

# Principles of drug administration

## Distribution of substances

### Drugs

LCs ( pharmaceuticals ) are any substance or mixture of substances which is or is administered to a patient for the treatment, alleviation of the symptoms of diseases, for influencing the functions of the organism, for making a diagnosis or for preventing the onset of the disease.

### Medicinal product

LP ( *Pharmacopoeia* ) are processed into a form that is dispensed to the patient.

### Medicines

Active substances and medicinal products prepared in a suitable form and ready for use (ampoules, ...), precisely marked with an information leaflet

Medicines are *divided* into:

firmly:

- powders - *pulveres* ( *pulv.* ) - for external and internal use (internal: bags, gelatin capsules),
- tablets - *Tablettae* ( *tablets* ) - compressed powders, for internal use,
- lozenges - dissolving in the mouth,
- dragees - *Tablettae obductae* / *dragee* ( *drg.* )
- capsules - *capsulae* ( *cps.* ) - in a gelatin shell (slower solubility), drink a lot
- grains - *granule* ( *gran.* ) - irregular, in spoons,
- effervescent tablets - *Tablette effrvescens* ( *eff.* ) - released when dissolved in water

semi-solid:

- ointment - *unguenta* ( *ung.* ) - fat with active substance, on the skin and mucous membranes,
- pasty - *pastae* ( *pst.* ) - greasy base and about 50% indif. powder, does not stick to the skin, porous, is not absorbed (protection against wetting),
- gels, jellies - clear semi-solids with a gel, on the skin (muscles, skin, joints),
- creams - *cremae* ( *crm.* ) - higher water content
- suppositories ( *supp.* ) - conical shape for easier insertion,
- vaginal globules - *globuli vaginales* ( *glob. vagin.* ) - as suppositories, spherical, ovoid, into the vagina,
- foam - in a thin layer on the skin,
- soaps - *sapones* - with admixture cure. substances (eg sulfur), skin medicine,
- plasters - *emplastra* ( *empl.* ) - impregnated with the active substance,

liquid

- solutions - *solutiones* ( *sol.* ) - substance in solvent (water, oil, alcohol), dosing in drops or measuring cups, into the mouth, nose, eyes, ears, external use -> bath linings,
- mixtures - *mixturae* ( *mixt.* ) - more substances in the solvent, it is necessary to shake before application due to insoluble substances,
- tinctures - *tincturae* ( *tct.* ) - alcoholic solutions of medicinal products obtained from plants,
- extracts - *extracts* - obtained by leaching from drugs and mixed with water, alcohol,
- suspension - *suspensions* - the substance is dispersed in water ( *aerosol* ), in a gel, oral application to the mucous membranes of the respiratory tract (spray), to protect the gastric mucosa,
- sprays - fluid released by compression. gas on the skin or mucous membranes,
- teas - *species* ( *spec.* ) - from plants; decoction, infusion, extract.

## Drug designation

Substance distribution Pharmaceuticals are any substance or mixture of substances that is or is administered to a patient to treat, alleviate the symptoms of the disease, to affect the body's functions, to make a diagnosis or to prevent the onset of the disease. The medicinal product LP (Pharmacopoeia) are processed into a form that is dispensed to the patient. Medicines Medicinal substances and medicinal preparations prepared in a suitable form and ready for use (ampoules, ...), precisely marked with the information leaflet Medicines are divided into: solid: powders - *pulveres* ( *pulv.* ) - for external and internal use ( inner: sachets, gelatin capsules), tablets - *tablets* ( *tablets* ) - compressed powders, for internal use, lozenges - dissolving in the mouth, dragees - *Tablettae obductae* / *dragee* ( *drg.* ) - protective packaging (do not damage enamel or decompose up to the lower parts of the GIT), capsules - *capsulae* ( *cps.* ) - in a gelatin shell (slower solubility), drink a lot of granules ( *gran.* ) - irregular, in spoons, effervescent tablets - released after dissolution in water semi-solid: ointments - *unguenta* ( *ung.* ) - fat with active substance, on the skin and mucous membranes, pastes - *pastae* - fatty base and about 50% indif. powder, does not

