

ACTIVE LEARNING TEMPLATE: *Medication*

STUDENT NAME Olivia Creamer

MEDICATION KCL in D5NS

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Mineral & electrolyte replacement, fluid replacement

PURPOSE OF MEDICATION

Expected Pharmacological Action

Absorption of supplemental K⁺ into the bloodstream

Stimulates hepatic production of glucose

Therapeutic Use

Replacement of potassium

Increase blood glucose levels

Treatment of hypovolemia

Complications

Hyperkalemia

GI effects (N/V/D, flatulence, & abd. pain or discomfort)

Infusion site reactions

Fluid overload

Medication Administration

2-3 mEq/kg/day

NEVER IV push

Contraindications/Precautions

Hyperkalemia

Severe renal impairment

Metabolic acidosis

Fluid overload & edematous states

GI lesions

Nursing Interventions

* Monitor electrolyte concentrations (K⁺) & acid-base balance

* Monitor blood glucose levels

* Monitor IV site

* Monitor for S/Sx's of fluid overload

* Monitor HR & EKG

Interactions

ACE inhibitors

Corticosteroids

Corticotropin

Diuretics

Client Education

* Encourage compliance with recommended diet

* Report dark, tarry, or bloody stools

* Report any changes in HR

* Monitor blood glucose levels

* Educate on S/Sx of hypoglycemia

Evaluation of Medication Effectiveness

Prevention and correction of serum K⁺ depletion

Cessation of arrhythmias caused by digoxin toxicity

Normovolemia

Compatible:

- * D10 W
- * D5W
- * Fructose
- * Invert sugar
- * LR's
- * NSS
- * Sodium lactate
- * ceftriaxone
- * Ondansetron
- * Acetaminophen

Incompatible:

- * Bactrim
- * Diphenhydramine
- * Azithromycin (uncertain)
- * Methylprednisolone (uncertain)

Safe dose range:

$$2-3 \text{ mEq/kg/day}$$

$$23 \text{ kg} \times 2 \text{ mEq} = 46 \text{ mEq/day}$$

$$23 \text{ kg} \times 3 \text{ mEq} = 69 \text{ mEq/day}$$

$$\rightarrow 46-69 \text{ mEq/day}$$

* ordered dose is 20 mEq

\rightarrow YES! this is safe

ACTIVE LEARNING TEMPLATE: **Medication**

STUDENT NAME Olivia Creamer

MEDICATION Ceftriaxone

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antibiotic, Cephalosporin (3rd Generation)

PURPOSE OF MEDICATION

Expected Pharmacological Action

Inhibits bacterial cell wall synthesis by binding to one or more of the penicillin-binding proteins (PBPs).

Therapeutic Use

Treatment of bacterial infections.

Complications

Ceftriaxone-calcium precipitation
C. difficile infection
Hemolytic anemia
Hypersensitivity reactions (Immediate & delayed)
Kernicterus

Medication Administration

50-75 mg/kg/day
* Divided doses q12-24hr
* Maximum daily dose: 2g

Dilute to a concentration of ~100mg/mL
* After reconstitution, further dilute to 10-40mg/mL

Contraindications/Precautions

Hypersensitivity to ceftriaxone or other cephalosporins
Hyperbilirubinemic neonates
Premature neonates
Elevated INR
Superinfection
Renal or hepatic impairment

Nursing Interventions

* Observe for diarrhea
* Monitor temp. & WBC count
* Monitor IV infusion site

Interactions

Aminoglycosides
Bacillus Calmette Guerin (BCG)(Intravesicle & percutaneous)
Calcium salts
Cholera vaccine
Fecal microbiota (Live)(Oral or rectal)
Furosemide
Lactated ringer's

Client Education

* Complete full course of therapy
* Notify HCP if experiencing diarrhea
* Increase fluid intake

Evaluation of Medication Effectiveness

Decrease in WBC count
Anti-pyresis
Improvement of symptoms

Compatibility:

Compatible:

- * D10W
- * D5W
- * Invert sugar 10% in water
- * Ionosol B in dextrose 5%
- * NSS
- * Normosol M in dextrose 5%
- * Peritoneal dialysis solution
- * KCL

Incompatible:

- * TPN
- * LR's
- * Ondansetron

Safe dose range:

$$23 \text{ kg} \times 75 \text{ mg} = 1725 \text{ mg/day}$$

$$23 \text{ kg} \times 50 \text{ mg} = 1150 \text{ mg/day}$$

$$1150 \text{ mg} - 1725 \text{ mg/day}$$

- * May be divided into 2 doses
- * Ordered dose = 1000mg/day
- * Max dose = 2g
- * Yes, this is a safe dose

1,000 mg in 50 mL

↳ DOES NOT specify over how long

↳ saunders' states to admin over 30 min

↳ set pump to 100 mL/hr

$$\frac{50 \text{ mL}}{30 \text{ min}} \times \frac{10 \text{ gtts}}{1 \text{ mL}} = 16.67 \rightarrow 17 \text{ gtts/min}$$

ACTIVE LEARNING TEMPLATE: **Medication**

STUDENT NAME Olivia Creamer

MEDICATION Ondansetron (Zofran)

REVIEW MODULE CHAPTER _____

CATEGORY CLASS Antiemetic, 5-HT3 receptor antagonist

PURPOSE OF MEDICATION

Expected Pharmacological Action

Blocks serotonin, both peripherally on vagal nerve terminals and centrally in the chemoreceptor trigger zone.

Therapeutic Use

Prevention of nausea & vomiting

Complications

Constipation
Headache
Hypersensitivity (Immediate)
QT prolongation
Fatigue, malaise, diarrhea, pruritus, & urinary retention

Medication Administration

0.15 mg/kg/dose
* Maximum single dose:
16mg/dose
↳ 32 mg/day
IVP: Undiluted over 2-5 min.
↳ 0.3-0.4 mg/kg/dose
↳ Q4-6hr PRN

Contraindications/Precautions

Hypersensitivity to ondansetron
Serotonin syndrome
"Gasping syndrome" (Metabolic acidosis & resp. distress)

Nursing Interventions

* Assess for N/V/D
* Monitor EKG
* Monitor electrolytes for unresolved N/V
* Assess IV insertion site
* Monitor pt. for 5-10 min. after admin.

Interactions

CYP1A2 (Minor), CYP2C9 (Minor), CYP2D6 (Minor)
Amiodarone, amisulpride, apomorphine
CYP3A4 inducers
Dabrafenib, domperidone
Fluorouracil products
Haloperidol
QT-prolonging agents

Client Education

* Take as directed
* Report irregular HR, symptoms of serotonin syndrome, or involuntary movement of extremities to HCP
* Report unresolved N/V
* Report changes in IV site

Evaluation of Medication Effectiveness

Improved nausea and reduced number of emetic episodes

Compatible:

- * D5W
- * D5NS
- * LR's
- * NS
- * TNA
- * KCL
- * Acetaminophen

Incompatible:

- * ceftriaxone (uncertain)
- * sodium bicarbonate
- * Bactrim
- * Regular insulin (uncertain)

Safe dose range:

$$23 \text{ kg} \times 0.3 \text{ mg} = 6.9 \text{ mg/dose}$$

$$23 \text{ kg} \times 0.4 \text{ mg} = 9.2 \text{ mg/dose}$$

* ordered dose = 2 mg q6hr PRN IV

* Max dose = 16 mg/dose or 32 mg/day

* safe range = 6.9 mg - 9.2 mg/dose

* Yes, this is a safe dose

ACTIVE LEARNING TEMPLATE: *Medication*

STUDENT NAME Olivia Creamer

MEDICATION Fluoxetine (Prozac)

