CLINICAL PRACTICE GUIDELINES

THYROID STORM PROTOCOL ORDER FORM

Admit to ICU under the service of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Diagnosis: Thyroid Storm

NPO

Monitor vital signs every hour till stable.

Monitor I and O every shift and record.

Hook to cardiac monitor and O2 inhalation/nasal cannula.

Request for: CBC, Na+, K+, BUN, creatinine, SGPT

TSH, FT3, FT4

Blood culture, if necessary

Urinalysis

Chest x-ray (PA/lateral)

12 L ECG

IVF: D5MM or D5NR 1 L to run for 8 to 12 hours. Watch out for congestion.

Propylthiouracil (PTU) 200-300 mg every 4 to 6 hours, or Methimazole 20 mg every 8 hours, or Carbimazole 20 mg every 8 hours;

Consider Potassium Iodine (Lugol’s Solution) 2-5 drops per orem every 8 hours, given 1 hour after the antithyroid;

Propranolol (if no contraindication to *B*eta Blockers) 40 mg/tablet TID or QID, hold for heart rate < 60/minute and/or BP < 100 systolic, or Verapamil 40-80 mg/tablet TID;

Consider Digoxin for atrial fibrillation;

Consider Dexamethasone 2 mg PO or IV every 6 hours;

Start necessary treatment for precipitating illness, e.g. antibiotics for infection, management of MI or CVA;

Paracetamol 500 mg/tablet every 4 hours prn for temperature 37.8 and above;

Sedatives, if necessary;

Diuretics, in cases with pulmonary congestion/heart failure.

CLINICAL PRACTICE GUIDELINES

ADRENAL CRISIS (ACUTE ADRENAL INSUFFICIENCY) PROTOCOL ORDER FORM

Admit to ICU under the service of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Diagnosis: Adrenal Crisis

NPO

Monitor vital signs every hour

Monitor I and O hourly and record

Hook to cardiac monitor and O2 inhalation/nasal cannula. Insert foley catheter aseptically and hook to hospicare bag.

Request for: CBC, Na+, K+, Calcium, BUN, creatinine, RBS

Random cortisol and ACTH

Blood culture, if necessary

Urinalysis

12 L ECG

Chest x-ray (PA/Lateral)

Start IV access with large gauge needle. Infuse 2 to 3 L of PNSS (0.9% NSS) or D5NSS as quickly as possible.

Insert central line for CVP monitoring. Monitor for signs of fluid overload by measuring CVP and by auscultation of the lungs.

After a sample of blood has been obtained for measurement of cortisol and ACTH, administer Hydrocortisone 100 mg IV STAT then 100 mg IV every 8 hours.

Search for and treat possible precipitating illness.

Monitor electrolytes every 12 hours then daily as needed until corrected.

If the precipitating illness has been controlled, Hydrocortisone IV should be tapered to maintenance levels after 1 to 3 days, then shifted to maintenance oral hydrocortisone (if available) or prednisone 5 mg in the morning and 2.5 mg in the afternoon

Fludrocortisone (Florinef) 0.05 to 0.2 mg daily, as maintenance, may be required in primary adrenal insufficiency.

A Short ACTH Stimulation Test may be performed at a later time, when the patient is more stable.

CLINICAL PRACTICE GUIDELINES

DIABETIC KETOACIDOSIS PROTOCOL ORDER FORM

Please admit to ICU under the service of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Diagnosis: Diabetic Ketoacidosis

NPO

Monitor vital signs every hour

Monitor I and O hourly and record in flow sheet that includes clinical parameters, fluid and electrolytes, laboratory values, and insulin therapy.

Hook to cardiac monitor and O2 inhalation/nasal cannula.

Insert foley catheter aseptically and hook to hospicare bag.

Request for: CBC, RBS, Na+, K+, Cl-, BUN, creatinine, serum/urine ketones

ABG

Blood culture and cardiac enzymes, if necessary (to look for precipitating event for DKA)

Urinalysis

Chest x-ray (PA/lateral)

12 L ECG

Start IV access with large gauge needle or insert central line for CVP monitoring. Monitor for signs of fluid overload by CVP monitoring and by auscultation of the lungs.

