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Diploma in Pharmacy 1st Year
Pharmaceutical Chemistry
Important Questions
Chapter 10 : Analgesic and Anti-Inflammatory Agents

Chapter 10
Analgesic and Anti-Inflammatory Agents
IMPORTANT Questions

Q1. Write about morphine Analogues, Narcotic Antagonist.

Ans.

Morphine Analogues

→ Morphine analogues are closely related to morphine structure and are even synthesised from it. They may be agonists [eg.. morphine, dimorphine (heroin) and codcine], partial agonists (e.g. nalorphine and levorphan). or antagonists (e.g., naloxone).

1) Morphine: It is a psychoactive opiate analgesic drug. It is regarded as the archetypal opioid. It is the gold standard of analgesics in clinical practice, and it is used to relieve severe pain and suffering.
2) Codeine: It has lower analgesic potency thun morphine. Within the body, it is partially metabolised to morphine. Codeine has a central effect.
3) Diamorphine: It is an opioid analgesic used to treat severe pain caused by surgical procedures, myocardial infarction, or agony in the terminally ill, as well as dyspnea caused by acute pulmonary, edoema.

Narcotic Antagonists

→ When taken alone, narcotic antagonists have little effect, but they prevent the effects of opiates.

→ The following are some main examples:

1) Naloxone: It was the first pure opioid antagonist and having affinity for all three opioid receptors. It is most commonly used to treat respiratory depression induced by opiate overdose.

Q2. Write short note on nonsteroidal Anti Inflammatory Agent (NSAIDs).

Ans.

NON-STEROIDAL ANTI INFLAMMATORY AGENTS (NSAIDS)

→ NSAIDs are used to treat inflammation, mild to moderate discomfort and fever, Headaches, arthritis, sports injuries, and menstrual cramps are among the conditions for which it is used.

→ In high-risk people, aspirin is used to reduce blood clotting, and prevent strokes and heart attacks.

→ NSAIDs are also found in a variety of cold and allergy medications.

→ The use of NSAIDs is linked to a variety of negative effects.

Classification

1) Non-Selective COX Inhibitors (Conventional NSAID)

1) Salicylates: (Aspirin) Diflunisal Salsalate, Sodium Salicylate (Salol) Salicylamide, Benorilate, Choline salicylate.

ii) Pyrazolone Derivatives: Phenylbutazone,Oxyphenbutazone.

iii) Indole Derivatives: Indomethacin, Sulindac,

iv) Propionic Acid Derivatives: Tbuprofen. Naproxen, Ketoprofen, Flurbiprofen

V) Anthranilic Acid Derivatives: Mephenamic acid.

2) Preferential COX-2 Inhibitors: Nimesulide, Meloxicam, Nabumetone.

3) Selective COX-2 Inhibitors: Celecoxib, Rofecoxib, Valdecoxib.)

Examples

The examples include

★ Aspirin,

★ Diclofenac

★ Thuprofen,

★ Piroxicam

Q3. Write note on Aspirin, Paracetamol.

Ans.

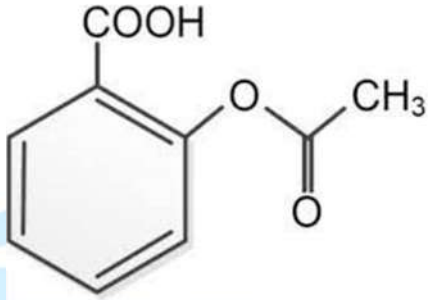
Aspirin

→ Aspirin is made by acetylating salicylic acid with acetic anhydride.

→ The crude product can be recrystallised using benzene, an acetic acid-water (1:1) mixture, or other non-aqueous solvents. Chemically, it is 2-acetoxy benzoic acid.

Chemical Name and Structure

Aspirin



Uses

- Aspirin is used to treat fevers and mild to moderate discomfort associated with muscle aches, toothaches, the common cold, and headaches. It can also be used to treat pain and swelling associated with arthritis.

Stability and Storage Conditions

- It should be kept at room temperature, between 20" and 25 C (68" and 77 F), in a well-sealed container away from moisture.

Type of Formulation

- Tablet

Popular Brand Names

- Arthritis Pain, Aspi-Cor, Aspir-Low, Bufferin, Ecotrin, Miniprin, Aspir, Bayer Plus, Durlaza

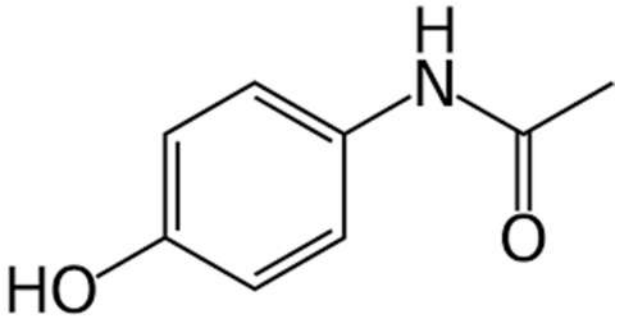
Paracetamol

→ It exhibits analgesic and antipyretic properties similar to acetanilide, in addition to the same toxicities; however, these toxicities occur less often and are milder than those seen in other derivatives.

→ As a result, it is said to be safer for use. It has analgesic properties similar to aspirin except the anti-inflammatory properties.

Chemical Name and Structure

N-(4-hydroxyphenyl)acetamide,



Uses

- It is an over-the-counter analgesic and antipyretic used extensively.
- It is a traditional remedy for headaches and other mild aches and pains, and a key element in many cold and flu cures.
- It can be used in combination with opioid analgesics to treat more severe pain, like post-surgical pain and palliative care in advanced cancer patients.

Stability and Storage Conditions

- When the temperature is mised from 25 to 45°C.) paracetamol tablets exhibit an increase in disintegration tine ranging from 9.1 to 65.5% (200 mg tablets) und 1.2 to 1.50.0 % (500mg tablets) (75 % RHD.

Type of Formulation

- Tablets

Popular Brand Names

1. Tylenol
2. Calpol
3. Excedrin