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| **Corticosteroid Medications** |
| **Therapeutic Effects:** * Corticosteroids are used as replacement therapy in adrenal insufficiency, as well as for the management of various dermatologic, ophthalmologic, rheumatologic, pulmonary, hematologic, and gastrointestinal (GI) disorders. In respiratory conditions, systemic corticosteroids are used for the treatment of acute exacerbations of chronic obstructive pulmonary disease (COPD) and severe asthma.
* Mineralocorticoids are primarily involved in the regulation of electrolyte and water balance.
* Glucocorticoids are predominantly involved in carbohydrate, fat, and protein metabolism and also have anti-inflammatory, immunosuppressive, anti-proliferative, and vasoconstrictive effects.
 |
| **Class** | **Prototypes** | **Administration Considerations** | **Therapeutic Effects** | **Adverse/Side Effects** |
| Glucocorticoid | PrednisoneMethylprednisolone | * Never abruptly stop corticosteroid therapy
* Use the lowest dose possible to control disorder and taper when feasible
* May require concurrent treatment for osteoporosis or elevated blood glucose levels
* Regularly monitor for development of symptoms of adrenal suppression
* Contraindicated in patients with untreated systemic
 | * Often used to reduce inflammation or for immunosuppression
 | * Fluid and electrolyte imbalances
* Increase in blood glucose
* Muscle weakness
* Peptic ulcers
* Thin, fragile skin that bruises easily
* Poor wound healing
* Development of Cushing’s syndrome
* May mask some signs of infection, and new infections may appear
* Psychic derangements may appear when corticosteroids are used, ranging from euphoria, insomnia, mood swings, personality changes to severe depression
 |
| Topical Glucocorticoid | Hydrocortisone cream | * Cream is only for use on the skin. Do not use in eyes
* Apply a small amount of medication to cover the affected area of skin with a thin, even film and rub in gently
* Do not wrap or bandage the treated area unless included in the prescription
* Symptoms should begin to improve during the first few days of treatment; do not use this medication longer than 7 days unless directed
 | * Cream: topical relief of itching, redness, and swelling
 | * burning sensation of skin
* folliculitis
* hypopigmentation
* maceration of the skin
* dermatitis
* pruritus
* secondary skin infection
* skin atrophy
* skin irritation
 |
| Mineralocorticoids | Fludrocortisone | * Often administered in conjunction with cortisone or hydrocortisone
* Contraindicated if systemic fungal infection present
* Continually monitor for signs that indicate dosage adjustment is necessary, such as exacerbations of the disease or stress (surgery, infection, trauma)
 | * Aldosterone replacement in Addison’s disease
 | * Potential adverse effects from retention of sodium and water: hypertension, edema, cardiac enlargement, congestive heart failure, potassium loss, and hypokalemic alkalosis
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| **Insulins**  |
| **Therapeutic Effects:** * regulates the movement of glucose from blood into cells
* insulin lowers blood glucose by stimulating peripheral glucose uptake primarily by skeletal muscle cells and fat, and by inhibiting glucose production and release by the liver
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| **Class** | **Prototypes** | **Onset/Peak/Duration** | **Administration Considerations** | **Therapeutic Effects** | **Adverse/Side Effects** |
| **Rapid-Acting Insulin** | insulin lispro (Humalog)insulin aspart (Novolog)inhaled insulin (Afreeza) | Onset: 15-30 minutesPeak effect: 1-3 hoursDuration: 3 - 5 hours | * Administer within 15 minutes before a meal or immediately after a meal
* Afrezza is contraindicated in patients with asthma or COPD
 | * Maintain serum blood glucose in normal range and achieve individualized target level of A1C (often 7%)
 | * Hypoglycemia
* Hypokalemia
* Afrezza can cause acute bronchospasm
 |
| **Short-Acting Insulin** | Humulin R | Onset: 30 minutesPeak effect: 3 hoursDuration: 8 hours | * Administer 30 minutes before a meal
 | * Maintain serum blood glucose in normal range and achieve individualized target level of A1C
 | * Hypoglycemia
* Hypokalemia
 |
| **Intermediate-Acting Insulin** | Humulin NNovolin N | Onset: 1-2 hoursPeak effect: 6 hours (range 2.8-13 hours)Duration: up to 24 hours | * Administer once or twice daily
* Only administer subcutaneously
* Gently roll or invert vial/pen several times to re-suspend the insulin before administration
* Do not mix with other insulin
 | * Maintain serum blood glucose in normal range and achieve individualized target level of A1C (often 7%)
 | * Hypoglycemia
* Hypokalemia
 |
| **Combination: Intermediate-Acting/Rapid-Acting** | Humalog Mix 50/50Humalog Mix 75/25Novolog Mix 70/30\*First number is % intermediate-acting insulin, second number is % rapid-acting | Onset: 15-30 minutesPeak effect:* 50/50: 1-5 hours

Duration: 11-22 hours | * Administer twice daily, 15 minutes before a meal or immediately after a meal
* Only administer subcutaneously
* Gently roll or invert vial/pen several times to re-suspend the insulin before administration
