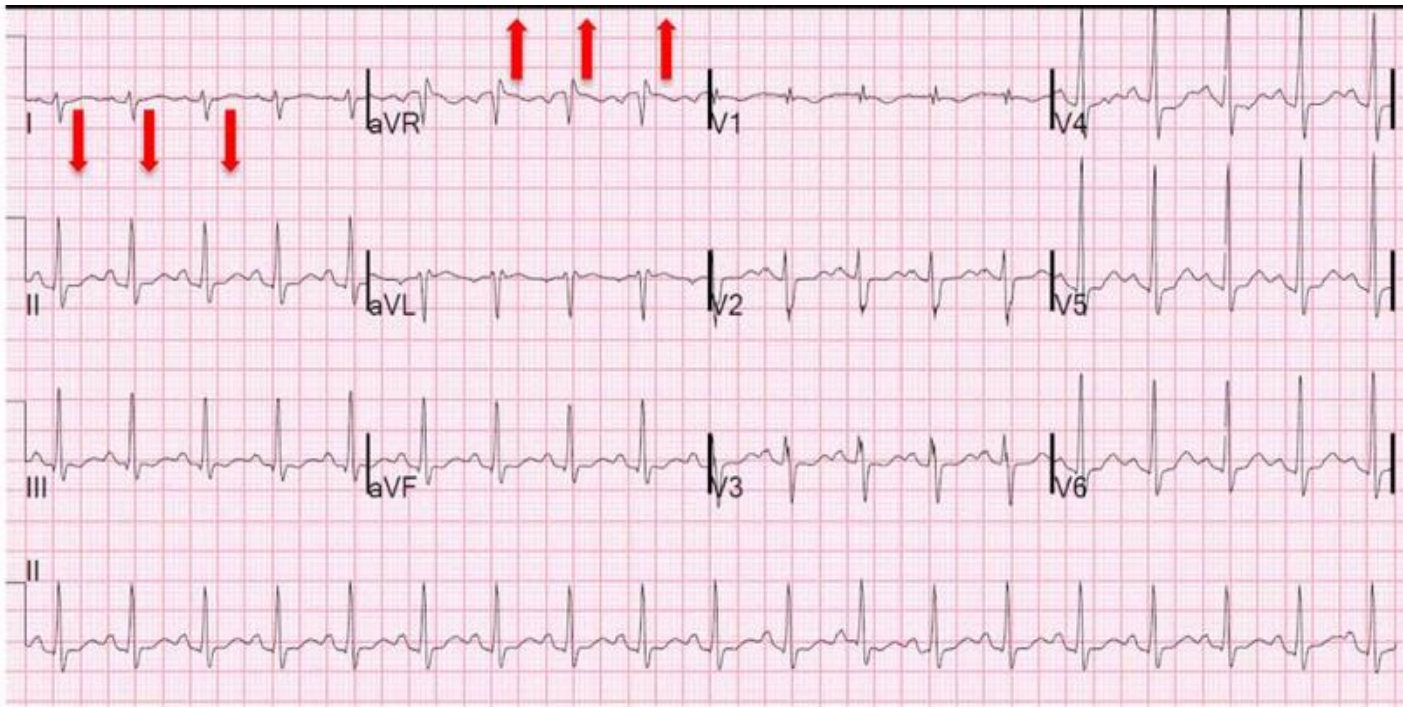
- Δεξιά στροφή άξονα

βαθύ S στην I, **υψηλό R' στην aVR**

- **Ευρύ QRS** (>100 κρίση Ε, >160 VT)
- Brugada Typ I pattern
- Ταχυκαρδία, παράταση QT

