Chair of propaedeutics of internal medicine with care of patients

The chief symptoms and syndromes in renal diseases.

Symptomatology of acute and chronic glomerulonephritis and pyelonephritis.

Chronic renal disease.
The chief symptoms in renal diseases.

- pain
- deranged urination
- changing of urine volume
- changing of frequency of urination
- edema
- general weakness
- fatigue
- fever (hectic, constant, recurrent, high t, subfebril t)
- itch of the skin
- perspiration arises
- change of body mass
Complains concerning another systems in renal diseases.

**Nervous system:**
- decreased work capacity,
- impaired memory and attention,
- deranged sleep (insomnia),
- headache, dizziness,
- weakness in extremities,
- flashing lights before eyes.

**Respiratory system**
- cough, dyspnea,
- “uremic lung”
- acute respiratory failure (with circulatory disorders)

The result of:
- Elevated blood pressure
- Encephalopathy
- Polyneuropathy
- acute, chronic pyelo-, glomerulonephritis
- nephropathy
- renal vascular pathology
- Accompanied pneumonia
- Uremia
- chronic pyelo-, glomerulonephritis
Complains concerning another systems in renal diseases.

► Cardiovascular system

- pain in the heart region,
- retrosternal pain,
- palpitation, dyspnea,
- suffocation, cardiac asthma.

The result of:

- Elevated blood pressure
- Metabolic disorders
- Cardiomyopathy
- acute glomerulonephritis
- and another renal diseases
- Early signs of renal dysfunction
- Uremic gastroenteropathy

► Digestive system

- loss of appetite
- pain in upper part of the abdomen
- dyspeptic disorders (dryness, unpleasant taste in the mouth, nausea, vomiting)
- metheorism
- diarrhoeia altered with constipation - enterocolitis
<table>
<thead>
<tr>
<th>Disease</th>
<th>Location radiation</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nephrolythiasis</td>
<td>loin pain, by the uterus course, unilateral (more frequent), downward radiation</td>
<td>periodic, intense, renal colic</td>
</tr>
<tr>
<td>Pyelonephritis</td>
<td>loin pain, bilateral, without radiation</td>
<td>dull, constant, increasing in intensity, accompanied by irregular fever</td>
</tr>
<tr>
<td>Renal abscesses</td>
<td>loin pain, unilateral</td>
<td>pain and muscular tension, fever, chills, headache, bacterio-toxic shock</td>
</tr>
<tr>
<td>Renal infarction</td>
<td>loin pain, unilateral</td>
<td>occur suddenly, intense, accompanied by excretion of red urine</td>
</tr>
</tbody>
</table>
# Pain

<table>
<thead>
<tr>
<th>Disease</th>
<th>Location radiation</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>► <strong>Nephroptosis</strong></td>
<td>► loin pain,</td>
<td>periodic, sometimes renal colic like, intensified in upright position, in</td>
</tr>
<tr>
<td>(movable kidney)</td>
<td>► unilateral</td>
<td>motion, relieved in lying posture at rest</td>
</tr>
<tr>
<td></td>
<td>► inconstant pain location</td>
<td></td>
</tr>
<tr>
<td>► <strong>Acute glomerulonephritis</strong></td>
<td>► loin pain,</td>
<td>dull, of insignificant intensity, in some patients the pain is absent</td>
</tr>
<tr>
<td></td>
<td>► bilateral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>► without radiation</td>
<td></td>
</tr>
<tr>
<td>► <strong>Congestive kidney</strong></td>
<td>► loin pain,</td>
<td>dull, depend on degree of edematous syndrome</td>
</tr>
<tr>
<td></td>
<td>► bilateral</td>
<td></td>
</tr>
<tr>
<td>► <strong>Cystitis</strong></td>
<td>► suprapubical,</td>
<td>Pain is provoked by urination, most intense and burning at the and of it.</td>
</tr>
<tr>
<td></td>
<td>► increased in palpation</td>
<td>Imperative increasing of urination by small portion of urine</td>
</tr>
<tr>
<td>► <strong>Urethritis</strong></td>
<td>► urethra region</td>
<td>in urethra, increasing in urination, accompanied by ample purulent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>excretions from urethra</td>
</tr>
</tbody>
</table>
► **Excretion** – 1-2 liters of urine in 24 hours,

