

"Night out with Niacin" – Niacin Overdose with Hepatotoxicity

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Introduction

- Niacin (Vitamin B3) traditionally is used for treatment of hyperlipidaemia
- It is readily available in food, nutritional supplements and energy drinks (see pictures)
- Trending also is the theory that it speeds up toxic elimination hence its use pre-drug testing.
- Overdose is a rare occurrence and there are limited case studies published

Case Presentation

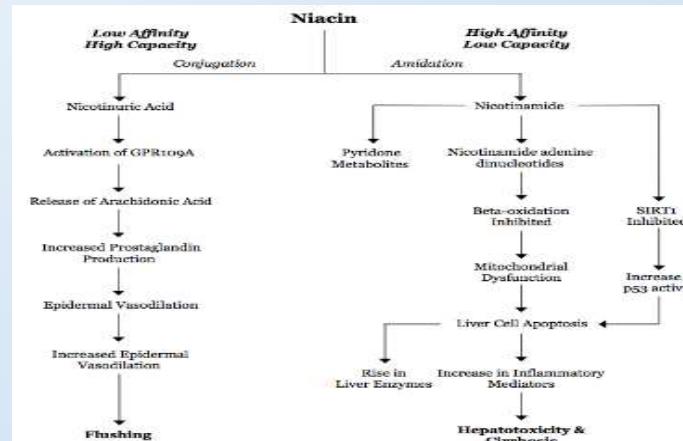
- A 22 year old female presented to the ED with a deliberate overdose of 15-20 Niacin 500 milligram tablets
- Overdose was taken over the 20hrs prior to her presentation to the ED
- She reported vomiting up to 30 times since taking the tablets and had ongoing nausea and light headedness
- Upon arrival she was haemodynamically stable but hypoglycaemic with a metabolic acidosis and raised lactate

Investigations

WCC
20.3

PT 14.6secs
APTT 36secs
Fib 2.1g/L

VBG: pH 7.02
pCo₂ 3.1 HCO₃ 16
lactate 16 Gluc 3.1



Treatment/Outcome

- HYPOGLYCAEMIA – oral replacement, boluses of 10% dextrose
- ANTIEMETIC
- HYDRATION (IVF replacement)
- ACIDAEMIA - Persistent acidosis so infusion of 4.2% sodium bicarbonate
- ESCALATION: Declined by HDU due to response to treatment
- TOXICOLOGY: Suspicion of concomitant Paracetamol ingestion was raised so N-Acetylcysteine commenced; Continued the N-Acetylcysteine infusion for further 32hrs as PT remained prolonged
- After 56hrs had full resolution of her biochemical abnormalities
- Reviewed by psychiatry liaison staff with onward referral to community mental health services and discharged with advice to avoid further niacin supplementation

Discussion

- Most common side effect described is flushing
- On the more severe end of the spectrum it can cause hypotension, arrhythmias, and hepatotoxicity
- Niacin is metabolized in the liver and is broken down via two pathways (see picture)
- Literature review indicates niacin toxicity is more common in accidental overdose pre-drug testing. Limited reports on deliberate overdose with intention to end life
- There was some concern over concomitant Paracetamol overdose but the patient strongly denied significant ingestion
- Other cases have noted biochemical abnormalities resolved in 24-72hrs after stopping niacin supplements and with supportive treatment only
- Niacin overdose remains rare but complications can be severe; it is very important to consider all OTC medications and energy drinks within the ED setting when patient's present with toxic symptoms



References

Available on request