Epilepsy/PGS (GPM)

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This article is intended for postgraduate studies in General Practical Medicine

See the Epilepsy/PSG page for more information.

In patients with a predisposition to epileptic seizures, the immediate triggering factors may be, for example:

- hypoglycemia, hypocalcemia, encephalitis;
- in neonates, for example, also the use of indomethacin or drugs (including barbiturates, heroin) by the mother;
- hypoxia, cerebral hemorrhage, lack of sleep, alcohol, alcohol withdrawal, excessive exertion, fever, drugs (heroin, crack), sun exposure;
- use of drugs such as aminophylline (i.v.), chlorpromazine, glucocorticoids, disulfiram, fentanyl, insulin, isoniazid in overdose, lidocaine, penicillin (i.v.), tricyclic antidepressants.

Etiology

Idiopathic epilepsy

- without recognizable cause, usual manifestation by the age of 20.

Symptomatic epilepsy

- arises from brain damage, st.p. stroke, in tumors, st.p. brain hemorrhage, after alcohol withdrawal, in the presence of abscesses, vascular malformations, encephalitis, metabolic diseases, uremia or intoxications;
- if a seizure first appears in full adulthood (over 25), it is often the **first manifestation of a brain tumor**!
  - it is therefore an absolute indication for CT, MRI of the brain - usually at the request of a neurologist.

Classification of Epileptic Seizures

(shortened according to the *Commission on Classification of the International League against Epilepsy* (year 1981) – one of the possible classifications)

I. **Focal partial seizures and locally beginning seizures.**

A. Simple focal seizures (without impaired consciousness).
B. Generalized seizures with disorders of consciousness (psychomotor, from the temporal lobe) - possibly begin as focal.
C. Focal seizures turning generalized - such as tonic-clonic ("grand mal").

II. **Generalized seizures** (convulsive / non-convulsive)

A. Absencies - typical, atypical.
B. Myoclonic seizures (including petit mal - impulsive).
C. Clonic seizures.
D. Tonic seizures.
E. Tonic-clonic seizures ("grand mal").
F. Atonic seizures (including combination with myoclonic seizures as so-called myoclonic-astatic seizures).

III. **Unclassifiable seizures** (or missing data)

Clinical Picture

Simple focal seizures

Without impaired consciousness.

Jackson seizures:

- according to focus location:
  - in the **motor** cortex - clonic convulsions in the corresponding **contralateral** areas of the body;
  - in the **sensitive** cortex - tingling, feelings of deafness, pain in limited areas on the **contralateral** side of the body;
- there is a tendency to extend the seizure to the whole half of the body or to generalization - "march of convulsion".

Adverse seizures:

- turning the head with the direction of view to the side;
- are coming from the premotor cortex usually **contralateral** to the direction of view.

Complex focal seizures

Disorder of consciousness is present from the beginning - the attack begins with an aura (such as dreamy states, jamais vu or déja vu), sensory perceptions, dizziness, motor mechanisms (such as clapping, undressing, hand movements around each other) that last for different lengths (minutes up to hours). The patient has amnesia - after the attack he does not remember what happened during the attack. E.g. in a temporal lobe attack.

Generalized seizures

They are usually divided into basic types: grand mal, absence (petit mal, possibly pycnolepsia), myoclonic seizures (petit mal impulsive).

Grand mal

- it can begin - with an introductory cry, a fall backwards, while the eyes are open but the pupils do not respond to exposure;
- continues with a tonic phase of about 30 seconds, when the lower limbs are in extension, the upper limbs in flexion or extension, apnea;
- followed by a clonic phase of about 0.5-5 minutes, when the rhythmic twitching of the upper and lower limbs, biting of the tongue, foam from the mouth, urination may occur;
- after the end of the attack, a resting stage with deep sleep occurs;
- after waking up there is diffuse muscle pain and amnesia during the course of the attack.

Absence

- usually recurrent seizures in the form of loss of consciousness lasting up to 10 seconds;
- eye movements, twitching of the limbs are present, spikes and waves are present on the EEG;
- begins usually between 6 and 10 years of age and is usually genetically conditioned.

Myoclonic seizures

- usually in the morning, myoclonic twitching of the upper limbs (a glass falls out), falls;
- lasting approx. 2–3 seconds, start usually between 13-18. year, the disease has a good prognosis.

Diagnostics

At the first manifestation, it is necessary to send the patient to a specialist - neurologist to confirm the diagnosis (by methods such as EEG, CT, MRI) and if epilepsy is suspected. Due to the differences in the clinical picture of individual seizures, the diagnosis of epilepsy might not be immediately apparent.

Differential diagnostics

- Cramps in children during fever;
- psychogenic seizures;
- syncope;
- hyperventilation syndrome;
- myoclonus.