► **Urination rate** – 4-6 times a 24 hours

► **Ratio of daily and nightly amount of excreted urine** – 3:1
**Deranged urination**

- **Polyuria** – > 2000 ml of urine in 24 hours, renal, extrarenal – physiologic, pathologic

- **Oliguria** – < 500 ml of urine in 24 hours, renal, extrarenal – physiological, pathological

- **Anuria** – complete absence of urine secretion and/or excretion, secretory, excretory

- **Ishuria** – absence of urine excretion.

- **Enuresis** – involuntary urination without desire

- **High fluid intake**
- Diabetes mellitus
- Renal failure initial stage

- **Hot climate**
- Restricted fluid intake
- Ureter, bladder urethra obstruction
- Acute renal parenchymal diseases
- Failure of renal perfusion

- Renal failure,
- Sepsis, shock, poisoning,
- Dehydratation
- Mechanical obstruction
- Reflective (pain)

- Damage of spinal cord
- Loss of consciousness

- Organic affection of central nervous system and spinal cord
- Urinary tracts defects
- Functional disorders in children
## Deranged urination

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nocturia</strong></td>
<td>Ratio of nightly amount of excreted urine more than $1/3$</td>
</tr>
<tr>
<td><strong>Pollakiuria</strong></td>
<td>Frequent more than 6 times a day micturition.</td>
</tr>
<tr>
<td><strong>Ollakiuria</strong></td>
<td>Rare micturition.</td>
</tr>
<tr>
<td><strong>Disuria</strong></td>
<td>Painful urination</td>
</tr>
<tr>
<td><strong>Isuria</strong></td>
<td>Equal intervals and amount of urination</td>
</tr>
<tr>
<td><strong>Stranguriaria</strong></td>
<td>Passage of small amounts of urine (by drops)</td>
</tr>
<tr>
<td><strong>Chronic renal diseases</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Heart diseases</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Diabetes</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Prostate adenoma</strong></td>
<td></td>
</tr>
<tr>
<td><strong>High liquid intake</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Cold climate</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Cystitis, prostatitis, urethritis, Stones in bladder</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Prostate adenoma</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Diuretics taking</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Decreased volume of urine bladder</strong></td>
<td></td>
</tr>
<tr>
<td><strong>High liquid intake</strong></td>
<td></td>
</tr>
<tr>
<td><strong>After much salted food</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Excessive sweating</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Cystitis</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Urethritis</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Chronic renal failure</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Stricture, tumor of bladder cervix</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Phimossis, Stones in urethra</strong></td>
<td></td>
</tr>
</tbody>
</table>
**Edema**

► Arises on the face
► More significant at morning
► In disease progression spreads downward, up to anasarca
► Pallor
► Warm
Anamnesis morbi in renal diseases.

- time of disease onset
- connection with previous infectious diseases
- consequence and dynamic of symptoms occurring

**Pyelonephritis**
- **Disuria** on a base of toxicosis (elevated temperature, chill) after cold

**Glomerulonephritis**
- **Edema** arising
- Elevation of blood pressure
- Changes of the clinical urinalysis
  2-3 weeks after infection

- contact with
  industrial and domestic poisoning
- taking of nephrotoxic drug
- results of previous treatment
Anamnesis vitae in renal diseases.

- previous infectious diseases
- presence of infectious centres (tonsillitis, otitis, adnexitis)
- presence of diseases with disorders of urine passage (prostate adenoma)

Secondary amyloidosis of the kidney

- long-standing pulmonary diseases
- tuberculosis
- osteomyelitis
- rheumatic arthritis
- Bekhterev’s disease

- Family diseases (nephrolithiasis, hypertension, et. all)
- Chronic poisoning (narcotics, smoking, alcohol abuse)
- Nephropathy of pregnancy
General Inspection.