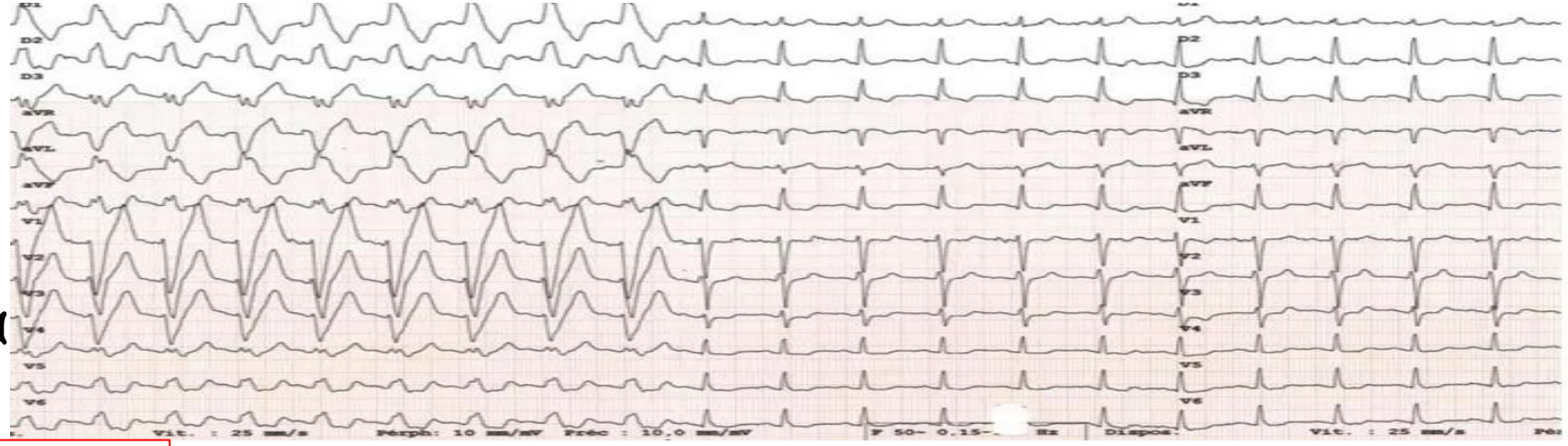






Αντιμετώπιση

QRS>100ms
Σπασμοί
Κοιλιακή αρρυθμία
Υπόταση



ΣΤΟΧΟΙ: QRS<100ms, pH 7.5-7.55
ΠΡΟΣΟΧΗ Na, K, Ca

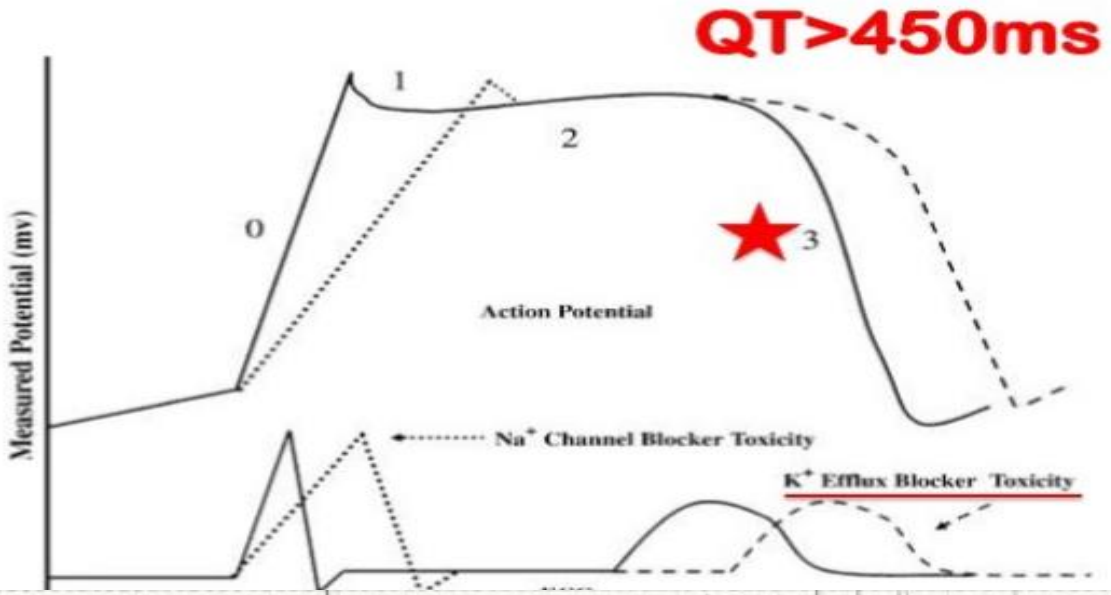
Κοιλιακή αρρυθμία
Ανακοπή
(Σοκ, πολύ ευρύ QRS)