Therapy

In cooperation with a neurologist, the patient has been taking pharmacotherapy long term, depending on the type of seizures. It is indicated to start after 2 epileptic seizures in the last 6 months - initiated by a specialist. The choice of antiepileptic drug and the patient's reactivity to the substance is individual.

Seizure therapy

- Move the patient away from the danger area, protect the head from injury with a soft head restraint until the twitches subside.

Usual pharmacotherapy according to the type of attack

- Focal seizures - carbamazepine (1st choice) - eventually phenytoin, valproic acid, vigabatrin (2nd option);
- absence - valproic acid (1st option) - eventually ethosuximide (2nd option);
- grand mal - valproic acid (1st option) - eventually phenobarbital, clobazam (2nd option);
- secondary generalized seizures - carbamazepine (1st choice) - eventually phenytoin, phenobarbital (2nd option).

Common antiepileptics

Dosage (for adults), ADR (Adverse drug reactions, ie drug side effects - common, dose-dependent, usually reversible), interactions:

- **carbamazepine** (800-1200 mg/day),
  - ADR: dizziness, fatigue, nausea and vomiting, nystagmus, ataxia, blurred vision, changes in blood counts, liver disorders, dermatitis,
  - interactions - induction of enzymes accelerating the breakdown of phenytoin, marcumar, digoxin, failure of hormonal contraception,
- **phenytoin** (100-300 mg/day),
  - ADR: tremor, nystagmus, blurred vision, ataxia, fatigue, hypertrichosis, gingival hyperplasia, dysarthria (bulbar), polyneuropathy, acne,
  - interactions - the same as carbamazepine,
- **phenobarbital** (100-200 mg/day),
  - ADR: fatigue, apathy, restlessness in children, nystagmus, dizziness, insomnia, Dupuytren's contracture, changes in blood counts,
  - interactions - the same as carbamazepine,
- **primidone** (750-1000 mg/day),
  - ADR: with a rapid increase in dose, dizziness, nausea, loss of libido and other ARDs occur, as with phenobarbital, its main metabolite.
  - interactions - the same as carbamazepine,
- **lamotrigine** (100-400 mg/day),
  - ARD: skin and allergic reactions, increased frequency of seizures, headache, nausea and vomiting, double vision, mood swings (depressive reactions),
  - interactions - induction of enzymes in various antiepileptic drugs,
- **gabapentin** (900-3600 mg/day),
  - ARD: fatigue, dizziness, ataxia, nystagmus, diabetes may be decompensated,
  - interactions - reduced effect of contraceptives, potentiation of the sedative effect of alcohol and sedatives on the CNS,
- **oxcarbamazepine** (600-2400 mg/day),
  - ARD: rash, headache, double vision, nausea and vomiting, hyponatraemia, depressive reactions,
  - interactions - interactions with hormonal contraception, does not interact with other antiepileptic drugs,
- **levetiracetam**
  - ARD: weakness, drowsiness and drowsiness, headache, nausea and vomiting, double vision, depressive reactions,
  - it is a pyrrolidone derivative - do not use in case of hypersensitivity,
- **valproic acid** (1200-1800 mg/day),
  - ARD: weight gain, increased hair loss, tremor (beta-blockers can be treated), liver damage, rarely coagulopathy, thrombocytopenia, vallproate encephalopathy, to the development of liver coma (1: 500 - in children),
  - interactions - increases the plasma concentration of phenobarbital, has no effect on the effectiveness of hormonal contraception,
- **ethosuximide** (500-1500 mg/day),
  - ARD: stomach upset (therefore taking the tablets with food), tiredness, headache, dizziness, hiccups, psychotic symptoms,
  - interaction - increases the concentration of phenobarbital,
- **clobazam** (10-40 mg/day),
  - ARD: fatigue, blurred vision, slowing, loss of appetite, headache, irritability and moodiness,
  - interactions - benzodiazepines.

Prognosis

If the treatment is set up correctly, patients will **during the first year of the treatment** get rid of ***grand mal seizures in 50–80%***, absences (school children) and ***impulsive petit mal in 80–90%***, ***complex focal seizures in 50%*** and ***infantile spasms and myoclonic astatic in only 25%.***

Links

Related Articles

- Epilepsy/PGS

External Links

- Společnost E - dobrovolné sdružení pacientů s epilepsií (http://www.spolecnost-e.cz)
- Česká liga proti epilepsii ČLS JEP (http://www.clpe.cz)
- Epistop (http://www.epistop.cz)
- Firemní informační web pro pacienty (http://www.clpe.cz/)

Literature

- GESENHUES, S a R ZIESCHÉ. Vademecum lékaře : Všeobecné praktické lékařství. 1. české vydání. Praha:

Galén, 2006. ISBN 80-7262-444-X.