

Bisphosphonates

I. Drugs

- A. Alendronate
- B. Ibandronate
- C. Risedronate
- D. Zoledronic Acid

II. Indications

- A. Osteoporosis
- B. Hypercalcemia of malignancy

III. Mechanism

- A. Inhibits farnesyl pyrophosphate synthase
 - 1. Reduces bone resorption

IV. Adverse Effects

- A. Esophagitis
- B. Osteonecrosis of jaw

Calcitonin

I. Indications

- A. Osteoporosis
- B. Hypercalcemia
- C. Paget's Disease

II. Mechanism

- A. Inhibits osteoclasts
- B. Inhibits calcium resorption in renal tubules

III. Adverse Effects

- A. Increased risk of malignancy

Denosumab

I. Indications

- A. Osteoporosis

II. Mechanism

- A. Binds/inhibits RANKL, ↓Osteoclast activity

III. Adverse Effects

- A. Increased infection risk
- B. Osteonecrosis of jaw
- C. Hypocalcemia

Teriparatide

I. Indications

- A. Osteoporosis

II. Mechanism

- A. Recombinant parathyroid hormone, stimulates osteoblasts

III. Adverse Effects

- A. Hypercalcemia

Prostaglandins

I. Drugs

- A. Alprostadil – Maintenance of PDA – dilates blood vessels
- B. Lubiprostone – Constipation – stimulates motility via chloride channels
- C. Misoprostol – GI Ulcers - ↓ gastric acid secretion, ↑mucus/NaHCO₃ production
- D. Bimatoprost - Open Angle Glaucoma - ↓IOP by ↑ outflow
- E. Travoprost - Open Angle Glaucoma - ↓IOP by ↑ outflow
- F. Latanoprost - Open Angle Glaucoma - ↓IOP by ↑ outflow
- G. Epoprostenol – Pulm. HTN>Dilates pulm. art.
- H. Iloprost – Pulm. HTN>Dilates pulm. art.
- I. Treprostinil – Pulm. HTN>Dilates pulm. art.

NSAIDs

I. Drugs

- A. Diclofenac
- B. Fenoprofen
- C. Ibuprofen
- D. Indomethacin
- E. Ketorolac
- F. Naproxen
- G. Sulindac

II. Indications

- A. Anti-inflammatory
- B. Analgesic
- C. Antipyretic

III. Mechanism

- 1. Decreased prostaglandins
- 2. Fever – Reduced prostaglandin E₂ levels

IV. Adverse Effects

- A. GI Bleeding/Ulcers
- B. Bleeding Risk (↓TXA₂ levels)
- C. Nephritis (decreased blood flow to kidneys)
- D. Increased risk of MI & Stroke
- E. Premature closure of DA in fetus (avoid in 3rd trimester)

COX-2 Inhibitors

I. Drugs

- A. Celecoxib

II. Indications

- A. Anti-inflammatory
- B. Analgesic

III. Mechanism

- 1. Decreased prostaglandins

IV. Adverse Effects

- A. Increased risk of MI & Stroke
- B. Premature closure of DA in fetus (avoid in 3rd trimester)

Acetaminophen

I. Indications

- A. Antipyretic
- B. Analgesic

II. Mechanism

- 1. Inhibition of central prostaglandin synthesis

III. Adverse Effects

- A. Hepatotoxic in overdose
 - 1. Antidote: N-acetylcysteine

Leflunomide

I. Indications

- A. Rheumatoid Arthritis

II. Mechanism

- 1. Inhibition of dihydroorotate dehydrogenase
- 2. ↓Autoimmune lymphocytes

Hydroxychloroquine

I. Indications

- A. Rheumatoid Arthritis
- B. Lupus
- C. Malaria

II. Mechanism

- A. Unknown

III. Adverse Effects

- A. QT Prolongation
- B. Torasades de Pointes
- C. AV block
- D. Bone marrow failure, anemia
- E. Liver failure
- F. Retinal damage, corneal deposits

