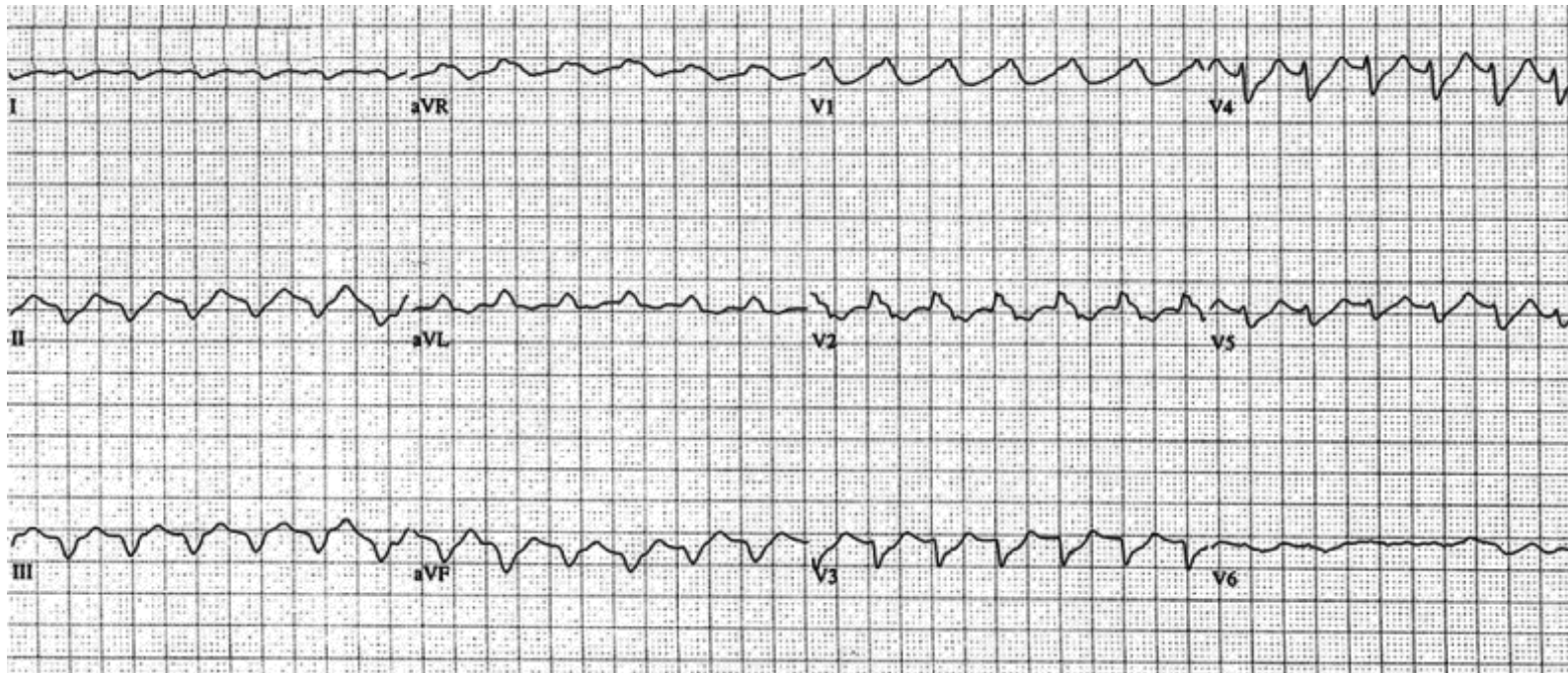


# Intralipid – fact or fiction?

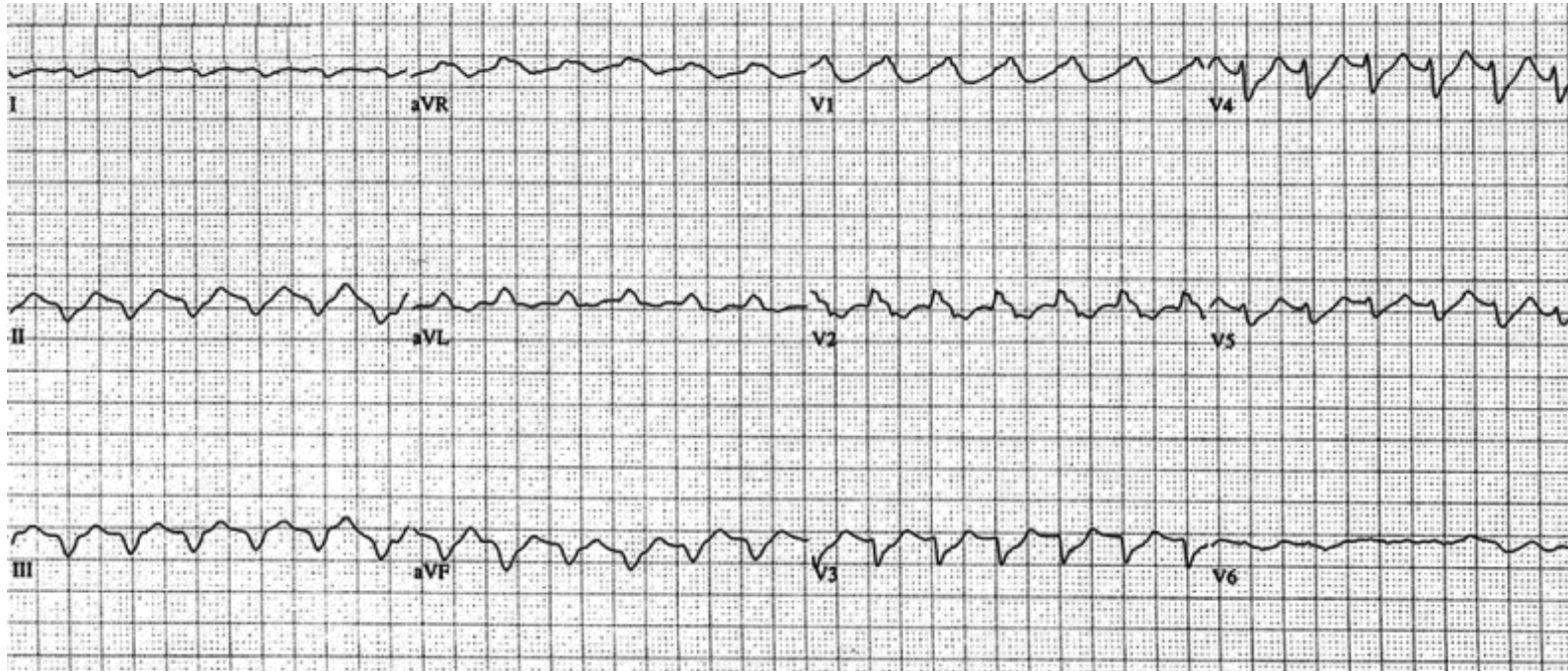
Dr James Dear  
Edinburgh University

A 27 year old man is found unconscious surrounded by packets of amitriptyline and venlafaxine (slow release). On arrival in ED his pulse is 110 bpm, BP 109/67mmHg, GCS 12/15.

An ECG is performed:

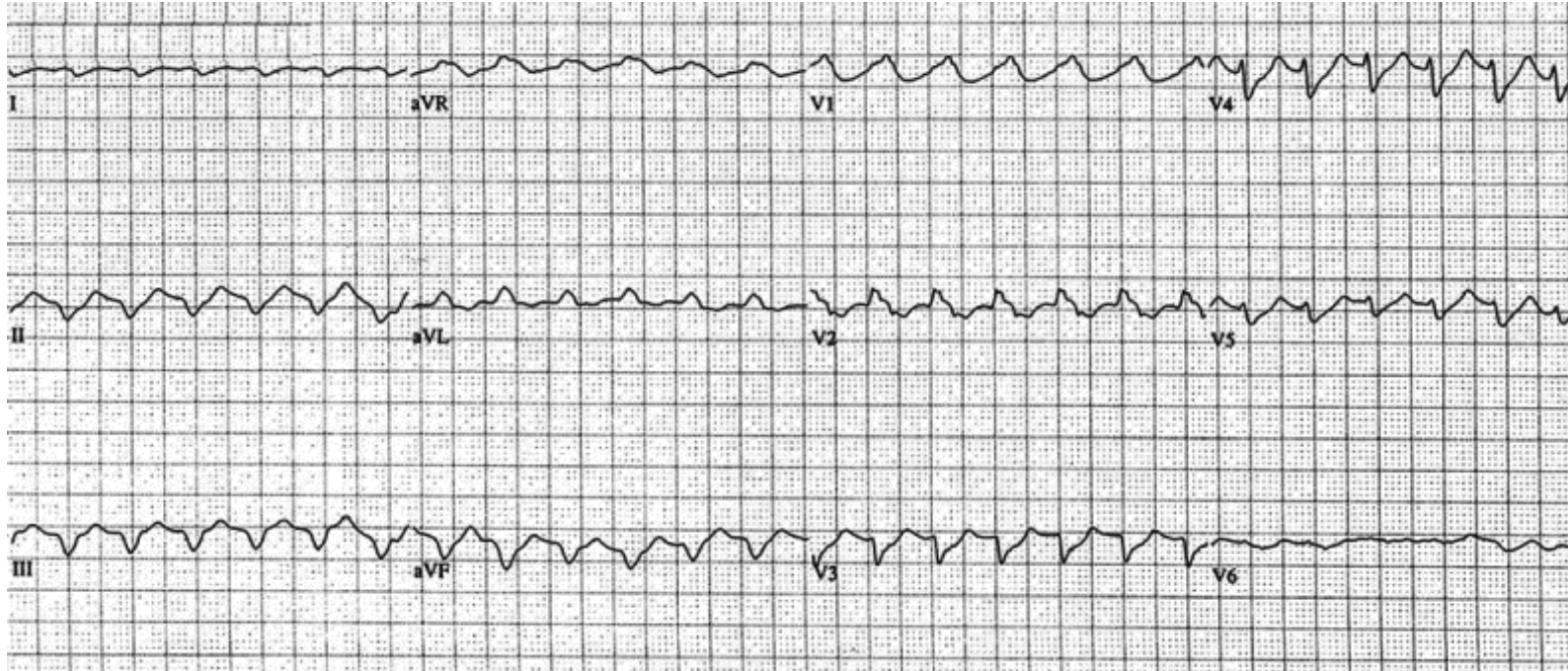


# What does this ECG demonstrate?



- A) Atrial fibrillation
- B) Broad-complex tachycardia
- C) Narrow complex tachycardia
- D) Normal sinus rhythm

