محاضرة: Ch 9- Autocoids

الصيدلاني\ة: Greyhemer

لجان الدفعات

Soul Academy

His. = histamine

S.e. = side effect

Autocoids ⇒ natural Substances

ينتجها جسم الإنسان .. لها دور كتير في الـ normal physiology لكن إذا زادت عن حدها ممكن تكون سبب في بعض المشاكل لذلك قد نحتاج لأنه نقلل من انتاجها أو في بعض الحالات (حالات قليلة) إنه نحتاجها نفسها لذلك ممكن نعطيها كـ دواء أو أدوية تعمل زيها (نظائرها) analogues : اسمها

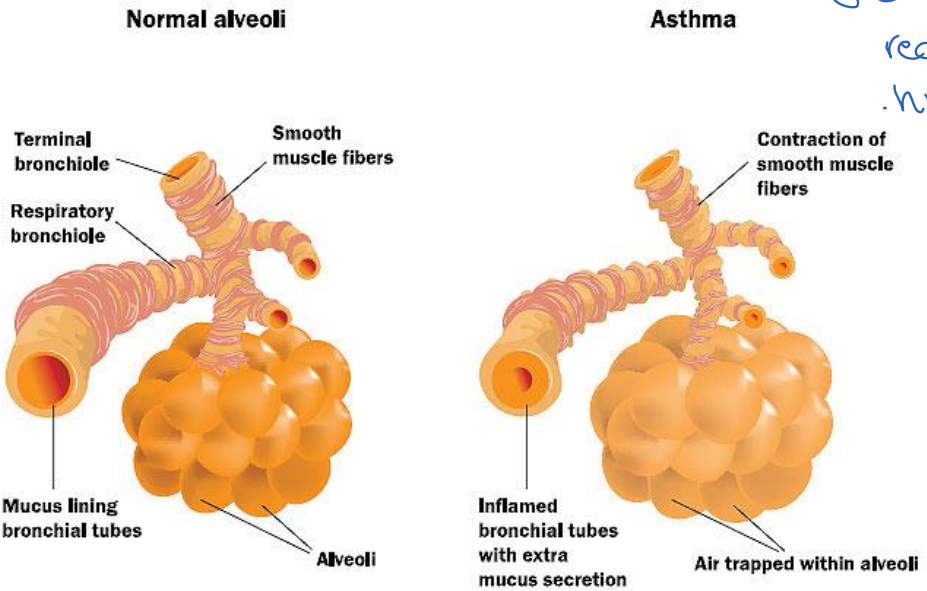
Pharmacology II

Dr. Heba Khader

Histamine

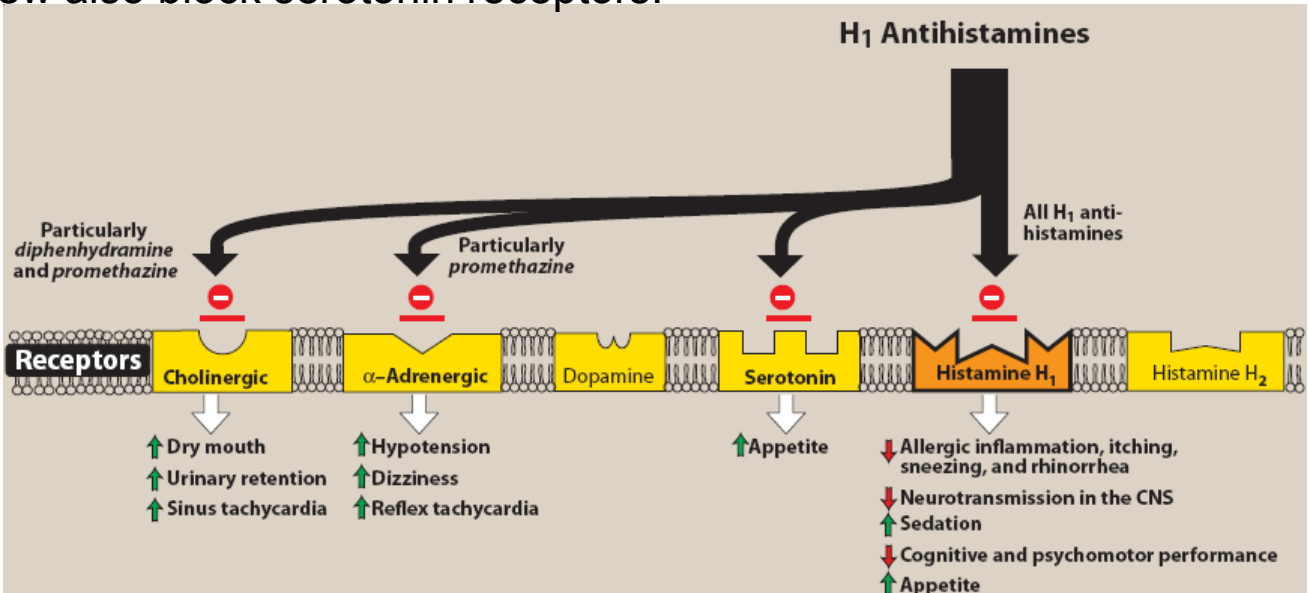
Clinical use:

