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The Slovis Approach to Hypoglycemia

Corey M. Slovis, M.D.
Vanderbilt University Medical Center
Metro Nashville Fire Department
Nashville International Airport
Nashville, TN

Mastering Emergency Medicine

- Secure the ABC's
- Consider or give NGT
 - Five Causes
 - Five Steps
 - Five Reasons for almost everything

Status Seizures

AMS

- Vital Signs
- Toxic–Metabolic
- Structural
- Infectious
- Epilepsy

- Vital Signs
- Toxic–Metabolic
- Structural
- Infectious
- Psychiatric

Always check a glucose in anyone who is “not right”

- AMS
- Seizure
- Stroke
- Post Ictal
- Weak
- Focal Findings

Hypoglycemia
always needs to be
“ReExplained”

Hypoglycemia ReExPLAIND

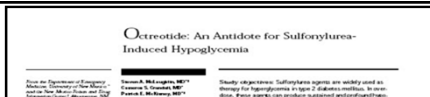
Re	Renal
Ex	Exogenous Insulin/antihyperglycemics
P	Pituitary Insufficiency
L	Liver
A	Alcohol, Addison's, Aspirin
I	Infection, Insulinoma
N	Neoplasm
D	Drugs

Hypoglycemia (Drugs)

- Beta Blockers
- Alcohol
- Aspirin
- Pentamidine
- Valproic Acid

The signs and symptoms of hypoglycemia are variable and are dependent on both:

- Low Glucose Levels
- Rate of Fall of Glucose



Ann Emerg Med 2000;36:133-138

- Octreotide cures sulfonourea induced hypoglycemia
- Eliminates refractory hypoglycemia
- Decreased hypoglycemic episodes by a factor of 27
- D₅₀ rarely required post octreotide
- Stabilization was immediate

One amp of D₅₀ should raise serum glucose by about 200 mg/dl for up to 30 minutes.

If it doesn't look for complicating factors like sepsis, insulin OD, oral agent OD, or ASA OD

Should we really keep using D₅₀ in Hypoglycemic patients?

CASE CONFERENCES

PREHOSPITAL DEXTROSE EXTRAVASATION CAUSING FOREARM COMPARTMENT SYNDROME: A CASE REPORT

Matthew Chinn, MD, M. Riccardo Colella, DO, MPH

ABSTRACT A 57-year-old woman was found at home by her husband in her motorized scooter in her house. Upon their initial assessment, she was noted to open her eyes.

Prehosp Emerg Care 2017;21:79-82

- Compartment Syndrome after D₅₀ %
- 57 yo woman required fasciotomy
- Important facts on D₅₀ provided
- Suggests D₁₀ as an alternative

PREHOSPITAL DEXTROSE EXTRAVASATION CAUSING FOREARM COMPARTMENT SYNDROME: A CASE REPORT
Matthew Chinn, MD, M. Riccardo Colella, DO, MPH

D₅₀% vs D₁₀%

Prehosp Emerg Care 2017;21:79-82

- D₅₀ osmolarity = 2,525 mOsm
- pH = 3.2 – 6.5
- Hypertonic and acidotic = ↑ phlebitis
- D₁₀ = 505 mOsm

D10 IN THE TREATMENT OF PREHOSPITAL HYPOGLYCEMIA: A 24 MONTH OBSERVATIONAL COHORT STUDY

H. Gene Hern, MD, Matthew Kiefer, MD, Derex Louie, PharmD, Joseph Barger, MD, Harrison J. Alter, MD, MS

ABSTRACT

Introduction: Prehospital first responders historically have used an IV bolus of 50 mL of 50% dextrose solution (D50) for the treatment of hypoglycemia in the field. A local Emergency Medical Services (EMS) system recently approved a

dextrose, and potential neurotoxic effects of hyperglycemia. Additionally, our data suggest that there may be little or no short-term decrease in blood glucose levels after D10 administration. **Key words:** Hypoglycemia; EMS; D10; D50

PREHOSPITAL EMERGENCY CARE 2017;21:63-67

Prehosp Emerg Care 2017;21:63-7

Can D₁₀W be substituted for D₅₀W?