# What does this ECG demonstrate?



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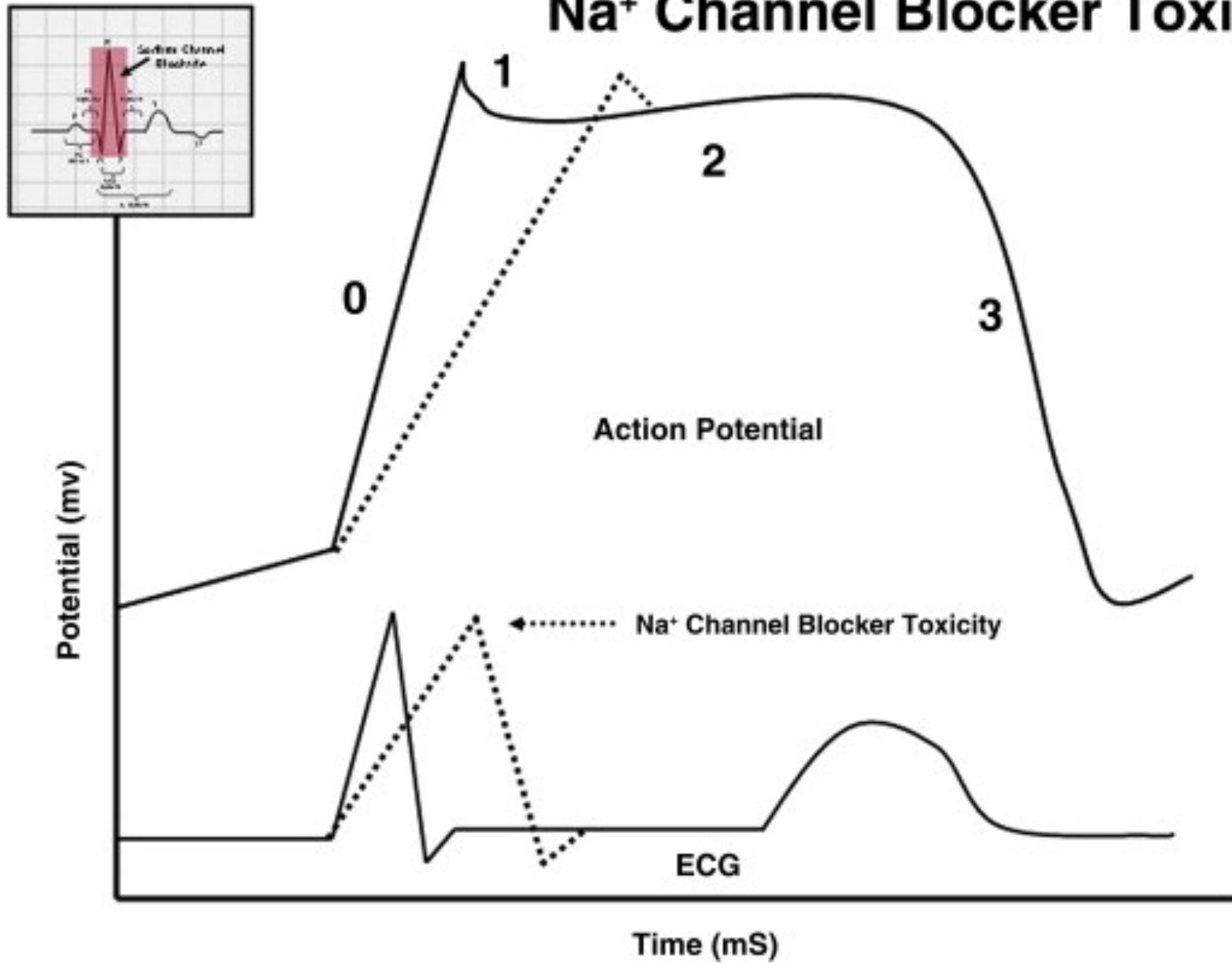
Given the clinical history of amitriptyline and venlafaxine overdose, what is the pathophysiological basis of this abnormal cardiac rhythm?

- A) Beta blockade
- B) Calcium channel blockade
- C) Potassium channel blockade
- D) Sodium channel blockade

Given the clinical history of amitriptyline and venlafaxine overdose, what is the pathophysiological basis of this abnormal cardiac rhythm?

- A) Beta blockade
- B) Calcium channel blockade
- C) Potassium channel blockade
- D) Sodium channel blockade – leading to prolongation of the cardiac action potential with resultant QRS widening and potential for ventricular arrhythmias

# Na<sup>+</sup> Channel Blocker Toxicity



Given the ECG findings what is the first line of management?