- General condition *(satisfactory, moderate gravity)*
- Consciousness *(clear, stupor, sopor, coma)*
- Posture *(active, passive, forced)*
- Skin *(pale, waxy, dry, scratched)*
- Ammonia smell
- Hyperemia and puffiness of loin
- Protrusion of area of urine bladder
Palpation.

► At survey of lumbar area sometimes it is possible to tap a small erubescence, morbidity at a palpation and sensation of a ballottement (fluktuation).

► These signs are characteristic of suppuration of pararenal fat (paranephritis).

► At survey of area of urine bladder over a pubis can tap a protrusion testifying about augmentation of the sizes of urine bladder.
Palpation.

► Kidneys palpate by **two arms** (bimanual) in position of the patient laying on a back and in vertical position.

► **I** moment of a palpation: the doctor imposes a palm of the **left arm** on lumbar area so that the index finger was a little below XII rib. The incurvated fingers of the **right arm** doctor imposes under a costal arch more lateral than external edge of direct muscles of the abdomen.

► **II** moment of a palpation: during an inspiration shift the skin with right arm move downwards and make a dermal cord.
Palpation.

- **III moment of a palpation:** In time of an exhalation the **right arm** enter into depth of an abdomen, and the **left arm** try to approach to front area of corresponding flank.

- **IV moment of a palpation:**
during a deep inspiration when the kidney moves downwards, try to grasp a kidney between two approaching arms, and if it is possible (usually only at a renomegaly or its ptosis), slide off the right arm downwards.

Thus it is possible to formed an impression about an organ consistence, character of a surface and about its morbidity.
Interpreting of results of a palpation:

- **Surface**: smooth; the hilly, rough
- **Consistence**: soft, elastic, it is condensed, dense
- **Morbidity**: no, the moderate, expressed
- **Ballottement**
Painful points.

► At diseases of kidneys and urinary tracts it is possible to define presence of **painful points**.

► **On a forward surface of the abdomen there are two ones** – **ureters’ points**:  

► **The top point** is on crossing of the vertical line which are passing on external edge of a direct muscle of the abdomen and horizontal line, passing through a belly-button;

► **The average point** is on first third part of distance from a forward median line to spina iliaca anterior superior.
Painful points.

► A costovertebral point in an angle formed by XII rib and a backbone;
► The is costal-lumbar point is in a place of crossing of XII rib and lumbal muscle.

Remember:

Morbidity in area of ureters’ points is defined at lesions of ureters (for example, at presence in them stones), and in the field of costovertebral and is costal-lumbar points - at diseases of kidney.
Percussion.

- The percussion of area of kidneys is carried out in vertical position of the patient.
  A rib of a palm of the right arm strike intermittent blows to the palm dorsum surface of left arm, which lay on lumbar area.

- The bladder percussion is carried out after it emptying usually on a forward median line from level of a belly-button or above downwards (to a pubis).

If there is erythrocyturia after percussion in urine – it is a positive symptom of Pasternatsky.
Urinalysis

A urinalysis has been likened to "a poor man's renal biopsy." The urine is collected in midstream or, if that is not feasible, by bladder catheterization.

The urine should be examined **within 1 hour after collection** to avoid destruction of formed elements.

**Urinalysis includes a dipstick examination followed by microscopic assessment if the dipstick has positive findings.**

The dipstick examination measures urinary pH, protein, hemoglobin, glucose, ketones, bilirubin, nitrites, and leukocyte esterase. Urinary specific gravity is often reported, too. Microscopy searches for all formed elements — crystals, cells, casts, and infecting organisms.

Various findings on the urinalysis are indicative of certain patterns of kidney disease.
The presence of hematuria with dysmorphic red blood cells, red blood cell casts, and proteinuria is indicative of glomerulonephritis. Dysmorphic red blood cells are misshapen during abnormal passage from the capillary through the glomerular basement membrane (GBM) into the urinary space of Bowman capsule.

Pigmented granular casts and renal tubular epithelial cells alone or in casts suggest acute tubular necrosis.