stick to the skin, porous, not absorbed (protection against wetting), gels, jellies - clear semi-solids with gel, on the skin (muscles, skin, joints), creams - higher water content suppositories - suppositoria (supp.) - conical shape for easier insertion, vaginal globules - globuli vaginales (glob. vagin.) - as suppositories, spherical, ovoid, in the vagina, foam - in a thin layer on the skin, soaps - sapones - with an admixture. substances (eg sulfur), skin medicines, patches - emplastra (empl.) - impregnated with active substance, liquid solutions - solutiones (sol.) - substance in solvent (water, oil, alcohol), dosing in drops or measuring cups, into the mouth, nose, eyes, ears, external use -> bath linings, mixtures - mixturae (mixt.) - more substances in the solvent, must be shaken before application due to insoluble substances, tinctures - tinctures (tct.) - alcoholic solutions from medicinal products obtained from plants, extracts - obtained by leaching from drugs and mixed with water, alcohol, suspensions - suspensions - suspensions - the substance is dispersed in water (aerosol), in a gel, oral application to the mucous membranes of the respiratory tract (spray), to protect the gastric mucosa, sprays - fluid released by compression. gas on the skin or mucous membranes, teas - species (spec.) - from plants; decoction, infusion, extract. bath tiles, mixtures - mixturae (mixt.) - more substances in the solvent, must be shaken before application due to insoluble substances, tinctures - tincturae (tct.) - alcoholic solutions of medicinal products obtained from plants, extracts - obtained by leaching from drugs and mixed with water, alcohol, suspension - suspensions - suspensions - the substance is dispersed in water (aerosol), in a gel, oral application to the mucous membranes of the respiratory tract (spray), to protect the gastric mucosa, sprays - fluid released by compression. gas on the skin or mucous membranes, teas - species (spec.) - from plants; decoction, infusion, extract. suspension - suspensions - the substance is dispersed in water (aerosol), in a gel, oral application to the mucous membranes of the respiratory tract (spray), to protect the gastric mucosa, sprays - fluid released by compression. gas on the skin or mucous membranes, teas - species (spec.) - from plants; decoction, infusion, extract. suspension - suspensions - the substance is dispersed in water (aerosol), in a gel, oral application to the mucous membranes of the respiratory tract (spray), to protect the gastric mucosa, sprays - fluid released by compression. gas on the skin or mucous membranes, teas - species (spec.) - from plants; decoction, infusion, extract. suspension - suspensions - the substance is dispersed in water (aerosol), in a gel, oral application to the mucous membranes of the respiratory tract (spray), to protect the gastric mucosa, sprays - fluid released by compression. gas on the skin or mucous membranes, teas - species (spec.) - from plants; decoction, infusion, extract.

## Drug strength

- forte = higher active substance content,
- biforte = twice the effective dose,
- mite = smaller amount of active substance,
- retard = longer effect (slower absorption or transformation into org.).

## Expiration time

Expiration time refers to the time during which the drug is safe to take

- 6-digit: DDMMRR (eg 020406 - until 2 April 2006),
- 7-digit: X SSMMRR (X = expiration time in years, SS = production series; eg 4 730406 - until April 2010).

## Date of manufacture of the drug

Mostly DDMMRR.

## Package leaflet

Instructions for use, storage.

It must state here:

- name, composition, efficiency, strength
- the time when it should be taken (eg before / after meals, before bedtime),
- how the medicine is to be stored,
- indication,
- possible side effects,
- contraindications (a condition that makes administration impossible or prohibits),
- the exact name and address of the manufacturer.

## Drug storage

Clearly, visibly, alphabetically and individual dosage forms.