- In pulmonary function laboratories, histamine aerosol has been used as a **provocative test** of bronchial hyperreactivity. **Histamine** has no other current clinical applications.



Histamine H1 Antagonists

- H1 blockers are competitive pharmacologic antagonists at the H1 receptor.
- Because their structure closely resembles that of muscarinic blockers and α-adrenoceptor blockers, many of the first-generation agents are potent pharmacologic antagonists at these autonomic receptors. A few also block serotonin receptors.

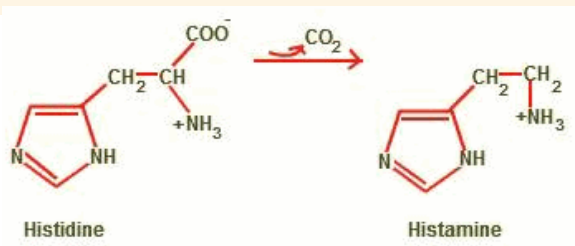


CASE STUDY

A healthy 45-year-old physician attending a reunion in a vacation hotel developed dizziness, redness of the skin over the head and chest, and tachycardia while eating. A short time later, another physician at the table developed similar signs and symptoms with marked orthostatic hypotension. The menu included a green salad, sauteed fish with rice, and apple pie. What is the probable diagnosis? How would you treat these patients?

CASE STUDY ANSWER

These patients demonstrate typical symptoms and signs caused by histamine. Fortunately, neither patient in this episode of food poisoning had significant laryngeal edema or bronchospasm. Certain types of fish, if improperly preserved, contain large quantities of histamine, due to the conversion—by bacteria contaminating the muscle tissue—of histadine to histamine. If consumed in sufficient amount, enough histamine can be absorbed to cause the clinical picture described. This syndrome is termed ***scombroid poisoning***. Treatment with maximal doses of histamine blockers, especially H_1 blockers, is usually sufficient to control the symptoms. Because this is not an allergic reaction, administration of epinephrine is not necessary unless hypotension or airway obstruction is severe. (See Edlow JA: *The Deadly Dinner Party: And Other Medical Detective Stories*. Yale University Press, 2009.)