REVIEW MODULE CHAPTER _____

CATEGORY CLASS SSRI, antidepressant

PURPOSE OF MEDICATION

Expected Pharmacological Action
Inhibits CNS neuron serotonin reuptake

Therapeutic Use
Antidepressant
Decreased behaviors associated with low levels of serotonin
Decreased mood alterations associated with PMDD

Complications
Activation of mania or hypomania
Bleeding risk
Fragility fractures
Hypersensitivity reactions
Hyponatremia, ocular effects, serotonin syndrome, & sexual dysfunction

Medication Administration
10-20 mg/ daily
* Max. dose: 40-60 mg/day

Contraindications/Precautions
CNS depression
QT prolongation
Bariatric surgery, CV disease, & hepatic impairment
Seizure disorders

Nursing Interventions
* Monitor for suicidal ideation
* Monitor for neuroleptic malignant syndrome
* Monitor for S/Sx's of serotonin syndrome
* Implement R/F bleeding & injury precautions

Interactions
CYP1A2 (Minor), CYP2B6 (Minor), CYP2C19 (Minor), CYP2D6 (Minor), CYP2E1 (Minor)
Agents w/ blood glucose lowering effects
Amphetamines
Anticoagulants
Antiemetics
Aripiprazole, bupropion, buspirone, carvedilol, epinephrine, digoxin

Client Education
* Monitor for suicidal tendencies/ ideation
* Take as direction
* Educate on S/Sx's of serotonin syndrome
* Change positions slowly
* Do not stop medication abruptly
* Protective clothing & sunscreen for photosensitivity.

Evaluation of Medication Effectiveness
Improved S/Sx's of OCD, SAD, bipolar disorders, & depressive disorders

Safe dose range :

AS written by Lexicomp → 10-20mg/day

* ordered dose = 10mg/daily

* Yes, this is a safe range

Medication

Olivia Creamer
INSULIN

Exogenous insulin; Antidiabetic

Expected Pharmacological Action

Acts via specific receptor to regulate metabolism of carbohydrates, protein, and fats.

- Liver: Stimulates hepatic glycogen synthesis; Synthesis of fatty acids
- Adipose Tissues: Stimulates lipoproteins to provide free fatty acids; Triglyceride synthesis

Complications

Occasional: Localized redness, swelling, and itching

Infrequent: Rebound hyperglycemia, depression at injection site, systemic allergic reaction, accumulation of SubQ tissue at injection site

Rare: Insulin resistance

Toxic Reactions: Sever hypoglycemia, diabetic ketoacidosis

Contraindications/Precautions

Contraindications: Chronic lung disease (Afrezza)

- Use during episodes of hypoglycemia

Cautions: Pt's at risk for hypokalemia; renal/hepatic impairment; elderly

Interactions

Drug: Alcohol, beta-blockers, glucagon-like peptide (GLP-1) agents, dipeptidyl peptidase, thiazolidinediones (pioglitazone), pramlinitide, estrogens

Herbal: Herbs with hypoglycemic properties

Lab Values: May decrease Mg, phosphate, and K+

Evaluation of Medication Effectiveness

Control of blood glucose levels in patients with diabetes

Improvement/ reduced frequency of hypo/hyper glycemc episodes

- Reduced complications/ overall improvement of quality of life over time
- Improvement of acute symptoms: Polyuria, Polydypsia, Polyphagia, fatigue, weakness, etc.

Therapeutic Use

Used for Tx of T1D (insulin dependent) and T2DM (non-insulin dependent) to improve glycemc control

- Controls serum glucose levels

Medication Administration

May be given PO, SubQ, IM, or IV

- T1D: Multiple daily injections, guided by glucose monitoring
- Usual initial dose: 0.4-0.5 unit/kg/day in divided doses
 - Usual maintenance: 0.4-1 units/kg/day in divided doses

- T2DM: 10 units once daily
- Maximum Initial Dose: 15-20 units/day
 - Insulin Resistance: Hgb A1C >8%, or Fasting Plasma Glucose >250 mg/dL: 0.2-0.3 units/kg/day