White blood cells, including neutrophils and eosinophils, white blood cell casts, red blood cells, and small amounts of protein can be found in interstitial nephritis and pyelonephritis.

Pyuria alone can indicate an urinary tract infection.
Urinalysis

Proteinuria

is defined as excessive protein excretion in the urine, 
generally greater than 150–160 mg/24 h in adults.

► **Functional** (is a benign process stemming from stressors such as acute illness, exercise, and "orthostatic proteinuria").

► **Overload** (can result from overproduction of circulating, filterable plasma proteins).

► **Glomerular** (results from effacement of epithelial cell foot processes and altered glomerular permeability with an increased filtration fraction of normal plasma proteins).

► **Tubular** (occurs as a result of faulty reabsorption of normally filtered proteins in the proximal tubule, such as 2-microglobulin and immunoglobulin light chains).
Hematuria is significant if there are more than three red cells per high-power field on at least two occasions.

- Transient hematuria is common, but in patients younger than 40 years, it is less often of clinical significance due to lower concern for malignancy.

- Hematuria may be due to renal or extrarenal causes. Tubular (occurs as a result of faulty reabsorption of normally filtered proteins in the proximal tubule, such as 2-microglobulin and immunoglobulin light chains).
<table>
<thead>
<tr>
<th>Type</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyaline casts</td>
<td>Concentrated urine, febrile disease, after strenuous exercise, in the course of diuretic therapy (not indicative of renal disease)</td>
</tr>
<tr>
<td>Red cell casts</td>
<td>Glomerulonephritis</td>
</tr>
<tr>
<td>White cell casts</td>
<td>Pyelonephritis, interstitial nephritis (indicative of infection or inflammation)</td>
</tr>
<tr>
<td>Renal tubular cell casts</td>
<td>Acute tubular necrosis, interstitial nephritis</td>
</tr>
<tr>
<td>Coarse, granular casts</td>
<td>Nonspecific; can represent acute tubular necrosis</td>
</tr>
<tr>
<td>Broad, waxy casts</td>
<td>Chronic kidney disease (indicative of stasis in enlarged collecting tubules)</td>
</tr>
</tbody>
</table>
(a) An erythrocyte cast. 
**Inset:** haemoglobin cast

(b) A leucocyte cast containing packed neutrophils.

(c) An epithelial cast. The tubular cells are indicated by the arrows.

(d) A fatty cast made of packed lipid droplets
(a) Different types of tubular cells.

(b) Urothelial cells from the deep cell layers of the urothelium.

(c) An aggregate of urothelial cells from the superficial cell layers of the urothelium.

(d) Squamous cells surrounded by bacteria (rods)
(a) A large aggregate of lipid droplets.

(b) A macrophage partly gorged with lipid droplets.

(c) An aggregate of lipid droplets as seen under polarized light.

(d) A plate of cholesterol crystal (on its lowest corner, a few small lipid droplets; on the background, a hyaline cast)
(a) A hyaline cast due to the fibrillary substructure of glycoprotein.

(b) A hyaline–granular cast.

(c) A finely granular cast.

(d) A waxy cast
(a) Uric acid crystals (lozenge variety). Inset: the same under polarized light. (b) Monohydrated (biconvex disc) and bihydrated (bipyramidal) calcium oxalate crystals. (c) A star-like calcium phosphate crystal resulting from the aggregation of needle-like crystals. Typical triple phosphate crystals (авЂњc phase-contrast microscopy; (d) interference contrast microscopy
(a) Aggregated cystine crystals. (b) 2,8-Dihydroxyadenine crystals (courtesy of Dr Simona Barberi, Roma). (c) Amoxycillin trihydrate crystals. (d) Amoxycillin trihydrate crystals under polarized light (400 ×). Their nature was confirmed by infrared spectroscopy. [(a) phase-contrast microscopy, original magnification 400 ×; (b and c): light microscopy]
(a) A вЂ™dirty’ urine background showing many bacteria (rods) and debris. (b) Candida albicans. (c) Trichomonas vaginalis (arrows) (note the flagella). (d) Two eggs of Schistosoma haematobium
The GFR provides a useful index of overall kidney function; however, patients with kidney disease can actually have a normal or increased GFR. The GFR measures the amount of plasma ultrafiltered across the glomerular capillaries and correlates with the ability of the kidneys to filter fluids and various substances. Daily GFR in normal individuals is variable, with a range of 150–250 L/24 h or 100–120 mL/min/1.73 m² of body surface area. GFR can be measured indirectly by determining the renal clearance of plasma substances that are not bound to plasma proteins, are freely filterable across the glomerulus, and are neither secreted nor reabsorbed along the renal tubules.
Methods of investigation of kidneys