During the first hour of treatment:

1. Give 1.0 L 0.9% NaCl IVF (Normal Saline) per hour initially (15 cc/kg/h).
2. If serum K+ is <3.3 mEq/L, hold insulin and give 40 mEq of KCl per hour, assuming adequate urine output, until K+ is >/= 3.3.
3. If serum K+ >/= 5.5 mEq/L, do not give KCl but check electrolytes on the second hour of treatment, then, every 2-4 hours until stable.
4. If serum K+ >/= 3.3 but < 5.5 mEq/L, give 20-30 mEq of KCl in each liter of IVF.
5. Give a bolus of regular insulin IV at 0.15 units/kg, followed by a continuous infusion of 0.1 unit/kg/h via insulin drip (100 units regular insulin in 100 ml PNSS).
6. Take capillary blood glucose (CBG) hourly.
7. Assess need for bicarbonate. For ph <6.9, consider giving sodium bicarbonate, 100 mmol diluted in 400 ml sterile water to run at 200 ml/h. For ph 6.9-7.0, consider giving sodium bicarbonate, 50 mmol diluted in 200 ml sterile water to run at 200 ml/h. No bicarbonate is necessary if ph > 7.0.

During the second hour of treatment:

1. Continue normal saline at approximately 1 L/h.
2. Adjust KCL supplement in fluids to maintain serum K+ at 4-5 mEq/L.
3. If the serum glucose drops to <250 mg/dl, change fluids to 5-10% dextrose with saline. The serum glucose level should not be allowed to fall to <250 mg/dl during the first 4-5 hours of treatment.
4. If serum glucose does not fall by 50-70 mg/dl in the first hour, double insulin infusion hourly until glucose falls by 50-70 mg/dl/h.

During the third and subsequent hours of treatment:

1. Adjust infusion rate of IVF based on the patient’s state of hydration (4-14 ml/kg/h). Change to 0.45% saline if the patient is euvolemic and hypernatremic.
2. Continue to adjust KCl supplement in fluids.
3. Continue insulin infusion as long as acidosis is present. After resolution of DKA (glucose <200 mg/dl, anion gap <12, ph is >/= 7.3, or the serum bicarbonate is >/= 18 mEq/L), if the patient is unable to eat, continue the insulin infusion and supplement with SC regular insulin every 4 hours based on the blood glucose level. When the patient is able to eat, initiate a multidose insulin regimen and adjust as needed. Continue IV insulin infusion for 1-2 hours after SC insulin is begun.
4. Continue to look for and treat precipitating cause.

CLINICAL PRACTICE GUIDELINES

HYPEROSMOLAR HYPERGLYCEMIC NON-KETOTIC SYNDROME PROTOCOL ORDER FORM

Please admit to ICU under the service of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Diagnosis: Hyperglycemic Hyperosmolar Non-Ketotic Syndrome (HHNS)

NPO

Monitor vital signs and neurovital signs hourly

Monitor I and O hourly and record in flow sheet that includes clinical parameters, fluid and electrolytes, laboratory values, and insulin therapy

Hook to cardiac monitor and O2 inhalation/nasal cannula.

Insert foley catheter aseptically and hook to hospicare bag.

Request for: CBC, RBS, Na+, K+, Cl-, BUN, creatinine, serum/urine ketones, plasma osmolality

ABG

Urinalysis

Blood culture and urine culture, if necessary

Chest x-ray (PA/Lateral)

12 L ECG

Insert central line for CVP monitoring. Monitor for signs of fluid overload by CVP monitoring and by auscultation of the lungs.

During the first hour of treatment:

1. Give 1.0 L of 0.9% NaCl IVF (Normal Saline) per hour initially (15 cc/kg/h).
2. If serum K+ is <3.3 mEq/L, hold insulin and give 40 mEq of KCl per hour, assuming adequate urine output, until K+ is >/= 3.3.
3. If serum K+ >/= 5.5 mEq/L, do not give KCl but check electrolytes on the second hour of treatment, then, every 2-4 hours until stable.
4. If serum K+ >/= 3.3 but < 5.5 mEq/L, give 20-30 mEq of KCl in each liter of IVF.
5. Give a bolus of regular insulin IV at 0.15 units/kg, followed by a continuous infusion of 0.1unit/kg/h via insulin drip (100 units regular insulin in 100 ml PNSS).
6. Take capillary blood glucose (CBG) hourly.