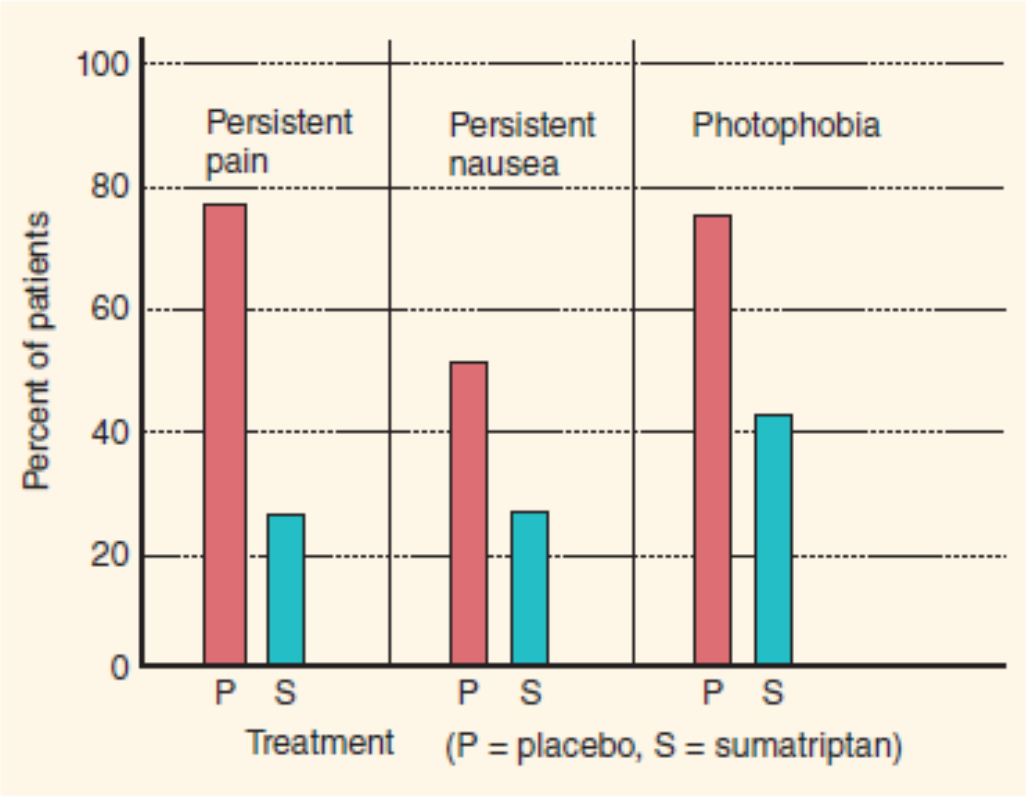


FIGURE 16–3 Effects of sumatriptan (734 patients) or placebo (370 patients) on symptoms of acute migraine headache 60 minutes after injection of 6 mg subcutaneously. All differences between placebo and sumatriptan were statistically significant. (Data from Cady RK et al: Treatment of acute migraine with subcutaneous sumatriptan. JAMA 1991;265:2831.)

3/2/2020

- Sumatriptan and its congeners are currently first-line therapy for acute severe migraine attacks in most patients.
- Anti-inflammatory analgesics such as aspirin and ibuprofen are often helpful in controlling the pain of migraine.
- Rarely, parenteral opioids may be needed in refractory cases.
- Propranolol, amitriptyline, and some calcium channel blockers (verapamil) have been found to be effective for the prophylaxis of migraine in some patients. They are of no value in the treatment of acute migraine.
- The anticonvulsants valproic acid and topiramate have also been found to have some prophylactic efficacy in migraine.

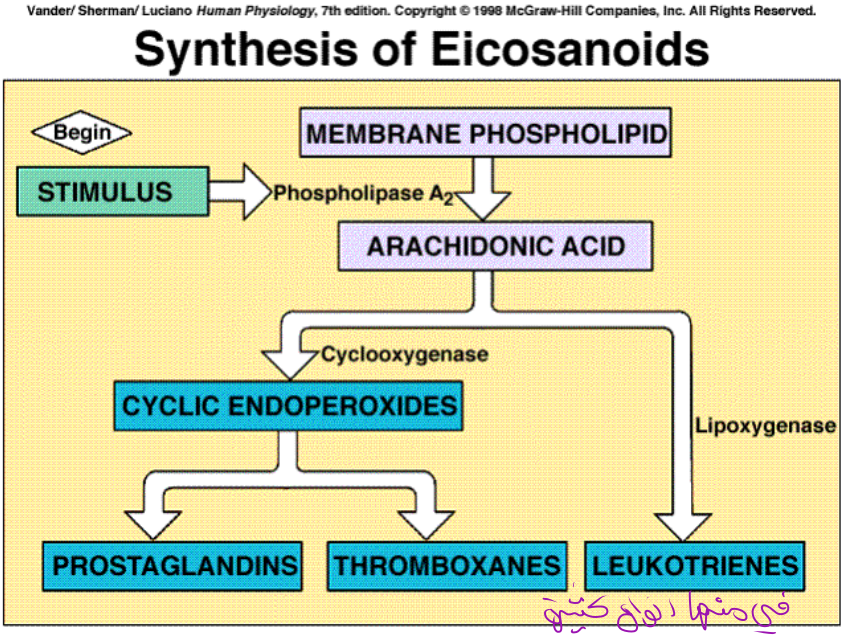
3/2/2020

TABLE 16–6 Pharmacokinetics of triptans.