There are in the so-called handy pharmacy (cabinet suitable for storing medicines; especially for indoor use, outdoor use, injection, safe for opiates and other psychotropic substances) - they do not have access to unauthorized persons, it is not near the heating or in the sun light, is locked (keys serving the nurse); some (according to the leaflet) - in the fridge

## Drug effects

- therapeutic = desirable,
- secondary = undesirable,
- expected = result from the properties of the drug,
- unexpected = allergies and shocks,
- toxic = consequence of overdose, ingestion of the drug for external use, accumulation of l. in the blood or tissues (due to impaired l. metabolism).

## Good practice

### Medical report

Until the patient's statement: name of the drug, drug. form, time of administration, method of administration, exact amount of a single dose, daily dose (usually 1-3 times a day).

It depends on the indication group - ATB, hypnotics - exact time determination - to be submitted at 9 pm, etc.)

### Principles for drug handling

- hygienic principles during handling,
- concentration and control of correctness l., its dose and effect,
- instructing the patient about use,
- regularly and at specified times,
- exclusively from the original packaging,
- accurate record in patient documentation.

### Methods of drug administration

- oral application - per os (po) - the most common and most convenient,
- sublingual application - necessary until dissolution and absorption (into the sublingual vessels),
- rectal application,
- parenteral administration (injection route \* question 14),
- topical application - topically on the skin or mucosa,

### Onset of action after drug administration

- into the artery - immediately,
- into a vein - in 1 minute,
- under the tongue, on the nasal mucosa - in 1-2 minutes,
- into the respiratory system - in 2-3 minutes,
- into the muscle - in 5-10 minutes,
- to the rectum, vagina, skin - in 15 minutes,
- per os - to the digestive tract - in 30 minutes.

### Oral administration

- contraindications: vomiting, connection to gastrointestinal suction, unconsciousness, inability to swallow,
- method:
  1. we will check the aids if the patient is able to swallow, does not need help,
  2. we serve according to the surgery in the medical record, in the course,
  3. we check the data (patient documentation, name and dose of the drug, time and method of administration, we do not rewrite the surgery!),
  4. when preparing the vial, we check the name of the drug from the drug card,
  5. we will check if the sick medicine has been ingested,
  6. we record the administration data in the medical record.

### Sublingual applications

Most often Nitroglycerin (for ISCHS), the patient waits until the pain subsides, then spits out the rest of the drug.

### Application per rectum

Suppositories, ointments and solutions.

### Dermal applications

Ointments, pastes, creams, gels, sprays, powders and solutions

- we observe the intervals and method of application,
- we do not irritate the skin by excessive friction, pressure and forced removal of previous l.,
- on a larger area with gloved hands, on a smaller area of wood. a spatula or a cotton swab,
- if l. is not intended for one patient, we will not return the used brush to the container.

## Eye application

Ointments and liquid medicines with a local effect.

- rinsing of the conjunctival sac - we use the eye tray (half full, put to the eye, the patient tilts the head and the ball with the eye open, the rest is poured into the emissary),
- dripping of medication (the patient sits with his head slightly tilted or lying down, we open the eyelids slightly with the index finger and thumb, we hold a square of pulp under the eye without touching the eye or eyelashes, we drip the medicine into the inner corner, the patient closes the eyelids and balls with the eye),
- inserting ointment (as with medication, only: the patient looks upwards, the ointment is applied from the tube to the conjunctival sac).

## Ear application

Ointment or dripping (the patient lies on his side, on a healthy ear or sits on a chair sideways to the backrest, a healthy ear to the shoulder, we hold a square of pulp under the ear, we apply the ointment in a circular motion with a brush into the ear canal ).

## Respiratory application

Solutions, ointments (nasal mucosa), substances in the form of gases and vapors - drops, inhalations, spray

- in infants, we do not drip drops into the nose, but apply with a brush!
- aerosol and dry powder inhalers (for children, not to be inhaled),
- nebulizers (nebulizers) - inhaled mouthpiece, mask.

## Source

- ws: Zásady podávání léků