HORMONAL AGENTS

Hormonal agents may be broken down into two primary forms, slow acting (steroid and thyroid) and fast acting (peptides and catecholamines*). The slow acting hormones must first penetrate the cell membrane and enter the nucleus of the cell. Once there it either causes a change in the nucleus of the cell or a production of specific proteins. These effects may take anywhere from hours to days before they may be apparent. The fast acting hormones, such as catecholamines, only have to adhere to the cell membrane to initiate their events. Their actions may only take seconds to become evident.*

CORTICOSTEROIDS

GLUCOCORTICOIDS

Mechanism: Suppresses the immune response; decreases inflammation by stabilizing the leukocyte lysosomal membrane.

Indications: Counter severe inflammatory response, adrenal insufficiency

Examples: Dexamethasone, Hydrocortisone, Methylprednisolone, Prednisone

Side effects: Peptic ulcer, mood swings, Hyperglycemia, Hypertension

MINERALCORTICOIDS

Mechanism: Helps to regulate fluid and electrolyte balance by elevating K^+ and H^+ secretions. This is accomplished by an increase in the rate of Na^+ reabsorption in the tubules of the kidneys.

Indications: Adjunctive therapy for adrenal insufficiency

Examples: Fludroentisone acetate

Side effects: Hypernatremia, water retention, hypokalemia

ANTI-DIABETIC AGENTS

INSULIN

Mechanism: Increases transport of glucose across the cellular membrane for use as energy by the cell. Additionally, causes glucose to be transformed into glycogen, thereby reducing the blood plasma levels further.

Indications: Hyperglycemia, Type I diabetes

Examples: Rapid acting: Humulin R*, Novolin R*
Intermediate: Humulin N, Humulin L
Long acting: Humulin U, PZI
*Only regular insulin may be administered IV

Side Effects: Hypoglycemia, Rebound hyperglycemia (Somogyi Phenomenon)

ORAL AGENTS

Mechanism: Increases the beta cells of the pancreas to produce insulin

Indications: Type II Diabetes

Examples: Chlorpropramide, Glipizide, Tolbutamide

Side effects: Hypoglycemia, Nausea and Vomiting, Heartburn, Headache

GLUCAGON

Mechanism: Catalyst required to change hepatic glycogen stores into glucose

Indications: Hypoglycemia, Beta Blocker Overdose

Example: Glucagon

Side effects: Hypotension, Nausea and Vomiting, Bronchospasm

THYROID AGENTS

PROTHYROID AGENTS

Mechanism: Used to either replace or increase production of thyroid hormones

Indications: Hypothyroidism, Goiter

Examples: Levothyroxine sodium, Liothionine sodium

Side effects: Tachycardia, Arrhythmias, Nervousness, Weight loss, Insomnia

ANTITHYROID AGENTS

Mechanism: Inhibits the production of thyroid hormones by blocking iodine's ability to be involved in certain physiologic reactions in the thyroid gland.

Indications: Hyperthyroid

Examples: Methimazole, Potassium iodide

Side effects: Bradycardia, Lethargy

ANDROGENS

Mechanism: Replaces deficient hormones

Indications: Androgen deficiency, endometriosis, benign prostatic hypertrophy

Examples: Danazol, Finasteride, Testosterone

Side effects: Nausea and vomiting, diarrhea, Mood swings, Weight gain

ESTROGENS

Mechanism: Replace deficient hormones

Indications: Hormonal deficiency, Contraception, Menopause

Examples: Diethylstilbestrol, Estradiol, Conjugated Estrogen Substances

Side effects: Nausea and vomiting, Diarrhea, Weight Gain, Headache, Insomnia

COMMONLY TRANSPORTED HORMONAL PHARMACOLOGIC AGENTS

This section is left blank for the services medical director or training officer to review those agents which are commonly used for transport. Topics which should be covered include dosages, indications, side effects, and any transport considerations.