ANTI-INFECTIVES

Anti-infective agents are in reality very recent in origin. Prior to their discovery agents such as mercury and arsenic were used for many different ailments (most notably, syphilis). Sulphanomide, which was derived from a yellow clothing die in Germany, was first developed and patented in 1932. Penicillin was first utilized in 1941 on a policeman in England. The policeman died during the course of the treatment.

ANTIBACTERIALS

PENICILLINS

Mechanism: Inhibits cell wall formation during replication cycle which aids in causing osmotic instability

Indications: Treatment or prevention of infections of gram positive or gram negative agents

Examples: Amoxicillin, Ampicillin, Methicillin, Oxacillin, Penicillin

Side effects: Nausea and vomiting, diarrhea, Rash, Anaphylaxis, Pain at injection site

CEPHALOSPORINS

Mechanism: Inhibits cell wall formation during replication cycle which aids in causing osmotic instability

Indications: Gram positive and gram negative bacterial infections

Examples: Cefadroxil, Cephalexin, Cefaclor, Ceftriaxone

Side effects: As above

AMINOGLYCOSIDE

Mechanism: Prevents the bacteria from synthesizing protein

Indications: Gram negative bacterial infections

Examples: Amikacin, Gentamicin, Neomycin, Streptomycin

Side effects: Neurotoxicity, Ototoxicity, Nephrotoxicity

TETRACYCLINES

Mechanism: As above

Indications: Effective against gram positive and gram negative organisms; however, many of these bacteria are resistant to tetracycline. Effectively used against rare organisms such as mycoplasma and rickettsia.

Examples: Doxycycline, Oxytetracycline

Side effects: GI problems, Phototoxicity to skin, Hepatotoxicity, Rash, Phlebitis if IV

FLUOROQUINOLONES

Mechanism: Blocks the bacteria's ability to form new bacteria (synthesize) by inhibiting a substance called DNA gyrase which is an enzyme essential for replication.

Indications: Bacterial infections

Examples: Ciprofloxacin, Norfloxacin, Floxacin

Side effects: Nausea, Phototoxicity

SULFANOMIDES

Mechanism: Inhibits the bacterial organism's ability to produce folic acid leading to bacterial death.

Indications: Urinary tract infections, Systemic infections, Rheumatic fever refractory to other treatment regimens

Examples: Sulfadiazine, Sulfamethoxazole, Sulfisoxazole

Side effects: Nausea and vomiting, Toxic nephrosis, Aplastic anemia, Hepatic necrosis, Anaphylaxis

ANTI-VIRALS

Mechanism: Two principle mechanisms exist, either the inhibition of cellular replication or, in the case of raminitidine and amantidine, a decrease in the ability of the virus to infiltrate the cell wall.

Indications: Prevention or treatment of viral infections

Examples: Acyclovir, Amantidine, Famciclovir, Trifluridine, Zidovudine

Side effects: Ataxia, Headache, Nausea, Fatigue, Confusion

ANTI-TUBERCULARS

Mechanism: This classification of drugs is specific for the mycobacterium tuberculosis organism, although a few may assist in the treatment of other ailments. The action either inhibits cell wall synthesis or prevents DNA synthesis.

Indications: Treatment of tuberculosis

Examples: Aminosalicylate sodium, Capreomycin, Ethambutol, Rifampin

Side effects: Nausea and vomiting, Hepatitis

ANTI-FUNGAL

Mechanism: Either weakens the cell wall or disrupts cellular replication.

Indications: Fungal infections

Examples: Amphotericin B, Clotrimazole, Econazole, Fluoronazole, Miconazole

Side effects: Hypersensitivity reactions, Nausea and vomiting, Headache, Hypotension

ANTHELMINTICS

Mechanism: Either causes paralysis in the worm, prevents the worm from laying eggs, or forces detachment from the intestinal walls.

Indications: Pinworms, Tapeworms, Roundworms, etc.

Examples: Mebendazole, Niclosamide, Oxaminiquine, Praziquantal

Side effects: Abdominal pain, Anorexia, Nausean and vomiting, Diarrhea

COMMONLY TRANSPORTED ANTI-INFECTIVE 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.