

25.1. ANALGESICS AND ANTI-PYRETICS

25.1.1. Introduction

Analgesics help in the reduction of pain by centrally acting to raise the pain threshold without distressing the consciousness or altering other sensory modulations.

Analgesic drugs are of two major classes:

- 1) Opioid or narcotic analgesics (centrally acting), and
- 2) Non-opioid analgesics (peripherally acting).

Opioid analgesics include the drugs obtained from natural sources, and those produced semi-synthetically or synthetically. These drugs have morphine-like action, i.e., reduce pain and depress CNS, and also show drug dependence. Narcotic analgesics include both opiates and opioids. **Opiates** are obtained from natural source such as opium alkaloids and their derivatives. **Opioids** are the synthetically produced compounds with different chemical structures and having analgesic property. For both the type of drugs, **morphine** is the prototype.

Antipyretics (or **non-narcotic analgesics**) reduce the elevated body temperature. Various drugs contain both analgesic and antipyretic activities.

Analgesics-antipyretics contain compounds belonging to different chemical categories which have no structural resemblance. Many drugs from this class are non-addictive and are comparatively non-toxic and safe. As these compounds can control both fever and pain, they are extensively used in aches, pains, febrile conditions, body aches, and in various musculoskeletal disturbances.

25.1.2. Classification

Narcotic analgesics are classified as follows:

- 1) **Morphine Analogues:** These compounds are closely related to morphine structure and are even synthesised from it. They may be agonists [e.g., morphine, dimorphine (heroin), and codeine], partial agonists (e.g., nalorphine and levorphan), or antagonists (e.g., naloxone).
- 2) **Synthetic Derivatives with Structures Unrelated to Morphine**
 - i) **Phenylpiperidine Series:** Pethidine and Fentanyl.
 - ii) **Methadone Series:** Methadone and Dextropropoxyphene.
 - iii) **Benzomorphan Series:** Pentazocine and Cyclazocine.
 - iv) **Semisynthetic Thebaine Derivatives:** Etorphine and Buprenorphine.