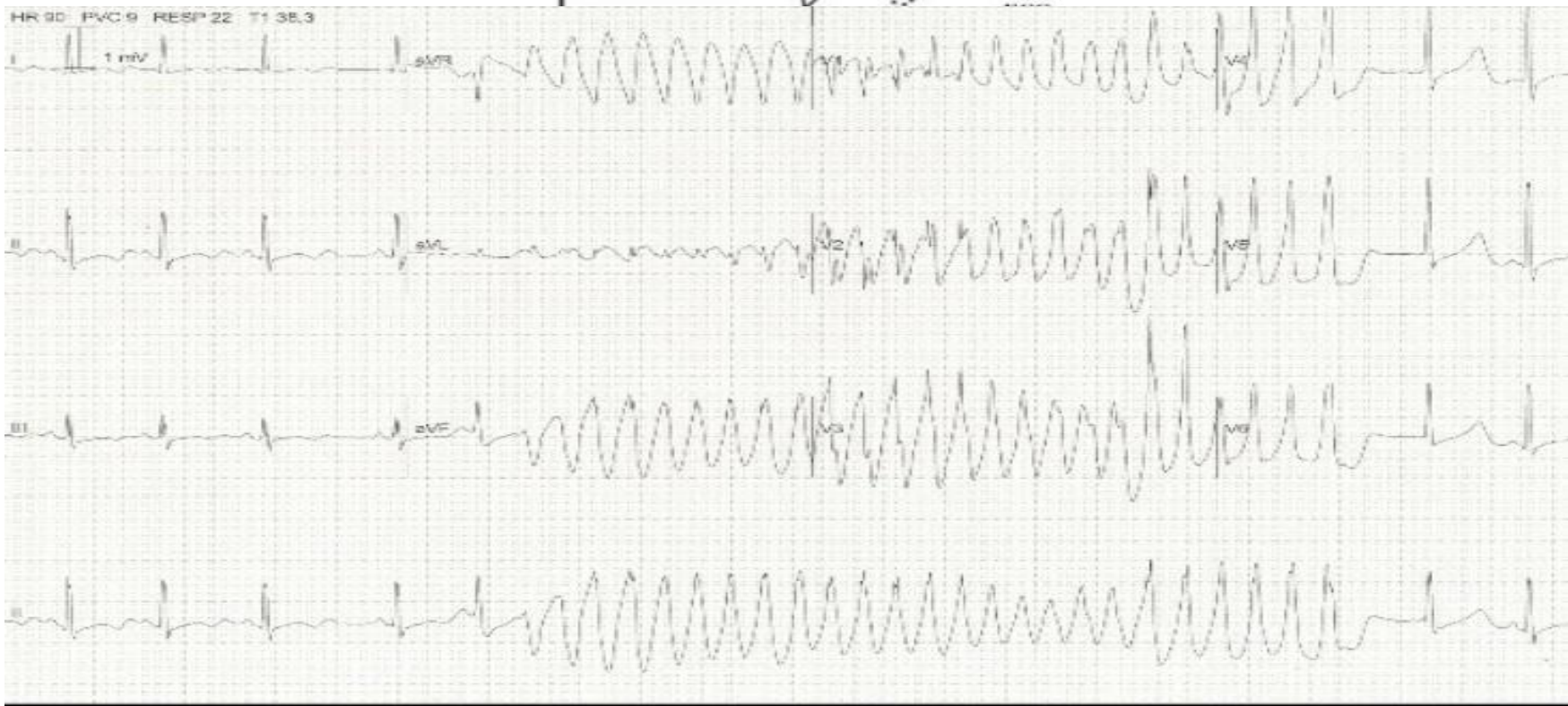
1) Bolus 1.5 mg/kg (~100 mg) over 2-3 minutes.
2) Drip ~1-2 mg/min.
3) evtl additional doses of 0.5-0.75 mg/kg every 5-10 minutes (up to a maximum cumulative dose of 3 mg/kg for refractory VT or VF).
4) If additional boluses are required, the infusion may subsequently be increased (e.g., up to 2-4 mg/min)

