

# Antimigraines

**Migraine** is characterized by episodes of **throbbing headache** with a number of related symptoms such as nausea, vomiting and photophobia.

**Nociceptive trigeminal nerve fibers** are stimulated. This is probably due to the release of vasoactive peptides from the sensory nerve endings that innervate the meningeal vessels. The released agents lead to dilatation of these vessels, development of perivascular inflammation and nerve irritation. Hand in hand with these changes, sensory perceptions are intensified, which are perceived as pain (allodynia).

Migraine pharmacotherapy is either **abortifiable** or **preventive**. Acute (abortive) treatment of seizures is non-specific (consisting of analgesics) and specific (triptans, ergotamines). Prophylactic treatment of migraine can be chronic or episodic.

*See the Migraine page for more information.*

## Treatment of acute migraine attack

We distinguish between specific (triptans and ergot alkaloids) and non-specific treatment.

**Non-specific treatment** (also affects other headaches) includes non-opioid analgesics (acetylsalicylic acid, paracetamol, non-steroidal anti-inflammatory drugs - most often ibuprofen or indomethacin in suppositories). As a rule, single-component preparations are sufficient, however, there are also **combined preparations** on the market (eg paracetamol + caffeine). Treatment with opioid analgesics is not very suitable because they worsen nausea and vomiting. Corticosteroids are indicated for a prolonged attack or so-called status migrenicus. In some cases, antipsychotics or antiemetics are also part of the treatment (most often prokinetics, ie domperidone, metoclopramide)

### Triptans

They are serotonin 5-HT<sub>1B</sub> / 1D receptor agonists. They **constrict dilated cerebral vessels** and prevent fluid extravasation. The result is a reduction in the stimulation of the perivascular fibers of the trigeminal nerve and an inhibition of the release of neuropeptides.

Side effects include fatigue, drowsiness, nausea, dizziness, chest pain (similar to coronary heart disease), serotonin syndrome and hot flushes. They are contraindicated in patients with **coronary** heart disease, uncompensated arterial hypertension, in patients with a history of central stroke and also in pregnancy.

They are indicated only for migraines and cluster headaches. They are suitable as first-line treatment in patients for whom simple or combined analgesics have not provided sufficient relief.

Representatives: sumatriptan, almotriptan, eletriptan, frovatriptan, naratriptan and others

### Ergot alkaloids

They have a similar mechanism of action to triptans, but also act on other serotonin receptor subtypes as well as adrenergic and dopaminergic receptors. Therefore, they have **more side effects** and are therefore no longer widely used.

Representatives: dihydroergotamine, ergotamine.

## Prophylactic treatment of seizures

We indicate this treatment in patients who suffer from **more than 3 migraine attacks per month** and meet other relevant criteria. Monotherapy is preferred. The treatment aims to reduce the frequency, duration and severity of seizures. It can be given for months to years.

- Tricyclic antidepressants - inhibit serotonin 5-HT<sub>2</sub> receptors (amitriptyline, nortriptyline)
- Anticonvulsants - increase GABA neurotransmission and have a strong inhibitory effect on trigeminovascular nociceptive neurons (topiramate, valproate)
- Beta-blockers - reduce the effect of stress, prevent the development of sterile inflammation (metoprolol, propranolol)
- Calcium channel blockers - acts against vasoconstriction of cerebral vessels, inhibits the synthesis of prostaglandins and leukotrienes (verapamil)
- Botulinum toxin - A into small muscles frontally and temporally and in the glabella
- Anti-CGRP - calcitonin gene-related peptide monoclonal antibodies (biological drugs for migraine prophylaxis)

## Link

## Related articles

- Migraine
- PGS migraine

## References

- JAN, Švihovec and Kolektiv KOLEKTIV. *Pharmacology*. - edition. Grada Publishing as, 2018. 1008 pp. ISBN 9788024755588
- JIŘINA, Martínková and Kolektiv KOLEKTIV. *Pharmacology: for medical students, 2nd, completely revised and supplemented edition*. - edition. Grada Publishing as, 2018. 520 pp. ISBN 9788024741574 .
- Study materials from teaching pharmacology at the Department of Pharmacology, First Faculty of Medicine, Charles University and General Hospital