Aspirin (Acetylsalicylic Acid)

Aspirin or acetylsalicylic acid functions by inhibiting platelet aggregation and as a nonsteroidal anti-inflammatory drug (NSAID). Aspirin is indicated for the management of fever, pain, inflammatory conditions, and prevention of thrombotic events. Side effects include the formation of GI ulcers, bleeding, and pancytopenia. Aspirin should not be taken within 7-10 days of surgery and should not be administered to children under 18 years of age due to the possibility of Reye's Syndrome.



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Mechanism

Inhibits Platelet Aggregation
Inhibiting-chains on Plates
By inhibiting cyclooxygenase, aspirin inhibits platelet aggregation. Aspirin's inhibition of platelet aggregation is irreversible and effects will last the lifespan of the platelet, roughly 8 days.

NSAID
N-sad
Aspirin is considered a nonsteroidal antiinflammatory drug (NSAID). Aspirin functions by inhibiting cyclooxygenase (COX). In low doses, aspirin aids in the relief of pain. In higher doses aspirin functions as an anti-inflammatory medication.

Indications

Thrombotic Event Prevention
Plugged Trombone
Aspirin is one of the few NSAIDs that aids in preventing thrombotic events, such as a stroke of myocardial infarction. It has also been noted to decrease the risk of colorectal cancers.

General Pain
General Pain
In low doses, aspirin provides mild to moderate pain relief. Cyclooxygenase increases the signal and intensity of pain. Therefore by inhibiting cyclooxygenase, aspirin is able to provide relief to pain.

Inflammatory Conditions
Flames
In higher doses, aspirin has anti-inflammatory effects. It may be an initial drug of choice in the management of inflammatory conditions, such as juvenile arthritis, rheumatoid arthritis, and osteoarthritis. It is also indicated in conditions, such as rheumatic fever, tendinitis, and bursitis.

Fever
Fever-beaver
Nonsteroidal anti-inflammatory drugs, such as aspirin, are utilized as fever reducers.

Side Effects

Pancytopenia
Pan-side-toe-peanut
Aspirin may damage the bone marrow and result in pancytopenia, which includes aplastic anemia, agranulocytosis, and thrombocytopenia. Those who are older than 60 and have been taking aspirin regularly for 1-6 months are at greatest risk for the development of aspirin induced pancytopenia.

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GI Ulcers

GI Ulcer-volcano

High dose aspirin may promote the development of severe gastric ulcers and stomach bleeding, as it erodes the gastric lining. Because aspirin is an acidic molecule, it is absorbed through the gastric lining and into the bloodstream. The consumption of alcohol should be avoided, as it increases the irritating effects of aspirin on the gastric mucosa.

Bleeding

Bleeding

Aspirin increases the risk for bleeding as it results in irreversible inhibition of platelet aggregation. Therefore, aspirin’s effect lasts the entire lifespan of the platelet, roughly 8 days. The patient on aspirin should be assessed for signs of bleeding, such as bruising. Aspirin should not be taken with other anticoagulation medications.

Considerations

Withhold Before Surgery 7-10 Days

Held Back by Surgeon with (7) Slot-machine and (10) Dime

Because aspirin inhibits platelet aggregation for the entire lifespan of the platelet, around 8 days, it should be held 7-10 days before surgery. If the patient continues taking aspirin before surgery, they are at increased risk of hemorrhaging during surgery. In patients who have previously undergone PCI or endarterectomy, aspirin should not be discontinued. Aspirin may also be continued in certain minor procedures.

Reye's Syndrome

Light-Rays

Aspirin should not be administered to children under 18 years old, as it can produce Reye’s Syndrome. Typically, this syndrome develops in children recovering from chickenpox or other viral illnesses who take aspirin. Therefore, aspirin should never be given to children recovering from illness.

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