Αποκλειστές διάυλων Κ

K^+ efflux channel blocking drugs

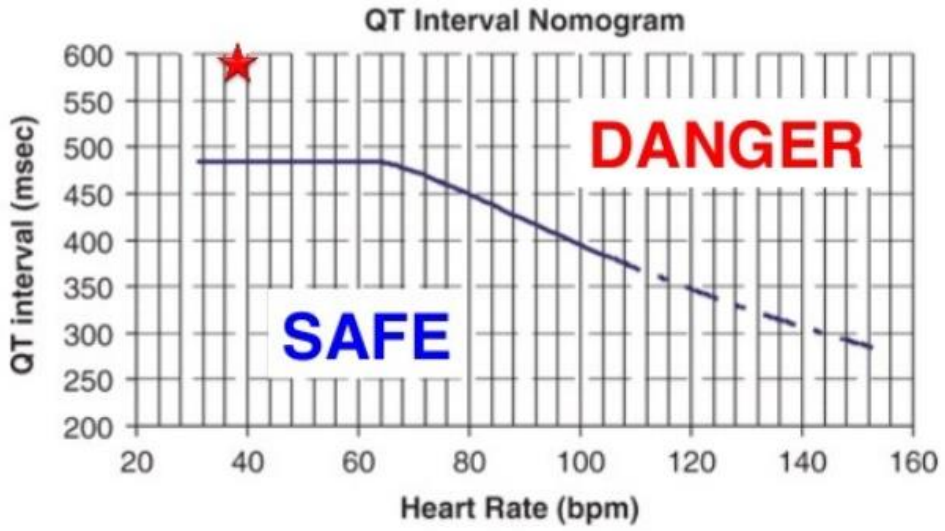
- Antihistamines
  - Astemizole
  - Diphenhydramine
  - Loratidine
  - Terfenadine
- Antipsychotics
  - Chlorpromazine
  - Droperidol
  - Haloperidol
  - Mesoridazine
  - Pimozide
  - Quetiapine
  - Risperidone
  - Thioridazine
  - Ziprasidone
- Arsenic trioxide
- Bepridil
- Chloroquine
- Cisapride
- Citalopram
- Class IA antidysrhythmics
  - Disopyramide
  - Quinidine
  - Procainamide
- Class IC antidysrhythmics
  - Encainide
  - Flecainide
  - Moricizine
  - Propafenone
- Class III antidysrhythmics
  - Amiodarone
  - Dofetilide
  - Ibutilide
  - Sotalol
- Cyclic antidepressants
  - Amitriptyline
  - Amoxapine
  - Desipramine
  - Doxepin
  - Imipramine
  - Nortriptyline
  - Maprotiline
- Fluoroquinolones
  - Ciprofloxacin
  - Gatifloxacin
  - Levofloxacin
  - Moxifloxacin
  - Sparfloxacin
- Halofantrine
- Hydroxychloroquine
- Levomethadyl
- Macrolides
  - Clarithromycin
  - Erythromycin
- Pentamidine
- Quinine
- Tacrolimus
- Venlafaxine





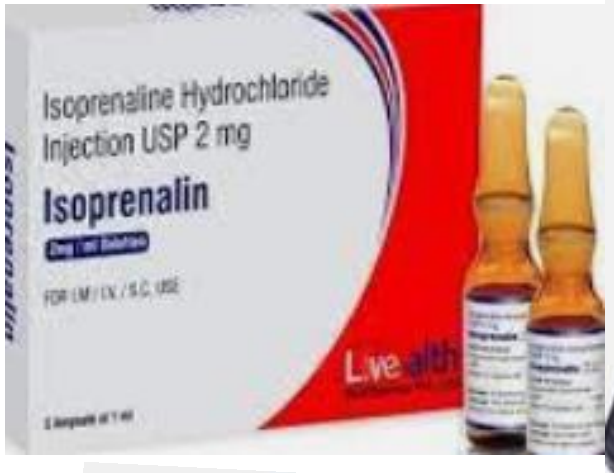
Rautaharju correction of measured QT

QTcRTH = QT * (120 + heart rate)/180]

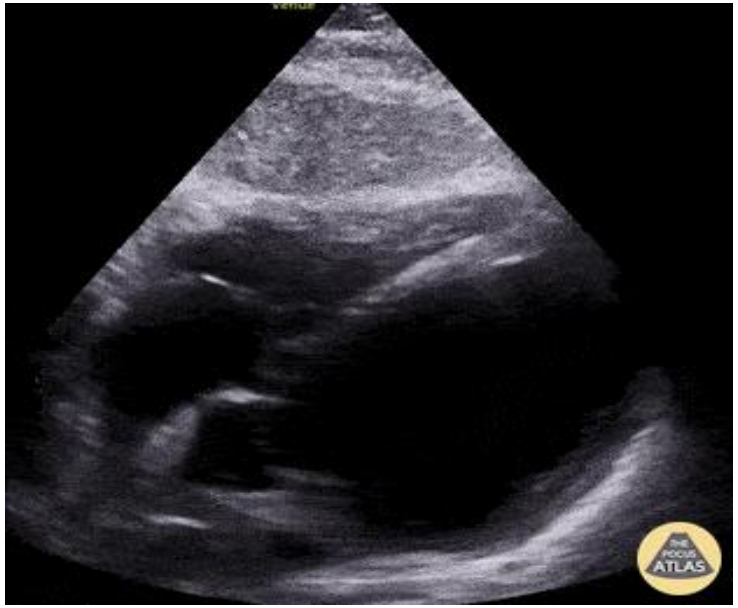


Chan (2007) PMID:17881416

K Mg Ca



Αποκλειστές διαύλων Ca / β-αποκλειστές



HyperInsulinemic Euglycemic Therapy (HIET)

-loading dose of 5 mg IV
over 5 minutes
(may repeat if ineffective)
-drip 1-10 mg/hour
-half-life 15 minutes