- A) Amiodarone
- B) Calcium
- C) Magnesium
- D) Sodium bicarbonate



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# From Toxbase

*Even in the absence of an acidosis, consider alkalinisation with IV sodium bicarbonate in patients with:*

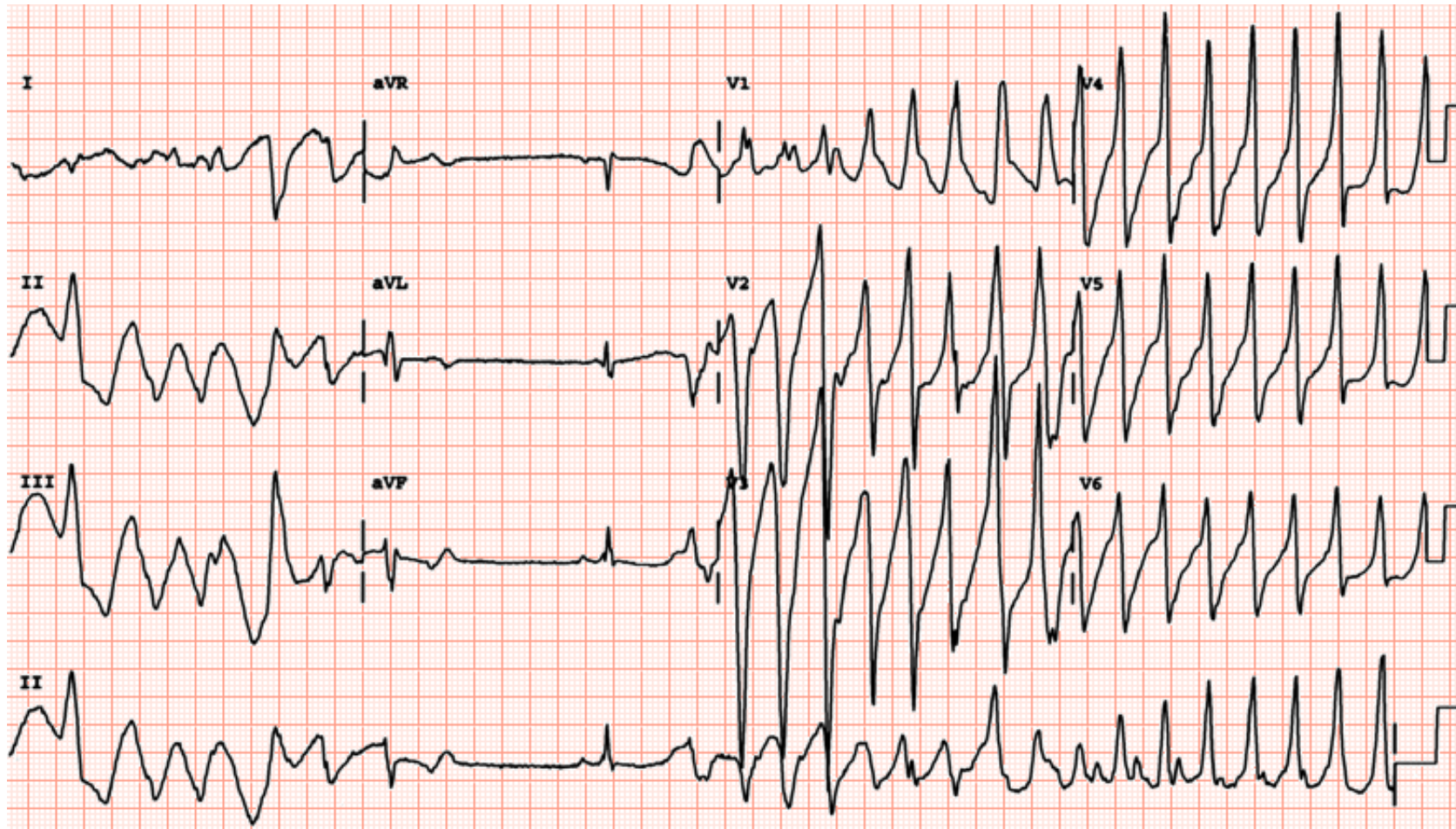
*QRS duration greater than 120msec*

*Arrhythmias*

*Hypotension resistant to fluid resuscitation*

The patient's condition has deteriorated significantly with his blood pressure being barely recordable and his cardiac monitor demonstrating runs of VT.

