Emetics

Emetics are drugs that induce vomiting. Although their use in medicine is limited and obsolete (see aversion therapy below), we can still find several indications without which we could not do without them. The most common indication is the ingestion of toxic substances. Inducing vomiting is a simple method to get an unwanted substance out of the body before it can be absorbed. They are more often used in pediatrics and veterinary practice. Cases of abuse of emetics were also described, e.g. in patients with bulimia, where they represented an easy way to empty the stomach after an excess of food. Somewhat more loosely, we could also consider alcohol (or its metabolite acetaldehyde), opiates, or perhaps the ritual consumption of ayahuasca decoction as emetics [1] the inhabitants of Amazonia. Today, only apomorphine and the alkaloid emetine are used as emetics. In particular, apomorphine, thanks to its agonism at D-receptors, could see some success in the field of Parkinson's disease treatment.

Mechanism of action

It is either central in the chemoreceptive trigger zone or peripheral to the termination of parasympathetic afferent vagal fibers in the digestive system. We have two units responsible for vomiting: the *vomiting center* (responsible for motor and visceral manifestations) and the *chemoreceptive trigger zone* (directly influenced by substances that pass here from the blood through the permeable blood-brain barrier).

Vomiting Center

It is located in the **lateral reticular formation of the elongated spinal cord.'**Suggestions lead here, for example, from the vestibular system (role in motion sickness), n. vagus from the GIT or from higher nerve centers. There are mainly **muscarinic receptors'** for acetylcholine. Therefore, **parasympatholytics** (e.g. scopolamine) have an antiemetic effect. He is a kind of executor of vomit signals coming from various places. The most important afferents are precisely from the chemoreception trigger zone. Among the others, let's mention e.g. fibers from ncl. tractus solitarii. Efferentation occurs via the sympathetic, parasympathetic and, above all, motor nerves. It is responsible for visceral symptoms during vomiting (hypersalivation due to the parasympathetic; mydriasis, tachycardia and sweating due to the sympathetic) and motor symptoms during vomiting (deep inhalation and partly also retroperistalsis)

Chemoreceptive Trigger Zone

It triggers vomiting by efferentation to the vomiting center. It is located in the **4th brain chamber in the area postrema'**. It is a circumventricular organ that filters various substances from the blood. Numerous receptors are found here. The most important are:

- **D_2-receptors,**
- **5-HT_3-receptors**,
- **opioid receptors**,
- **H_1-receptors**,
- **acetylcholine receptors (M-receptors) and receptors for substance P**.

Representatives of emetics

The strongest known substance with an emetogenic effect is the cytostatic cisplatin. It releases serotonin from the mucosa of the small intestine and it either irritates the parasympathetic endings of the vagus nerve (acting peripherally) or the released serotonin is transported by blood to the chemoreceptive trigger zone and stimulates 5-HT_3-receptors (also acts centrally).

Obsolete Emetics

These were most often salt solutions that caused vomiting. A solution of sodium chloride or copper sulfate could be used. The use of mustard decoction is also known from the past. Hydrogen peroxide has retained a certain position in veterinary practice even today.

Emetine

It is a natural alkaloid isolated from the root of the South American plant Hlavěnka davíve. It is better known by its Latin name of *Cephaelis ipecacuanha*. The name ipecac syrup (also ipecacuan syrup) is derived from its generic name. It is an emetic that is administered orally and stimulates the parasympathetic endings of the vagus nerve. '*10 to 15 mg* is sufficient to induce vomiting within one hour of administration. In addition to emetic effects, it also has expectorant effects. It leads to the stimulation of the serous secretion of bronchial mucus. The dose is much smaller, about 10% of the emetic dose. For this purpose, it is part of preparations to facilitate expectoration.

Links

Related Articles

- Vomiting

References

1. ANDRITZKY, W. Sociopsychotherapeutic functions of ayahuasca healing in Amazonia. *J Psychoactive Drugs* [online]. 1989 Jan-Mar, vol. 21, no. 1, p. 77-89, Available from <https://www.ncbi.nlm.nih.gov/pubmed/2656954>. ISSN 0279-1072.

Template:Edit