Biologic Anti inflammatory Drugs

I. Adalimumab

- A. Indications: RA, Psoriatic Arthritis, Crohn's, Ankylosing Spondylitis
- B. Mechanism: MAB binds TNF- α
- C. Adverse Effects: Agranulocytosis, ↑infection, ↑malignancy

II. Certolizumab

- A. Indications: RA, Psoriatic Arthritis, Crohn's, Ankylosing Spondylitis
- B. Mechanism: Fab fragment blocks TNF- α
- C. Adverse Effects: Agranulocytosis, ↑infection, ↑malignancy

III. Etanercept

- A. Indications: RA, Psoriasis, Ankylosing Spondylitis
- B. Mechanism: Recombinant human receptor fusion protein, binds TNF- α
- C. Adverse Effects: Agranulocytosis, ↑infection, ↑malignancy

IV. Golimumab

- A. Indications: RA, Psoriatic Arthritis, Ankylosing Spondylitis
- B. Mechanism: MAB binds TNF- α
- C. Adverse Effects: Agranulocytosis, ↑infection, ↑malignancy

V. Infliximab

- A. Indications: RA, Psoriatic Arthritis, Crohn's, UC, Ankylosing Spondylitis
- B. Mechanism: MAB binds TNF- α
- C. Adverse Effects: Agranulocytosis, ↑infection, ↑malignancy

VI. Abatacept

- A. Indications: RA
- B. Mechanism: Recombinant protein, decreases T-cell activation, interferes with CD28 – CD80/CD86 binding
- C. Adverse Effects: ↑infection

VII. Rituximab

- A. Indications: RA
- B. Mechanism: MAB binds CD20 antigen on B Cells
- C. Adverse Effects: Infusion reactions

VIII. Tocilizumab

- A. Indications: RA
- B. Mechanism: MAB blocks IL-6 receptor

IX. Tofacitinib

- A. Indications: RA
- B. Mechanism: Janus kinase inhibitor
- C. Adverse Effects: CYP3A4 metabolism, ↑infection, ↑malignancy

X. Anakinra

- A. Indications: RA
- B. Mechanism: IL-1 Receptor antagonist
- C. Adverse Effects: Neutropenia

Urate-lowering Drugs

I. Allopurinol

- A. Indications: Gout, hyperuricemia
- B. Mechanism: Xanthine Oxidase Inhibitor

II. Febuxostat

- A. Indications: Gout, hyperuricemia
- B. Mechanism: Xanthine Oxidase Inhibitor

III. Probenecid

- A. Indications: Chronic gout
- B. Mechanism: Urate-anion exchange inhibitor in proximal tubule, promotes uric acid clearance

IV. Pegloticase

- A. Indications: Chronic gout
- B. Mechanism: Recombinant urate oxidase, metabolizes uric acid

Colchicine

I. Indications

- A. Acute gout
- B. Pericarditis

II. Mechanism

- A. Depolymerizes tubulin, inhibits function of granulocytes

III. Adverse Effects

- 1. GI Effects
- 2. Neutropenia
- 3. Myopathy
- 4. Aplastic Anemia

Triptans

I. Drugs

- A. Almotriptan
- B. Eletriptan
- C. Frovatriptan
- D. Naratriptan
- E. Rizatriptan
- F. Sumatriptan
- G. Zolmitriptan

II. Indications

- A. Migraine headaches

III. Mechanism

- A. Serotonin agonist of peripheral nerves of intracranial vasculature, vasoconstricting

IV. Adverse Effects

- A. Elevated BP
- B. Caution in CAD

Ergot Alkaloids

I. Drugs

- A. Ergotamine
- B. Dihydroergotamine

II. Indications

- A. Migraine headaches

III. Mechanism

- A. Serotonin, dopamine, and alpha agonist of peripheral nerves of intracranial vasculature, vasoconstricting

IV. Adverse Effects

- A. Contraindicated in PVD & Angina, due to vasoconstricting effects