His ECG now:



The patient's condition has deteriorated significantly with his blood pressure being barely recordable and his cardiac monitor demonstrating runs of VT.

What treatment should be considered?

- A) Calcium
- B) Haemodialysis
- C) Insulin/Dextrose
- D) Intralipid

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# Intralipid



**UK NPIS 0844 892 0111**

**Ireland NPIC (01) 809 2566**

[mail@toxbase.org](mailto:mail@toxbase.org)

10. If cardiotoxicity is unresponsive to the above consider the use of a lipid emulsion.

In adults and children:

1.5 mL/kg of 20% Intralipid as an intravenous bolus followed by 0.25 – 0.5 mL/kg/min for 30 - 60 minutes (Jamaty et al, 2010) to an initial maximum of 500 mL.

The bolus could be repeated 1-2 times for persistent cardiovascular collapse or asystole.

The infusion rate should be titrated against clinical response.

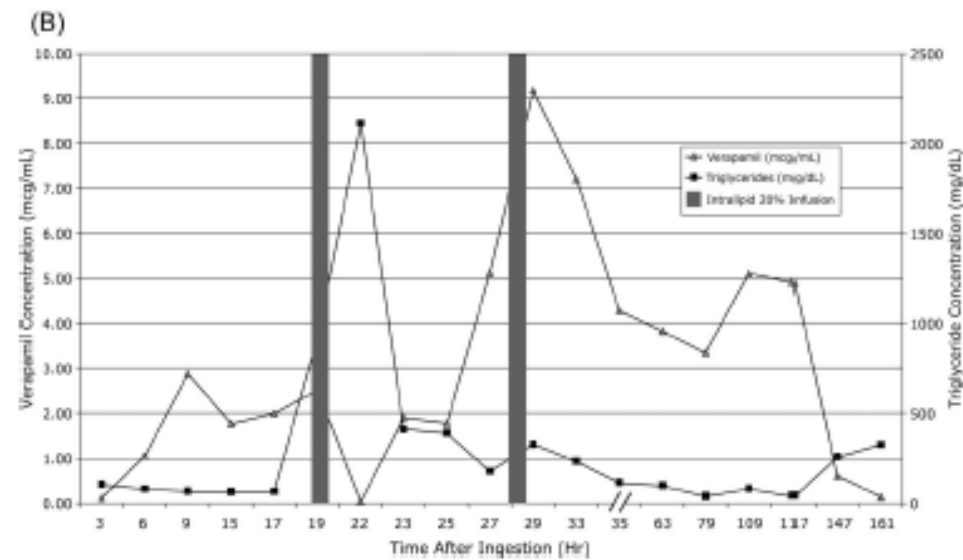
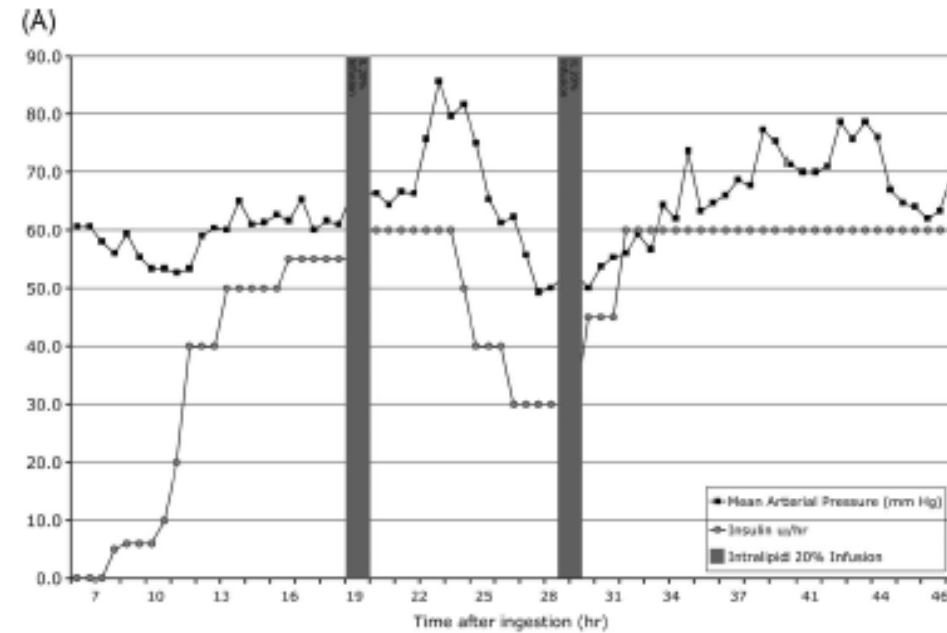
Discuss with your local poisons information service: in the UK NPIS **0844 892 0111**, in Ireland NPIC **(01) 809 2566**.