BB, βραδυκαρδία καρδιογενές σοκ

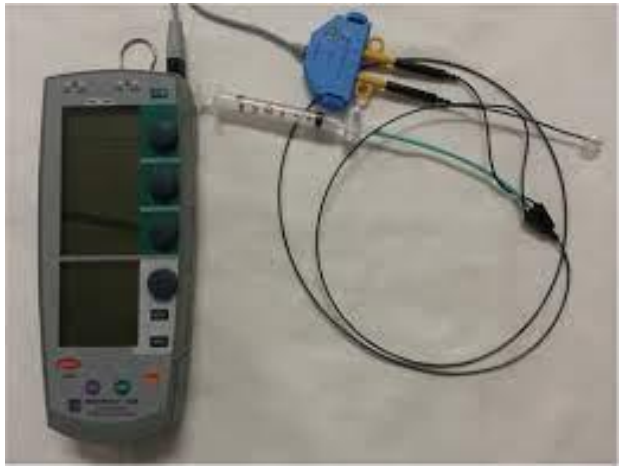
Ca

-CaCl (1gr)/CaGlu (3gr) over 5min κάθε 10-20min εως 3gr/9gr αντίστοιχα
-Στόχος: Ca+ 2mM
- Επαναληπτικές δόσεις ανά 1-2h

1 mg IV Q5 min x1-3
(to a maximum cumulative dose of 3 mg)

- start EARLY, 15-60min
- **1 unit/kg IV bolus**, followed by a **1 unit/kg/hour** infusion, up-titrate every 10-15 minutes within a range of 1-10 units/kg/hour.
- ΣΤΟΧΟΣ: HR ~50 b/m, SBP ~90 mm, χωρίς υποάρδρευση
- DW50% (~1 mL/kg/hour), K, Mg, P

-refractory vasodilatory shock due to CCBs
- bolus of ~2 mg/kg over 15 min, followed by drip of 1 mg/kg/hour.
-hemolytic anemia (in G6PD deficiency), aberrant pulse oximetry signals, promotion of serotonin syndrome, and methemoglobinemia



CLINICAL TOXICOLOGY, 2016
VOL. 54, NO. 10, 899–923
http://dx.doi.org/10.1080/15563650.2016.1214275

Taylor & Francis
Taylor & Francis Group

REVIEW

Evidence-based recommendations on the use of intravenous lipid emulsion therapy in poisoning*

RESUSCITATION

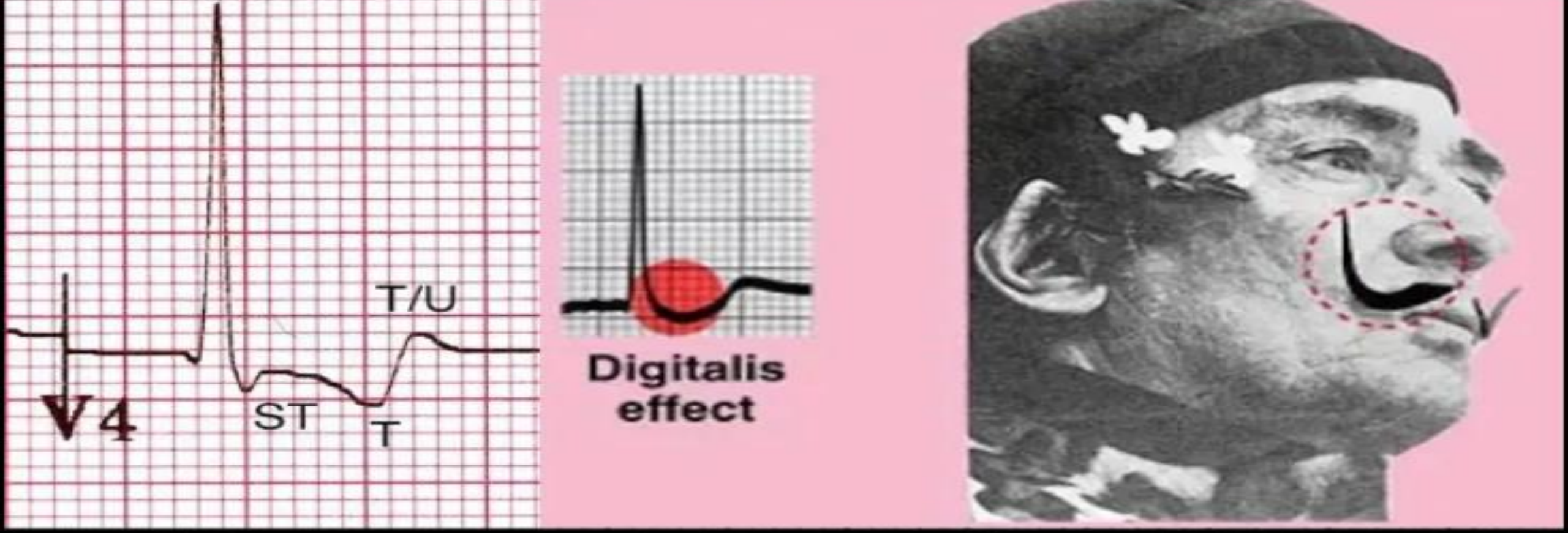
EUROPEAN RESUSCITATION COUNCIL

FULL LENGTH ARTICLE | VOLUME 161, P152-219, APRIL 01, 2021

European Resuscitation Council Guidelines 2021: Cardiac arrest in special circumstances

