ACETYLSALICYLIC ACID (ASA)

Other Names: • Enteric Coated ASA (ECASA), Aspirin, Novasen, Entrophen

Classifications: • Non-Steroidal Anti-Inflammatory; Analgesic; Antipyretic, Anticoagulant

Pharmacodynamics: ASA is a weak acid, which is easily and rapidly transformed for absorption in the stomach. It is hydrolyzed into salicylate, a highly protein bound drug, which is easily transformed for excretion in the liver

• Platelet Antiaggregant effects: ASA inhibits Thromboxane A₂ production, which is responsible for platelet aggregation. With the decrease in platelet aggregation the blood does not form clots as easily. The changes to the platelets from ASA are irreversible, though the cell only lives from 5 to 7 days
• Analgesic/Anti-inflammatory effects: Inactivates cyclo oxygenase enzyme, which decreases the production of prostaglandin in the tissue, blocking the pain receptors sensitivity and decreases inflammation
• Antipyretic effects: By inhibiting the release of prostaglandin, blood flow is enhanced to the vessels of the skin. This allows for easier release of heat through evaporation and convection. Though heat is easily released, the production of heat is not reduced by ASA

Other information: At high doses there is a direct stimulation of the respiratory center in the medulla, which increases rate and depth of respirations (hyperventilation). You may also find increase of respiratory alkalosis from the hyperventilation as O₂ consumption and CO₂ production increase. Also at high doses ASA will block the secretion and re-absorption of uric acid

Onset: • 15-30 min.

Peak: • Chewable: 2 hrs
• Enteric Coated: 6 – 8 hrs

Duration: • Dose dependent

Indications: • Prophylactic treatment of cardiac ischemia/angina pain
• Mild to moderate pain relief
• Relief of fever
• Relief of inflammation
• Combined use for thrombolytic care of Myocardial infarction (MI)
Contraindications:
- Hypersensitivity or allergy to the medication
- ASA or NSAID administration induced bronchoconstriction, angioedema, generalized urticaria, severe rhinitis, laryngeal edema, or shock
- Current active bleeding
- Evidence of Cerebral Vascular Accident (CVA) or head injury within the last 24 hrs
- Active peptic ulcer

Precautions:
- History of gastrointestinal ulcers
- Administration during last trimester of pregnancy should be avoided as it may inhibit clotting factors of mother and unborn child and prolong the pregnancy or labour
- Discontinue use at least one week prior to elective surgery
- Asthma (asthmatic patients may have hypersensitivity to ASA and precaution should be taken with first time use)
- Use with extreme caution in patients with decreased renal function, bleeding tendencies, significant anemia, hypoprothrombinemia, thrombocytopenia, vitamin K deficiency or severe hepatic disease.

Adverse Reactions:
- Pulmonary edema may occur with chronic or acute large dose ingestion
- Gastrointestinal (GI): ulcer, hemorrhage, dyspepsia, abdominal pain, heartburn, N & V, diarrhea at high doses
- Tinnitus (with larger doses)

Drug Interaction:
- Anticonvulsants: Large doses of ASA may increase phenytoin (Dilantin) serum levels by inhibition of phenytoin metabolism
- Antihyperglycemic agents: ASA increases the antihyperglycemic responses to oral hypoglycemic drugs, thus decreasing blood glucose levels
- Non-steroidal Anti-inflammatory Drugs (NSAIDS): Concomitant use of ASA and NSAIDS increases the risk of GI side effects while providing no additional therapeutic benefits

Special Considerations:
- Route: PO
- 500mg/kg may be fatal
- Higher doses of aspirin (>325 mg) may suppress the production of prostacyclin, which is a prostaglandin with antiplatelet and vasodilatory properties. Therefore, higher doses of aspirin counteract the beneficial effects of the lower doses. Hence the reason for low dose

Preparations:
- Enteric coated or uncoated tablets of variable strength (80 mg, 81 mg, 160 mg, 325 mg)

Dosages:
- Adult: 160 mg for prophylactic treatment of cardiac ischemia/angina pain
- Pediatric: No treatment protocol

References:
- Compendium of Pharmaceuticals and Specialties 2013
- Ontario Provincial ALS Patient Care Standards PCP & ACP Core Medical Directives, Version 3.3
- 2010 AHA Guidelines : Part 10 – Acute Coronary Syndromes

NOTE: The information contained herein does not supersede or negate the MoHLTC Provincial Advanced Life Support Patient Care Standards and should only serve as general information about the medication itself.