Click [here](#) for details you may be required to give when telephoning NPIS.

It is thought lipid may reduce free concentrations of active drug and therefore improve myocardial function, although other mechanisms are also postulated.

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# Intralipid



SHORT REPORT

## Serum verapamil concentrations before and after Intralipid<sup>®</sup> therapy during treatment of an overdose

DEBORAH FRENCH<sup>1</sup>, PAUL ARMENIAN<sup>2</sup>, WEIMING RUAN<sup>2</sup>, ALICIA WONG<sup>2</sup>, KENNETH DRASNER<sup>3</sup>, KENT R. OLSON<sup>2</sup>, and ALAN H.B. WU<sup>2</sup>

<sup>1</sup>Department of Laboratory Medicine, University of California San Francisco, San Francisco 94107, USA

# Intralipid – fact or fiction

1. Most patients with TCA poisoning who reach hospital survive

In single centre study only 1 out of 302 patients died despite significant toxicity

Time to agree a format for reporting tox case reports?



# Intralipid – fact or fiction

2. Lipid sink theory – creating a pool of lipid for drug

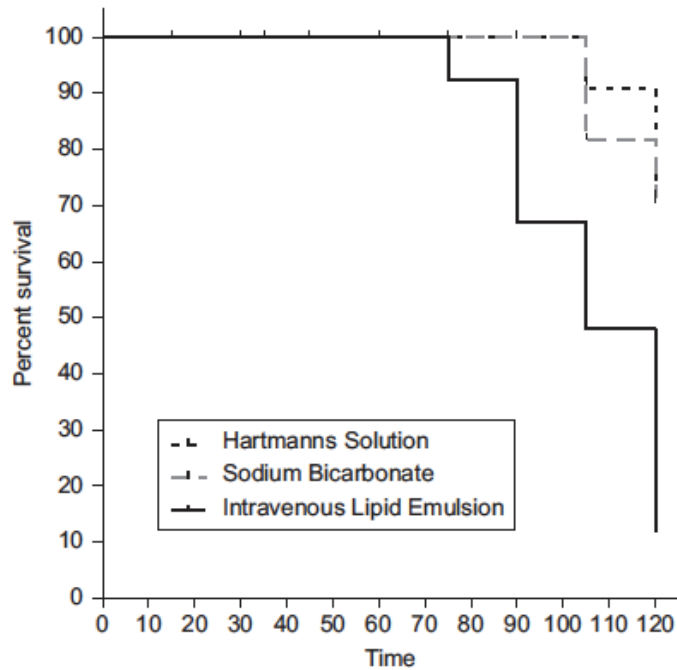
500ml intralipid contains 100g fat

Average human body contains 10,000g

Is it likely that sink theory can make big difference?