Drug	Routes	Time to Onset (h)	Single Dose (mg)	Maximum Dose per Day (mg)	Half-Life (h)
Almotriptan	Oral	2.6	6.25–12.5	25	3.3
Eletriptan	Oral	2	20–40	80	4
Frovatriptan	Oral	3	2.5	7.5	27
Naratriptan	Oral	2	1–2.5	5	5.5
Rizatriptan	Oral	1–2.5	5–10	30	2
Sumatriptan	Oral, nasal, subcutaneous, rectal	1.5 (0.2 for subcutaneous)	25–100 (PO), 20 nasal, 6 subcutaneous, 25 rectal	200	2
Zolmitriptan	Oral, nasal	1.5–3	2.5–5	10	2.8

Eicosanoids

- The eicosanoids are an important group of endogenous fatty acid autocoids.
- Arachidonic acid, a 20-carbon fatty acid, is the primary precursor of the eicosanoids.



نفس الشكل ولكن تختلف بأشياء بسيطة زي group مختلفة أو عدد ال =
لكن شكلهم هم نفس الشيء ... وإنما سموهم أحنا والأرقام والأحرف للتمييز بينهما...

Eicosanoids

Classification

- The principal eicosanoid subgroups are:
  - **Leukotrienes**
  - **Prostaglandins**
  - **Prostacyclin**
  - **Thromboxane.**
- The leukotrienes retain the straight-chain configuration of arachidonic acid.
- Prostacyclin, thromboxane, and prostaglandin (called collectively as prostanoids) are cyclized derivatives of arachidonic acid.

Eicosanoids

- There are several series for most of the principal subgroups, based on different substituents (indicated by letters A, B, etc) and different numbers of double bonds (indicated by a subscript number) in the molecule; i.e: LTC4, PGE2.

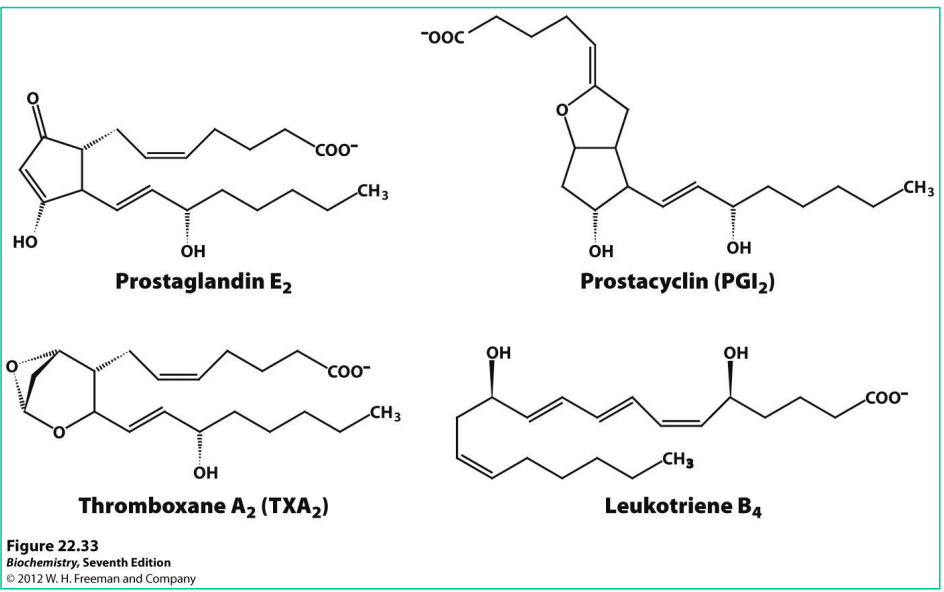
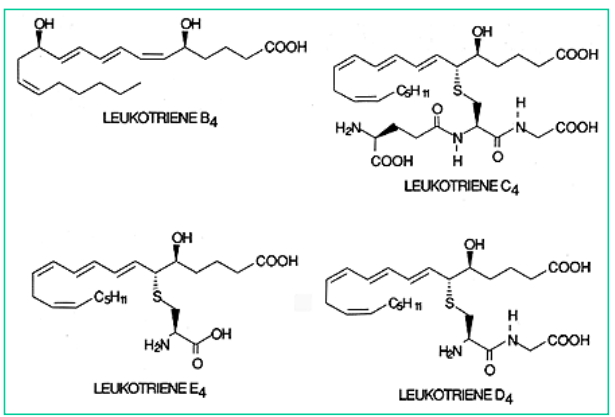