Nursing Interventions

- Provide education of the importance of adequate exercise and a healthy diet
- Obtain serum glucose levels and Hgb A1Cs as ordered
- Assess for hyperglycemia or changes in status
- Rotate injection sites and frequently monitor
- Properly educate on self-administration
- Assess urinary symptoms/ urine PRN
- Obtain serum chemistries if given IV
- Assess lifestyle habits

Client Education

- Adequate exercise & healthy diet (Wt. control)
- Do not skip or delay meals
- Carry candy, sugar packets, and other sugar supplements
- Wear or carry a medical alert identification
- Check with a physician when insulin demands are altered (infection, trauma, stress)
- Do not take other medications without consulting a physician
- Inform dentist and anyone of the care team of medication before treatment is given

Insulin Aspart /
(Novolog) (or Lispro/
Humalog)
Onset: 10-20 min
Peak: 30-90 min
Duration: 3-5 hr
↑ R/F hyperglyc
Insulin (Lantus)
Onset: 1 hr
No peak
Duration: 20-26 hr

Humalog
↓
Rapid acting

Safe dose range :

$$23 \text{ kg} \times 0.4 \text{ units/day} = 9.2 \text{ units/day}$$

$$23 \text{ kg} \times 0.5 \text{ units/day} = 11.5 \text{ units/day}$$

* ordered dose = 11.5 units/day (Glargine)

↳ Yes, this is a safe dose

Maintenance IVF:

23 kg

$$\begin{array}{r}
 10 \text{ kg} \times 100 \text{ mL} \\
 10 \text{ kg} \times 50 \text{ mL} \\
 3 \text{ kg} \times 20 \text{ mL} \\
 \hline
 \end{array}
 + \begin{array}{r}
 1,000 \text{ mL} \\
 500 \text{ mL} \\
 60 \text{ mL}
 \end{array}$$

$$\frac{1560 \text{ mL/day}}{24 \text{ hr/day}} = \boxed{65 \text{ mL/hr}}$$

Exp. UO:

$$23 \text{ kg} \times 0.5 \text{ mL} = 11.5 \text{ mL}$$

$$23 \text{ kg} \times 2 \text{ mL} = 69 \text{ mL}$$

$$\rightarrow 11.5 - 69 \text{ mL/hr}$$

Glargine
 $0.5 \text{ units} \times 23 \text{ kg}$
 \downarrow
 11.6 units/day

Ondansetron:

0.3 - 0.4 mg/kg/dose

$$23 \text{ kg} \times 0.3 \text{ mg} = 6.9 \text{ mg}$$

$$23 \text{ kg} \times 0.4 \text{ mg} = 9.2 \text{ mg}$$

6.9 - 9.2 mg = SAFE!

ordered dose = 2mg q6h

\downarrow
Given over 2-5 min

D5/0.45 NaCl:

1000 mL bag @ 95 mL/hr

Bag will infuse in $\frac{10.5}{}$ hr

$$\rightarrow \frac{1000 \text{ mL}}{95 \text{ mL/hr}} = 10.5 \text{ hr}$$

$$\frac{1000 \text{ mL}}{630 \text{ min}} \times \frac{10 \text{ gtts}}{1 \text{ mL}} = 15.9 \rightarrow \boxed{16 \text{ gtts/min}}$$

ATI Podcast:

* CGM may be provided by local, state, or federal resources

* Father experiencing stress r/t his daughter's dx.

\rightarrow Felt "bad" that she didn't get to experience "normal things" that he did

\rightarrow Developed a routine! \rightarrow Things improved

* Puberty \rightarrow seeking independence

\rightarrow Became less compliant \rightarrow poorer management

\rightarrow Frequent outbursts of frustration (wanted to "feel normal")

* Ended up hospitalized (\uparrow in BG d/t eating chocolate milk)

* seeing an endocrinologist while in college \rightarrow doing well!

* KN education!!!