- An intravenous pyelogram
- Ultrasonic scanning
- Angiography
- CT angiography
- MR angiography
- Digital subtraction angiography (DSA)
- Computed tomography
- Magnetic resonance imaging (MRI)
- Scintigraphy ("scint")
- SPECT
- Positron emission tomography (PET)
Ultrasonic scanning
An intravenous pyelogram
CT angiography
Nuclear medicine

- Normal whole body PET/CT scan with FDG-18. The whole body PET/CT scan is commonly used in the detection, staging and follow-up of various cancers.
Abnormal whole body PET/CT scan with multiple metastases from a cancer. The whole body PET/CT scan has became an important tool in the evaluation of cancer.
Main syndromes of kidney disease

- The urinary
- The nephrotic
- The nephritic
- The hypertensive
- Renal insufficiency
Urinary syndrom

- proteinuria,
- hematuria, (with dysmorphic red blood cells)
- leukocyturia,
- cylindruria.
Nephritic syndrom

► Local edemas.
► Proteinuria,
► Erhytrocyturia
► Hypertension
The nephrotic syndrome (nephrosis, a lipoid nephrosis, nephrois sui generis, minimal disease)

- Proteinuria (> 3,5g/ 24 h),
- hypoproteinemia (hypoalbuminemia)
- Hyperlipidemia
- Expressed edemas.
- Hypertension
## Renal insufficiency

<table>
<thead>
<tr>
<th>Stages</th>
<th>RGF</th>
<th>The level of creatininum of serum</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>≥90</td>
<td>&lt;0, 123</td>
<td>Basic disease diagnostics</td>
</tr>
<tr>
<td>II</td>
<td>60-89</td>
<td>0, 123 – 0, 176</td>
<td>Estimation of rate of its advance</td>
</tr>
<tr>
<td>III</td>
<td>30-59</td>
<td>0, 177 – 0, 352</td>
<td>Diagnostics and treatment of complications</td>
</tr>
<tr>
<td>IV</td>
<td>15-29</td>
<td>0, 353 – 0, 528</td>
<td>Diagnostics and treatment of complications</td>
</tr>
<tr>
<td>V</td>
<td>&lt;15</td>
<td>&gt; 0, 528</td>
<td>Transplantation of kidney</td>
</tr>
</tbody>
</table>
Essentials of Diagnosis

► Fever.
► Flank pain.
► Irritative voiding symptoms.
► Positive urine culture.

General Considerations

► Acute pyelonephritis is an infectious inflammatory disease involving the kidney parenchyma and renal pelvis.

Gram-negative bacteria are the most common causative agents including *E coli*, *Proteus*, *Klebsiella*, *Enterobacter*, and *Pseudomonas*.

Gram-positive bacteria are less commonly seen but include *Enterococcus faecalis* and *Staphylococcus aureus*.

The infection usually ascends from the lower urinary tract—with the exception of *S aureus*, which usually is spread by a hematogenous route.
Pyelonephritis

Symptoms and Signs

- Symptoms include fever, flank pain, shaking chills, and irritative voiding symptoms (urgency, frequency, dysuria). Associated nausea and vomiting and diarrhea are common. Signs include fever and tachycardia. Costovertebral angle tenderness is usually pronounced.