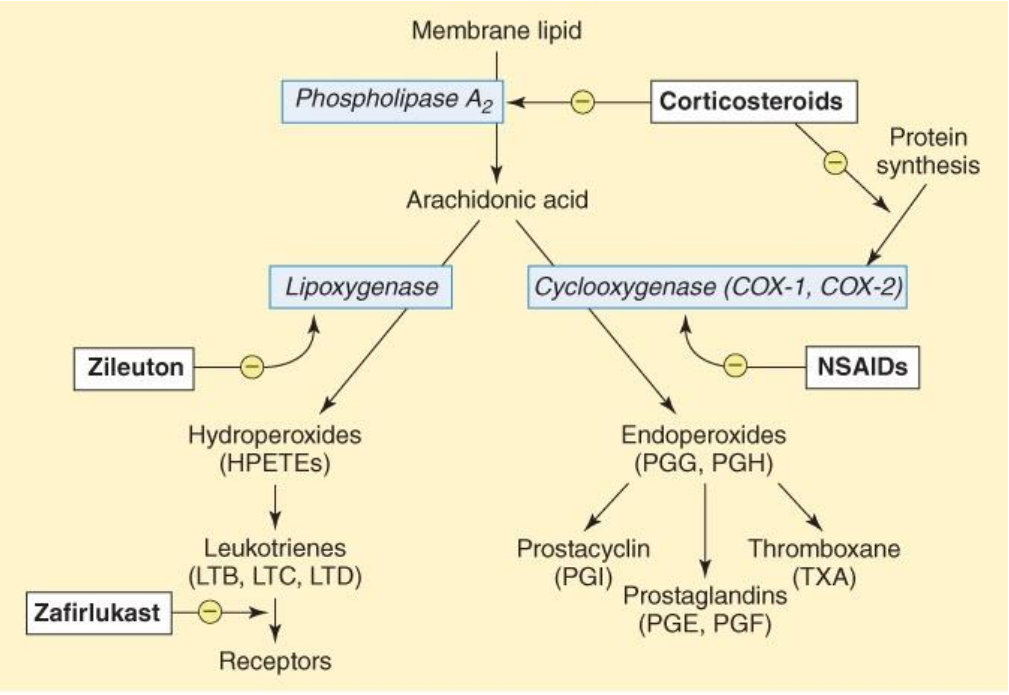
Figure 22.33
Biochemistry, Seventh Edition



Eicosanoids Synthesis

- Active eicosanoids are synthesized in response to a wide variety of stimuli (eg, physical injury, immune reactions).
- These stimuli activate phospholipases in the cell membrane or cytoplasm, and arachidonic acid is released from membrane phospholipids.
- Arachidonic acid is then metabolized by several different enzymes.
- The 2 most important are **lipoxygenase,** which results in straight-chain leukotrienes, and **cyclooxygenase (COX),** which results in cyclization to prostanoids (prostacyclin, prostaglandins, or thromboxane).

Eicosanoids Synthesis



Source: Trevor AJ, Katzung BG, Masters SB: *Pharmacology Examination & Board Review, 9th Edition:* www.accesspharmacy.com

Questions??

لاتنسوا الأمة الإسلامية من خالص دعائكم ..

ولا تنسوا زميلنا أيهم الأبرحة من دعواتكم ..

وبالتوفيق إن شاء الله

دعواتكم ..