 | * Maintain serum blood glucose in normal range and achieve individualized target level of A1C (often 7%)
 | * Hypoglycemia
* Hypokalemia
 |
| **Combination: Intermediate-Acting/Short-Acting** | Humulin 70/30Novolin 70/30 | Onset: 30-90 minutesPeak effect: 1.5-6.5 hoursDuration: 18-24 hours | * Administer twice daily, 30-45 minutes before a meal
* Only administer subcutaneously
* Gently roll or invert vial/pen several times to re-suspend the insulin before administration
* Do not mix with other insulin
 | * Maintain serum blood glucose in normal range and achieve individualized target level of A1C (often 7%)
 | * Hypoglycemia
* Hypokalemia
 |
| **Long-Acting Insulin** | insulin glargine (Lantus)insulin detemir (Levemir) | Onset: 3-4 hoursPeak effect: noneDuration: >24 hours | * Administer once daily (sometimes dose is split and administered twice daily)
* Only administer subcutaneously
* Do not mix with other insulin
 | * Maintain serum blood glucose in normal range and achieve individualized target level of A1C (often 7%)
 | * Hypoglycemia
* Hypokalemia
 |
| **Hyperglycemic** | Glucagon |  | * May be administered subcutaneously, IM, or IV
* Supplementary carbohydrate should be given as soon as possible, especially to a pediatric patient
* Used to reverse hypoglycemic episode if NPO administration is not appropriate
 | * Used to reverse hypoglycemic episode if NPO administration is not appropriate
 | * hyperglycemia
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| **Oral antidiabetics**  |
| **Therapeutic Effects:** * management of type 2 diabetes
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| **Class** | **Prototypes** | **Administration Considerations** | **Therapeutic Effects** | **Adverse/Side Effects** |
| Sulfonylureas | Gliclazide | * Time with meals; peak plasma concentrations occur 1 to 3 hours after administration
 | * Reduce fasting blood sugar and glycosylated hemoglobin to near normal
 | * Hypoglycemia; may be potentiated by nonsteroidal anti-inflammatory agents and other drugs that are highly protein bound
 |
| Biguanide | Metformin | * Contraindicated in renal and hepatic disease
* Should be temporarily discontinued in patients undergoing radiologic studies involving intravascular administration of iodinated contrast materials
 | * Reduce fasting blood sugar and glycosylated hemoglobin to near normal
 | * Stop immediately if signs of lactic acidosis or any condition associated with hypoxemia, dehydration, or sepsis occurs
* Common adverse effects: diarrhea, nausea/vomiting, weakness, flatulence, indigestion, abdominal discomfort, and headache
 |
| DPP-IV inhibitor | Sitagliptin | * Can bxze given with or without food
 | * Reduce fasting blood sugar and glycosylated hemoglobin to near norm
 | * Hypoglycemia
* Report hypersensitivity reactions, blisters/erosions, headache, or symptoms of pancreatitis, heart failure, severe arthralgia, or upper respiratory infection
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| **Thyroid and Osteoporosis medications**  |
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| **Class** | **Prototypes** | **Administration Considerations** | **Therapeutic Effects** | **Adverse/Side Effects** |
| Thyroid replacement | levothyroxine | * Take levothyroxine sodium tablets with a full glass of water as the tablet may rapidly disintegrate
* Administer levothyroxine as a single daily dose, on an empty stomach, one-half to one hour before breakfast
* Administer levothyroxine at least 4 hours before or after drugs known to interfere with levothyroxine sodium tablets absorption
* Anticipate lower dosages in elderly clients with pre-existing cardiac disease
* May interact with several medications so read drug label thoroughly on initial administration for potential effects
 | * Increases T4 levels in hypothyroidism
 | * Hypersensitivity reactions
* Cardiac dysrhythmias
 |
| Antithyroid | propylthiouracil(PTU) | * Usually administered every 8 hours
* May cause hypothyroidism so TSH and T4 levels should be monitored
* If a client becomes pregnant, immediately notify health care provider because it can cause fetal harm
 | * Inhibit production of T4 to treat hyperthyroidism
 | * Hypothyroidism
* Liver failure
* Agranulocytosis
* Vasculitis
* Fetal harm
 |
| Calcium regulator | calcitonin | * Administer nasal spray with one spray in one side of the nose daily
* Contraindicated during pregnancy
* Discard unrefrigerated bottle after 30 days of opening
* May store unopened bottles in refrigerator until expiration date
 | * Treats osteoporosis
 | * Serious hypersensitivity reactions (bronchospasm, swelling of the tongue or throat, anaphylaxis, and anaphylactic shock)
* Hypocalcemia
* Nasal mucosa adverse effects
* Malignancy
 |
| Bisphosphonates | alendronate | * Administered upon arising and at least one-half hour before the first food, beverage, or medication of the day with plain water only
* The client should sit or stand for 30 minutes after administration
* Contraindicated in pregnancy, hypocalcemia, and kidney disease
* Concurrent calcium and vitamin D supplements may be required
 | * Enhances bone mineral density in osteoporosis
 | * Upper GI tract adverse events
* Severe musculoskeletal pain
* Risk of osteonecrosis of the jaw
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