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Der Pharmacia Lettre, 2022, 14 (1): 03-05
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A Short Note on Types of Antiemetic and its Treatment

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Received: 21-Jan-2022, Manuscript No. DPL-22-52059; **Editor assigned:** 24-Jan-2022, PreQC No. DPL-22-52059 (PQ); **Reviewed:** 04-Feb-2022, QC No. DPL-22-52059; **Revised:** 10-Feb-2022, Manuscript No. DPL-22-52059(R); **Published:** 17-Feb-2022, DOI: 10.37532/0975-5071-22.14.12.

ABOUT THE STUDY

An antiemetic is a medication that relieves nausea and vomiting. Antiemetic is often used to treat motion sickness as well as the adverse effects of opioid analgesics, general anesthesia, and cancer treatment. Antiemetic medicines can aid with nausea and vomiting caused for example motion sickness, viral or bacterial illnesses like stomach flu, pregnancy, the consequences of surgery, or other therapies like chemotherapy. These medications work by blocking neurotransmitters, which are chemical messengers that carry nausea signals to the brain. By blocking these signals, a person might avoid feeling nauseated and vomiting. Antiemetic's act by inhibiting particular receptors that respond to neurotransmitter molecules including serotonin, dopamine and histamine in the brain circuits that cause vomiting.

Adverse effects of antiemetic drugs

Bismuth-subsalicylate: Dark tongue and greyish-black stools.

Antihistamines: Sleepiness, mouth dryness.

Dopamine antagonists: Dry mouth, weariness, constipation, tinnitus, muscular spasms, and restlessness.

Neurokinin receptor agonists: Reduced urination, dry mouth, heartburn.

Corticosteroids: Indigestion, acne, increased hunger, and thirst.

Cannabinoids: Perceptual alterations, dizziness.

Types

5-HT₃ receptor antagonists inhibit serotonin receptors in the brain and gastrointestinal tract. As a result, they can be utilized to treat post-operative nausea and vomiting as well as cytotoxic medication nausea and vomiting. They can produce constipation or diarrhea and dry mouth.

- Dolasetron can be used as a tablet or as an injection.
- Granisetron is available as a tablet, an oral solution, an injectable D, or a single transdermal patch applied to the upper arm (SANCUSO).
- Ondansetron is available in oral tablet, orally dissolving tablet, orally dissolving film, sublingual, or IV/IM injectable form.
- Tropisetron can be taken orally as capsules or intravenously.
- Palonosetron can be given as an injection or in the form of oral capsules.

Dopamine antagonists work by blocking dopamine receptors in the brainstem, and they're used to treat nausea and vomiting caused by cancer, radiation, opioids, cytotoxic medicines, and general anesthesia. Muscle spasms and restlessness are two common side effects.

- Intravenous injection of amisulpride.
- Domperidone (limited in usefulness by extra-pyramidal and sedative side-effects).
- Prochlorperazine is a kind of antibiotic that is used to treat bacterial infections (Compazine, Stemetil, Buccastem, Stemetil, and Phenotil).
- Aprepitant (Emetil) is a commercially available NK₁ receptor antagonist.
- Casopitant is an experimental NK₁ receptor antagonist.
- Rolapitant is a newly authorized NK₁ receptor antagonist.

Antihistamines (H₁ histamine receptor antagonists) are used to treat a variety of ailments, such as motion sickness, morning sickness in pregnancy, and opiate nausea. The vestibular nucleus's region postrema and vomiting center have H₁ receptors in central locations. Antihistamines also have anticholinergic characteristics, which mean they inhibit muscarinic receptors at the same time. Doxylamine, Cyclizine, Diphenhydramine (Benadryl), Dimenhydrinate (Gravol, Dramamine), Doxylamine, Mirtazapine (Remeron) is an antidepressant with antiemetic properties.

Cannabinoids are used to treat cachexia, cytotoxic nausea, and vomiting in individuals who have failed to respond to previous treatments. Changes in perception, disorientation, and lack of coordination are all possible side effects.

- Cannabis is a Schedule I substance in the United States, where it is also known as medicinal marijuana.
- Some synthetic cannabinoids, such as Nabilone (Cesamet) or the JWH family.
- Dronabinol is a Schedule II substance in the United States.

Benzodiazepines are sedatives (GABA receptor agonists)

- Midazolam is administered before the start of anesthesia and has been proven in recent trials to be equally effective as ondansetron, but most effective when combined with ondansetron.
- Lorazepam is believed to be an excellent adjunct therapy for nausea when used in conjunction with first-line medicines such as Compazine.

Anticholinergic

- Atropine
- Diphenhydramine
- Hyoscine (also known as scopolamine)

As an efficient antiemetic, dexamethasone (Decadron) is administered at a modest dose at the start of a general anesthesia. It is also utilized in chemotherapy as a single agent as well as in combination with other antiemetic such as 5-HT₃ receptor antagonists and NK₁ receptor

antagonists, although the precise mechanism of action is unknown.

Treatment

Ginger is the most well-known natural antiemetic (*Zingiber officinale*). Gingerols, which are 5-HT₃ antagonists, are found in ginger. Ginger has been shown in clinical research to be useful in the treatment of nausea and vomiting. Tea may be made by steeping fresh ginger in hot water, or you can try candied ginger, ginger cookies, or ginger ale. Aromatherapy with peppermint essential oil may also be a safe and effective technique to treat nausea and vomiting. Take deep breathes while massaging a couple drops into the back of your neck. Cannabis has also been demonstrated to be an efficient antiemetic. It is currently legal in many places, although it may still be deemed an illegal narcotic in others.

Antiemetic medication has evolved from dopamine blockers such as phenothiazine, which can cause major extrapyramidal responses, to selective serotonin and neurokinin receptor inhibitors, which are more powerful and safer than phenothiazine (D₂ blockers).