Histamine

Key Points

- An autocoid is a term for substances produced in one part of the body that have an effect on another part of the body.
- Histamine is an autocoid as is prostaglandins, serotonin
- Histamine is released in response to allergic responses
- Histamine works on nerve receptors

What is a nerve receptor?

- Two nerves, or a nerve and an innervated structure, join at a synapse.
- There is a gap in the synapse that a nerve impulse must cross.
- A chemical called a neurotransmitter is released on one side of the synapse and attaches to “receptors” on the other side.

Transmission across a synapse

- A synapse has a gap (cleft) that the action potential must cross. HOW?

Transmission across a synapse

- Neurotransmitter is released when a nerve impulse reaches synapse
- Receptors “receive” neurotransmitter and generate a nerve impulse
- Some receptors are sensitive to histamine so they are called histamine receptors
- During an allergic reaction, mast cells release histamine which attaches to those receptors, generating a nerve impulse
Two (possibly three) types of histamine receptors, H1, H2 and (maybe) H3.

H1 histamine receptors send impulse to dilate blood vessels and to constrict bronchioles

H2 receptor send impulse to stomach where acid is produced

H3 ?

H1 Lungs, blood vessels

H2 stomach

Mast cell

Antihistamine

Antihistamines block the receptor so histamine has less of an effect

Problem – antihistamine blocks other receptors causing side effects

Adverse Reactions

• Major side effect of first generation H1 antihistamines is sedation (Benadryl, Dramamine, Tavist)
• Second generation H1 antihistamines do not sedate (Claritin, Allegra)
• Tachycardia, constipation, nausea, etc can be a problem
• Xerostomia a major concern

Other Points

• Benadryl can be used as a local anesthetic if injected
• Drugs such as Tagamet, Pepsid, Zantac are H2 antihistamines,