- 24 month trial of 871 pts, 100 ml D₁₀W
- Contra Costa EMS and Highland Hospital
- Average initial glucose was 37; repeat 91 mg %
- 23% required a second bolus
- 0.8% (< 1:100) required a third

D₁₀ vs D₅₀ Take Homes

- Both raise glucose effectively
- D₅₀ to 250 in 5 min; D₁₀ to 100 in 10 min
- May need to repeat D₁₀ in 1 in 4 patients
- D₁₀ may be safer
- No definitive head to head large trial yet

Always Consider Wernicke's

- Chronic Alcoholics
- Chronic Malnutrition
- Chronic Malabsorption
- Anorexia Nervosa
- Hyperemesis Gravidarum

Does pushing IV glucose, or starting a glucose infusion, cause acute Wernicke's Encephalopathy?

Irish J Med Sci 1981;150:301-303

ACUTE WERNICKES ENCEPHALOPATHY PRECIPITATED BY GLUCOSE LOADING

A. J. S. Watson, J. F. Walker, G. H. Tomkin, M. M. R. Finn and J. A. B. Keogh*

Departments of Medicine, Meath Hospital, Adelaide Hospital and Trinity College, Dublin.

Summary

FOUR cases of acute Wernickes Encephalopathy in non-alcoholic, malnourished patients are described. In each case the administration of a glucose load precipitated a neurological crisis which was rapidly reversed by the administration of intravenous Thiamine. It is suggested that prophylactic Thiamine treatment therapy should be considered in the management of all mal-

We report 4 cases of Wernickes encephalopathy occurring in malnourished patients, one of whom had a recent history of excessive alcohol intake, in which the administration of a glucose load precipitated a neurological crisis.

Case 1

A 27 year old female was admitted with a 3 day history of nausea and vomit-

Irish J Med Sci 1981;150:301-303

Case 1

A 27 year old female was admitted with a 3 day history of nausea and vomiting. She also complained of recent onset of dizziness and blurring of vision. She had been well until 6 months prior to this admission when she became anorectic, secondary to what was felt to be gastritis. Over this period of time, she suffered

tration of 3 litres of Dextrose 5% over a 24 hour period. During this period, ver-

was anorectic and also noted. Knee and ankle reflexes were bilaterally absent and both plantars were downgoing. Initial treatment was re-hydration which included the administration of 3 litres of Dextrose 5% over a 24 hour period. During this period, vertical and horizontal nystagmus became prominent, bilateral sixth nerve palsies developed, and having become agitated

Irish J Med Sci 1981;150:301-303

Case 2

A 79 year old chronic schizophrenic was referred with septicaemia. There was a long history of anorexia and weight loss secondary to pseudo obstruction of the bowel. She was a non-drinker.

were absent. Following infusion of 2 litres of Dextrose 5%, she became dis-

the upper limbs. She had Thiamine was administered. She had lapsed into a comatose state but within 24 hours of therapy, the level of consciousness had returned to normal and the temperature had risen to 37°C and the blood pressure to 140/90 mmHg. The sixth nerve palsies had disappeared but the nystagmus and areflexia persisted and failed to resolve.

Irish J Med Sci 1981;150:301-303

Case 3

A 45 year old female with end stage renal disease was started on chronic ambulatory peritoneal dialysis. Over the 6 months prior to presentation she had been anorectic, nervous and had lost approximately one stone in weight. Because of fluid retention, hypertension, di-

glucose), were utilized. Over the next 48 hours, she became disorientated and

intravenous glucose. Her mental status to normal within 12 hours, at which time nystagmus had resolved. The pupils were equal and reacted to light and eye movements were full. The limb ataxia improved over the next 6-7 days with the truncal ataxia, which resolved more slowly, taking almost a month to clear.

Irish J Med Sci 1981;150:301-303

Case 4

A 36 year old previously well male developed acute myoglobinuric renal failure following a road traffic accident. There was a history of moderate alcohol ingestion. Hyper-catabolism necessitated daily haemodialysis therapy, performed via an arterio-venous shunt. Per-

source. Five days later, when receiving an infusion of 20% Dextrose, he became

into became hypotensive. Thiamine, 100 mgs, was administered intravenously, and within 12 hours the level of consciousness had returned to normal. He was normotensive and the nystagmus and Abducent's palsies had disappeared. On discharge from hospital some weeks later, the areflexia was still present and has not improved on follow-up.

AMS = Always Check Glucose

Hypoglycemia must always be

ReExplained

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