# Antispasmodics

Antispasmodics are drugs that remove the spasm of the internal hollow organs of the digestive (**biliary colic**) and urogenital system (**renal colic**). They do not affect the smooth muscle of blood vessels and bronchi. They are administered for pain originating in the urogenital (eg dysmenorrhea) or digestive system, as well as for migraines, colic, etc.

## Classification of Spasmolytics

Spasmolytics can be divided into 3 categories according to their mechanism of action:

- **Neurotropic antispasmodics** – have a parasympatholytic function.
- **Musculotropic antispasmodics** – acts as calcium channel blockers.
- **Spasmoanalgesics** – combined preparations enriched with analgesic effect.

## Neurotropic antispasmodics

Their effect is mediated through their action on the receptors of the autonomic nervous system. The mechanism of action is antagonism of antispasmodics to muscarinic receptors, ie. parasympatholytics. We can divide them into **non-selective** and **selective**: Non-selective antispasmodics block non-specific muscarinic receptors. In contrast, selective antispasmodics act on specific muscarinic receptors.

#### Non-selective

- **Atropine** – not used for many side effects.
- **Butylscopolamine** – used mainly for gallbladder or renal colic . However, it is poorly absorbed from the intestine, so parenteral administration is suitable for it.
- **Ipratropium**

#### Selektive

- **Pirenzepine** – is no longer used in our country.

## Musculotropic antispasmodics

Unlike the previous ones, these antispasmodics also induce relaxation of the vascular smooth muscle. As before, we can divide them into 2 groups. The first group are **papaverine-type antispasmodics**, which slow down cAMP degradation by inhibiting phosphodiesterase, thus increasing cAMP levels and inducing muscle relaxation. The second group are **calcium channel blocking antispasmodics.**

#### Papaverine-type antispasmodics

- **Papaverine** – is an opium alkaloid, but it has no euphoric or analgesic effect. Due to its low specificity, it is no longer used.
- **Drotaverine** (Nospa)
- **Pitofenone** (part of Algifen)

#### Calcium channel blocking antispasmodics

- **Pinaverin**

## Spasmoanalgesics

As the name suggests, they are composed of a combination of antispasmodics and analgesics. They are often used in combination with musculotropic antispasmodics. It is necessary to add that this pharmacotherapy is suitable for short-term use (after gynecological operations, biliary colic, etc.). The following analgesics are most often used in combination with antispasmodics:

- **Metamizole**
- **Pethidine** – however, it has less antispasmodic effects.
- **Tramadol**

## Indications

As mentioned above, the main uses of antispasmodics are in relieving acute pain and spasms of the digestive and urogenital tracts.

### Indications for antispasmodics

- Irritable bowel syndrome.
- Spastic states.
- Flatulence.
- Dumping syndrome etc.

### Indications for spasmoanalgesics

- Spastic dysmenorrhea.
- Biliary and renal colic.
- Chronic pancreatitis, etc.

## Contraindications

Glaucoma, intestinal atony, benign prostatic hyperplasia, tachycardia, and urinary retention.

## Side effects

The largest number of side effects are caused by parasympatholytics, a smaller percentage is then caused by opioids – **urinary retention, tachycardia or tachyarrhythmias, increased intraocular pressure, excitation, accommodation disorders, toxic megacolon, and paralytic ileus.**

## References

### Related articles

- Parasympatholytica
- Inflammatory diseases of the gallbladder and bile ducts
- Dysmenorrhoea
- Chronic pancreatitis
- Therapy of diarrheal diseases
- Ulcerative colitis
- Osteoporosis
- Antidiaroika
- Acute cholecystitis
- Metabolic osteopathies

### Source

- Antispasmodics in gastroenterology, MUDr. Martin Bortlík, Ph.D. ( http://www.remedia.cz/Clanky/Prehledy-nazory-diskuse/Spasmolytika-v-gastroenterologii/6-F-ff.magarticle.aspx )
- Renal colic-treatment procedure ( https://www.stefajir.cz/?q=renalni-kolika-postup)
- Urinary tract antispasmodics ( https://www.samoleceni.cz/spasmolytika-mocoveho-ustroji)

### References


- MARTÍNKOVÁ, Jiřina. Pharmacology for medical students. 2., completely reworked. and supplement. Prague: Grada, 2014. 400 pp. ISBN 9788024741574.
- LÜLLMANN, Heinz, et al. Pharmacology and toxicology. 2nd Czech edition. Prague: Grada, 2004. 725 pp. ISBN 80-247-0836-1 .