During the second hour of treatment:

1. Continue normal saline at approximately 1L/h.
2. Adjust KCl upplemenatation in fluids to maintain serum K+ at 4-5 mEq/L.
3. If serum glucose does not fall by 50-70 mg/dl in the first hour, double insulin infusion hourly until glucose falls at a steady hourly rate of 50-70 mg/dl.

During the third and subsequent hours of treatment:

1. Adjust infusion rate of IVF based on the patient’s state of hydration (4-14 ml/kg/h). Change to 0.45% NaCl (half normal saline) if the patient is euvolemic and hypernatremic.
2. Continue to adjust KCl supplement in fluids.
3. When serum glucose reaches 300 mg/dl, change fluids to 5% dextrose with 0.45% NaCl and decrease insulin to 0.05-0.1 unit/kg/h to maintain serum glucose between 250-300 mg/dl until plasma osmolality is </= 315 mOsm/kg and patient is mentally alert.
4. After resolution of HHNS, if the patient is on NPO, continue IV insulin infusion and supplement with SC regular insulin every 4 hours based on the blood glucose level. When the patient is able to eat, initiate a multidose insulin regimen and adjust as needed. Continue IV insulin infusion for 1-2 hours after SC insulin is begun.
5. Continue to look for and treat precipitating cause.

CLINICAL PRACTICE GUIDELINES

DIABETIC FOOT PROTOCOL ORDER FORM

Please admit under the service of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Diagnosis: Diabetic Foot

Diet: Low fat, no sources of simple sugars diet

Bed rest. Avoid pressure over the affected area.

Monitor vital signs every shift and record.

Monitor I and O every shift and record.

Request for: CBC, Na+, K+, BUN, creatinine, HBA1c

Blood culture, if necessary

Deep wound swabs for GS/CS, if necessary

Urinalysis

Chest x-ray (PA/Lateral)

X-ray of affected leg/foot to look for osteomyelitis

Venous +/- Arterial Doppler Ultrasound of both lower extremities

12 L ECG

Start IVF: Plain NSS 1.0 L to run for 12 hours

Start broad-spectrum IV antibiotic treatment after specimens for culture are obtained. Alterations may be required when sensitivity results become available.

Refer to Surgery (GS, Peripheral Vascular Surgeon, or Orthopedics) for possible wound debridement and further vascular assessment like arteriography.

Monitor capillary blood glucose (CBG) TID ac meals and HS and initiate multidose insulin regimen or previous insulin regimen with subsequent modification based on glucose testing.

CLINICAL PRACTICE GUIDELINES

ACUTE HYPOGLYCEMIA PROTOCOL ORDER FORM

Admit under the service of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Diagnosis: Acute Hypoglycemia, etiology?

NPO until fully awake, with strict aspiration precautions.

Monitor vital signs every hour until stable.

Monitor I and O every shift and record.

Hold all oral hypoglycemic or oral antidiabetic agents, if any.

Request for: RBS or FBS and Capillary blood glucose (CBG) STAT simultaneous with insulin level, if

necessary

C-peptide, proinsulin, insulin antibody levels, and plasma cortisol, if necessary

CBC, BUN, creatinine, Na+, K+, liver function test

Urinalysis

12 L ECG

Chest x-ray

Start IVF using D5 or D10 immediately.

Give D 50 W IV STAT (you may use the formula of 100 – CBG x 0.4 = ml D 50 W to avoid overcorrection of hypoglycemia).

Repeat D 50 W IV every 30 minutes if CBG is < 70 mg/dl.

Continue to monitor CBG hourly. Shift to 0.9 NaCl IVF once CBGs are stable.

Resume diet of low fat, no sources of simple sugars once CBGs are stable and patient is fully awake.

Continue to look for the cause of hypoglycemia and request for the necessary tests for further investigation.

Educate patient regarding hypoglycemia prevention and management in the process.