# Intralipid – fact or fiction

## 3. Could intralipid increase drug absorption?



*Clinical Toxicology* (2013), 51, 208–215  
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 ISSN: 1556-3650 print / 1556-9519 online  
 DOI: 10.3109/15563650.2013.778994

informa  
 healthcare

RESEARCH ARTICLE

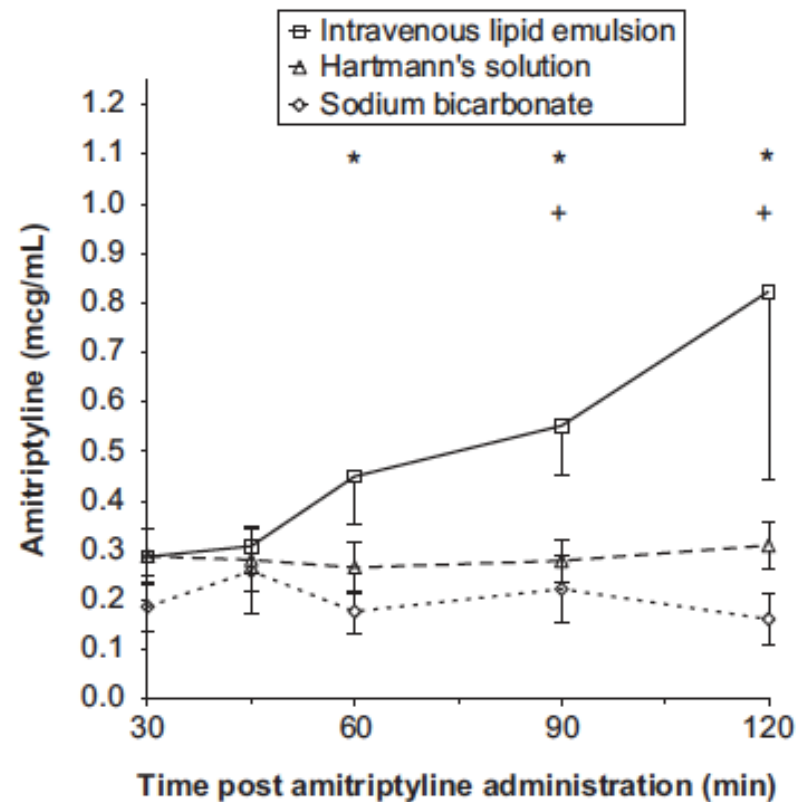
An assessment of the in vivo effects of intravenous lipid emulsion on blood drug concentration and haemodynamics following oro-gastric amitriptyline overdose

D. PERICHON<sup>1</sup>, S. TURFUS<sup>3</sup>, D. GEROSTAMOULOS<sup>3</sup>, and A. GRAUDINS<sup>1,2</sup>

<sup>1</sup>Faculty of Medicine, Department of Pharmacology, Nursing and Health Sciences, Monash University, Clayton, Victoria, Australia

<sup>2</sup>Emergency Medicine and Toxicology Research, Southern Clinical School, Monash Medical Centre, Faculty of Medicine, Nursing and Health Sciences, Monash University, Clayton, Victoria, Australia

<sup>3</sup>Victorian Institute of Forensic Medicine, Southbank, Melbourne, Victoria, Australia



ORAL DOSING

# Is it too late now for intralipid?

45 Directors of US poisons centers - all felt intralipid had a role in poisoning

J. Med. Toxicol.  
DOI 10.1007/s13181-013-0302-2

TOXICOLOGY INVESTIGATION

## **Lipid Rescue 911: Are Poison Centers Recommending Intravenous Fat Emulsion Therapy for Severe Poisoning?**

Michael R. Christian • Erin M. Pallasch • Michael Wahl •  
Mark B. Mycyk

in setting of cardiac arrest:

intralipid administered 'always' or 'often'

bupivacaine (43 out of 45), verapamil (36 out of 45),  
amitriptyline (31 out of 45).

in setting of shock;

intralipid administered 'always' or 'often'

bupivacaine (40 out of 45), verapamil (28 out of 45),  
amitriptyline (25 out of 45)

# How can we improve?

## Across Europe

1. Can we help develop clinically relevant animal models?
2. Can we do highly focused early phase clinical trials?