- **Systemic toxicity of local anaesthetic**
- BB/CCB
- TCA
- lipophilic agents (verapamil, diltiazem, propranolol, amitriptyline, bupropion, haloperidol…)

1. Give an initial IV bolus injection of 20% lipid emulsion at 1.5 ml/kg over 1 min
2. start an infusion at 15 ml/kg/h.
3. If ROSC has not been achieved at 5 min, double the rate of lipid infusion and give a maximum of two additional lipid boluses at 5-min intervals until ROSC has been achieved. Do not exceed a maximum cumulative dose of 12 ml/kg



ΓΕΣ: ανορεξία,ναυτία, έμετοι, κοιλιακό άλγος, διάρροια

ΚΝΣ: παραλήρημα, αδυναμία, θάμβος όρασης, φωτοφοβία, διπλωπία, κιτρινοπράσινη άλως, σπάνια κρίση Ε

ΑΡΡΥΘΜΙΕΣ

- Sinus bradycardia or high-degree AV block.
- **Supraventricular tachycardias with atrioventricular block are classic for digoxin toxicity: AF with slow ventricular rate, AF with junctional escape rhythm, Focal atrial tachycardia with AV block.**
- Junctional tachycardia.
- Ventricular arrhythmias are more often seen in chronic toxicity (Ventricular bigeminy, Ventricular tachycardia, VF **Bidirectional ventricular tachycardia strongly suggests the presence of digoxin.)**

Each vial contain 40mg of antibody fragments, which neutralize 0.5 mg of digoxin.

Chronic poisoning: Number of vials ***(digoxin level in ng/ml)x(wt in kg)/100***
Evtl lower doses may be considered initially, for patients who are clinically stable
(e.g., initiate therapy with three vials and follow clinically to determine whether additional treatment is warranted).

Acute ingestion of known dose: ***(mg of digoxin ingested)x(1.6)***

Empiric administration if levels are unknown:

Acute toxicity: give 5 vials (if hemodynamically stable) or 10 vials (if unstable), reevaluate clinically in 30 minutes.

Chronic toxicity: start with 3-6 vials, reevaluate clinically.

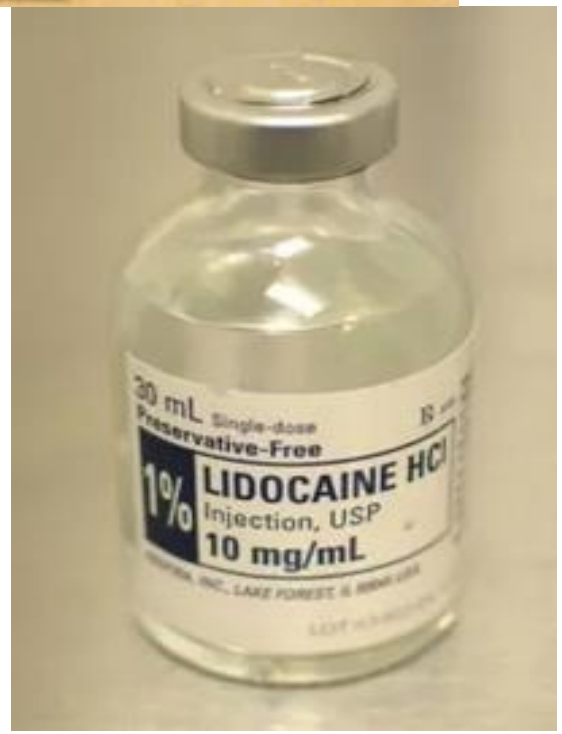
MD+CALC

DigiFab (Digibind) Dosing for Digoxin Poisoning ☆

Doses DigiFab in patients with confirmed digoxin poisoning or overdose.