Laboratory Findings

- Complete blood count shows leukocytosis and a left shift.
- Urinalysis shows pyuria, bacteriuria, and varying degrees of hematuria. White cell casts may be seen.
- Urine culture demonstrates heavy growth of the offending agent, and blood culture may also be positive.
Glomerulonephritis

Essentials of Diagnosis
Hematuria, dysmorphic red cells, red cell casts, and mild proteinuria.
Dependent edema and hypertension.
Acute renal insufficiency.

General Considerations
Acute glomerulonephritis is a relatively uncommon cause of acute kidney injury, accounting for about 5% of cases.
Pathologically, inflammatory glomerular lesions are seen.
These include mesangio proliferative, focal and diffuse proliferative, and crescentic lesions. The larger the percentage of glomeruli involved and the more severe the lesion, the more likely it is that the patient will have a poor clinical outcome.
Glomerulonephritis

► Categorization of acute glomerulonephritis can be done by serologic analysis.

► Markers include antineutrophil cytoplasmic antibodies (ANCA), anti-GBM antibodies, and other immune markers of disease.

► Immune complex deposition usually occurs when moderate antigen excess over antibody production occurs. Complexes formed with marked antigen excess tend to remain in the circulation. Antibody excess with large antigen–antibody aggregates usually results in phagocytosis and clearance of the precipitates by the mononuclear phagocytic system in the liver and spleen.

► Other vascular causes of acute glomerulonephritis include hypertensive emergencies and the thrombotic microangiopathies such as hemolytic-uremic syndrome and thrombotic thrombocytopenic purpura.
Glomerulonephritis

Symptoms and Signs

► Patients with acute glomerulonephritis are often hypertensive and edematous, and have an abnormal urinary sediment. The edema is found first in body parts with low tissue tension, such as the periorbital and scrotal regions.

Laboratory Findings

► Dipstick and microscopic evaluation will reveal evidence of hematuria, moderate proteinuria (usually < 3 g/d), and cellular elements such as red cells, red cell casts, and white cells. Red cell casts are specific for glomerulonephritis, and a detailed search is warranted. Either spot urinary protein-creatinine ratios or twenty-four hour urine collections can quantify protein excretion, the latter can quantify creatinine clearance when renal function is stable.

► However, in cases of rapidly changing serum creatinine values, the urinary creatinine clearance is an unreliable marker of GFR.
Chronic Kidney Disease

Essentials of Diagnosis

► Progressive azotemia over months to years.
► Symptoms and signs of uremia when nearing end-stage disease.
► Hypertension in the majority.
► Isosthenuria and broad casts in urinary sediment are common.
► Bilateral small kidneys on ultrasound are diagnostic.

General Considerations

► Most are unaware of the condition because they remain asymptomatic until the disease has significantly progressed.
► Over 70% of cases of late-stage chronic kidney disease are due to diabetes mellitus or hypertension.
► Glomerulonephritis, cystic diseases, and other urologic diseases account for another 12%, and 15% of patients have other or unknown causes.
Chronic Kidney Disease

Chronic kidney disease is defined as either kidney damage or **GFR < 60 mL/min/1.73 m² for 3 or more months.** Kidney damage is defined as pathologic abnormalities or markers of damage, including abnormalities in blood or urine tests or imaging studies.

**Symptoms and Signs**

► The symptoms of chronic kidney disease often develop slowly and are nonspecific.

► Individuals can remain asymptomatic until kidney disease is far advanced (GFR < 10–15 mL/min).

► Manifestations include **fatigue, weakness, and malaise.** Gastrointestinal complaints, such as **anorexia, nausea, vomiting, a metallic taste in the mouth, and hiccups,** are common.

► **Neurologic problems include irritability, difficulty in concentrating, insomnia, subtle memory defects, restless legs, and twitching.**

► **Pruritus is common and difficult to treat. As uremia progresses, decreased libido, menstrual irregularities, chest pain from pericarditis, and paresthesias can develop.**

► **Symptoms of drug toxicity—especially for drugs eliminated by the kidney—increase as renal clearance worsens.**
The lecture was delivered by Doctor of Medical Sciences, Professor Nataliiia I. Chekalina
Be healthy!