CYANIDE
POISON


Stay fit and Slim
By taking
Amphetamine


30 mL Single-dose
Preservative-Free
1%
LIDOCAINE HCl
Injection, USP
10 mg/mL

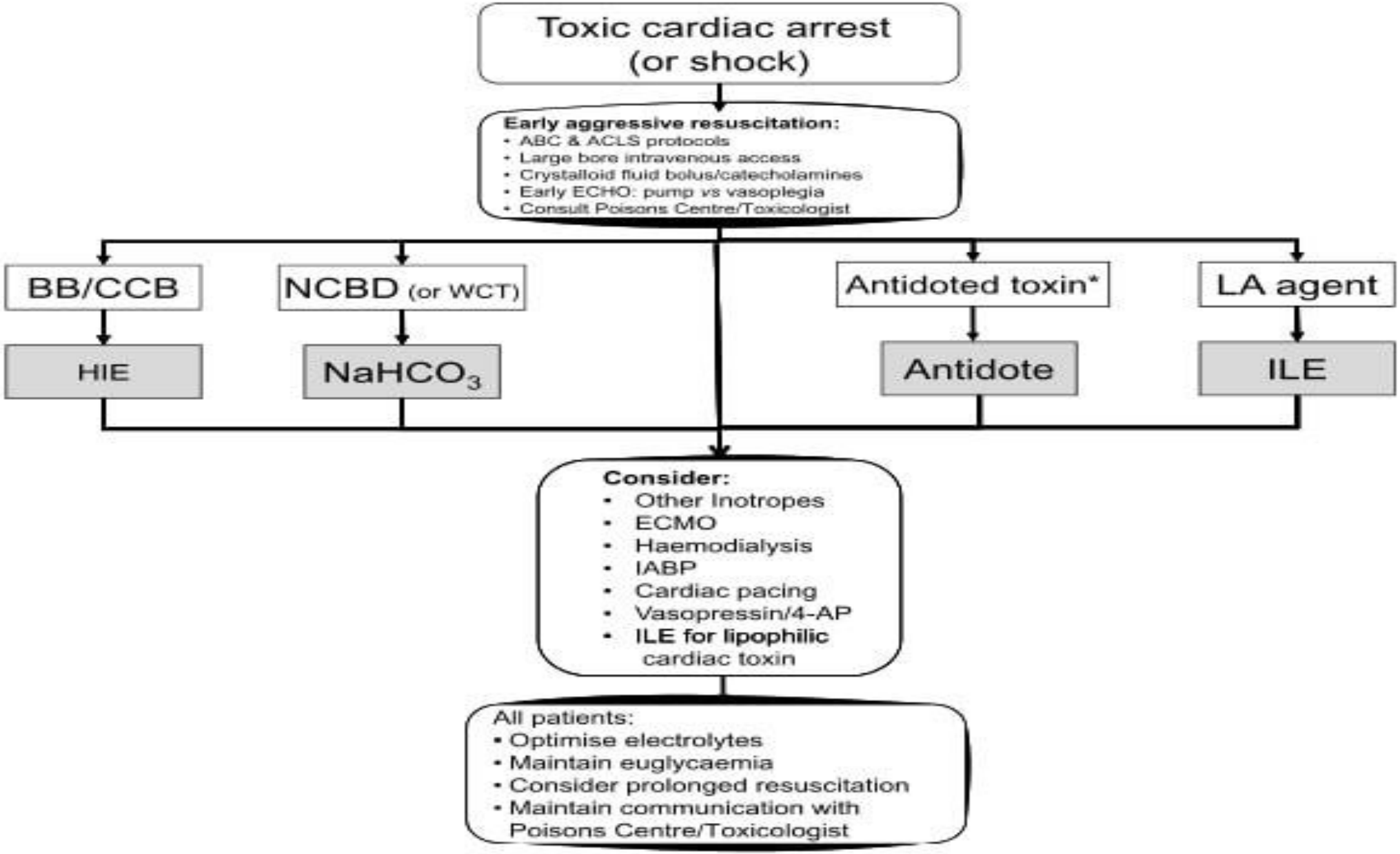

See New Warnings
Imodium
A-D
Loperamide Hydrochloride Tablets, 2mg
Anti-Diarrheal
Anti-Diarrheal
Caplets
Controls the symptoms of diarrhea
24 Caplets


PLATTE VALLEY
SINCE 1856
MOONSHINE
100% STRAIGHT CORN WHISKEY


ASPIRIN®
Acetylsalicylic Acid
Δισκία 500mg/Tab
BAYER
20 δισκία


ZANZA
Healthcare
84
Film Coated Tablets
Metformin
500mg Tablets
Metformin hydrochloride

Poison is in everything, and no thing is without poison. The dosage makes it either a poison or a remedy.



Gunja N, Graudins A. *Emergency Medicine Australasia* (2011) **23,** 16–22

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Resuscitation

journal homepage: www.elsevier.com/locate/resuscitation

ELSEVIER

EUROPEAN RESUSCITATION COUNCIL

European Resuscitation Council Guidelines 2021: Cardiac arrest in special circumstances

Carsten Lott[a,*], Anatolij Truhlář[b,c], Annette Alfonzo[d], Alessandro Barelli[e], Violeta González-Salvado[f], Jochen Hinkelbein[g], Jerry P. Nolan[h,i], Peter Paal[j], Gavin D. Perkins[k,l], Karl-Christian Thies[m], Joyce Yeung[k,l], David A. Zideman[n], Jasmeet Soar[o], the ERC Special Circumstances Writing Group Collaborators[1]

Table 6 – Specific toxic agents.

Drugs	First Line	Consider	Avoid
Cardiovascular and neurological medication			
Digoxin	Lidocaine – ventricular arrhythmias	Digoxin-Fab 80 mg, repeated as required[308,309]	Calcium channel blockers Class 1a antiarrhythmic drugs
Calcium channel blockers	IV calcium 1–2 g every 10–20 min/ 0.02–0.04 g/kg/h High-dose insulin euglycemic therapy Catecholamines Atropine[288,310–323]	Pacing VA-ECMO Intravenous lipid emulsion[324,325]	
Beta-blockers	High-dose insulin euglycemic therapy Catecholamines[326–328]	Glucagon Intravenous lipid emulsion phosphodiesterase inhibitors[329–332]	
Tricyclic antidepressants	Sodium bicarbonate - broad complex ventricular arrhythmias: 1-2 mmol kg^{-1}, target pH 7.45–7.55[333–339]	Intravenous lipid emulsion[290]	
Neuroleptics	Sodium bicarbonate - broad complex ventricular arrhythmias: 1–2 mmol kg^{-1} Dantrolene, Bromocriptine - neuroleptic malignant syndrome[340]		Dopamine Adrenaline Dobutamine[341]
Anticonvulsants	Sodium bicarbonate - broad complex ventricular arrhythmias: 1–2 mmol kg^{-1} Dantrolene Carnitine, Naloxone – valproic acid[342]	Haemodialysis ECLS – carbamazepine[343,344]	
Benzodiazepines		Flumazenil[345,346]	
Local anaesthetics	Intravenous lipid emulsion: 20% lipid emulsion, 1.5 ml kg^{-1} over 1 min followed by an infusion at 0.25 ml kg^{-1} min^{-1} for up to 60 min. 2 bolus repetitions, max cumulative dose 12 ml kg^{-1}.[290,347–353]		
Drugs of abuse			
Opioids	Naloxone 0.4–2 mg, repeat every 2–3 min (strong recommendation, very low- quality evidence)[354,355]		
Cocaine	Benzodiazepines - seizure control[356,357]	Alpha-blockers, calcium channel blockers, nitro-glycerine – hypertension[358–361]	Beta-blockers not as first line management[362–364]
Amphetamines	Benzodiazepines - seizure control	Cyproheptadine, chlorpromazine, ziprasidone – serotonin-ergic syndrome[365–368]	
Systemic asphyxiants			
Cyanide	Hydroxycobolamin 70 mg/kg/1–3 min[369,370]	Sodium thiosulfate[371]	Amyl nitrite, sodium nitrite – avoid if smoke inhalation[372,373]
Carbon monoxide	Oxygen	Hyperbaric oxygen[374–379]	
Hydrogen sulphide	Nitrite Hydroxycobolamin[380–384]		
Local asphyxiants (Irritant gases)		*N*-Acetylcysteine – phosgene[385]	
Organic solvents and halogenated hydrocarbons		Beta-blockers – arrhythmias *N*-Acetylcysteine – hepato-toxicity[386,387]	
Biotoxins			
Botulinum toxin	Antitoxin[388,389]		
Viper envenomation	Antivenom	Polyvalent immune Fab[390]	
Marine biotoxins	Antivenom, magnesium – jellyfish[391]		

Τι κοινό έχουν;




To take home...

Resuscitation ΠΡΟΤΕΡΑΙΟΤΗΤΑ

Airway
Breathing
Circulation
Disability (Neuro)
Glucose
Seizures
Temperature
Resuscitation antidotes

To take home...

Risk Assessment **ΑΠΑΡΑΙΤΗΤΟ**

Drug(s)
Dose(s)
Time
Clinical course
Patient factors

To take home...

FAST HUGS IN BED Please

To take home...

Decontamination
Enhanced elimination
Antidotes

ΚΟΣΤΟΣ/ΟΦΕΛΟΣ

Key cardiotoxic antidotes

HIET	1U/kg insulin + 50mL D50W
Digoxin immune Fab	Depends!
$NaHCO_3$	1mmol/kg q3-5min
Intralipid 20%	1.5 mL/kg IV bolus

To take home...


ΕΥΧΑΡΙΣΤΩ
ΓΙΑ ΤΗΝ
ΥΠΟΜΟΝΗ ΣΑΣ