Program of Medicine Studies

MODULE

SKIN, VENEREAL AND INFECTIOUS DISEASES

Fourth Year
8th Semester

Faculty of Medicine
Kaunas University of Medicine

Contents

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1. General Information

1.1. Supervisors of the module: prof. dr. Skaidra Valiukevičienė, Department of Skin and Venereal Diseases (skaidra.valiukeviciene @ kmuk.lt)
Assoc. prof. Auksė Mickienė, Department of Infectious Diseases (amickiene@yahoo.com)

1.2. Duration of the module: 127 auditoria hours (4 credits)

1.3. Subdivisions and auditoria hours:
Department of Skin and Venereal Diseases (60 hours)
Department of Infectious Diseases (62 hours)
Department of Laboratory Medicine (4 hours)
Department of Radiology (1 hour)

1.4. Subjects and responsible persons:
Dermatovenereology (Prof. dr. S. Valiukevičienė, 8 37 326806, odos.veneriniu.ligu.klinika @ kmuk.lt, lector dr. V. Kučinskiene, 8 37 326026, kvesta@delfi.lt)
Infectious Diseases (Assoc. prof. A. Mickienė, 8 37 362350, amickiene@yahoo.com)

Laboratory Medicine (Dr. A. Vitkauskienė, 8 37 326775, astravitka@hotmail.com)

Radiology (Dr. G. Kuprionis, 8 37 327010, gkuprion@gmail.com)

2. General content of the module

Dealing with the problems of this module, students acquire new knowledge, practical skills and competence in:

Dermatovenereology

• Skin anatomy and functions.

• Types of skin lesions (rash units).

• Pecularities of examination and treatment of a dermatovenereological patient.

• Benign skin tumors (seborrheic keratosis, hemangioma, lipoma, freckles, pigmented naevi).

• Precursors of skin melanoma (dysplastic pigmented naevus) and dysplastic naevus syndrome.

• Epithelial precanceroses: actinic keratosis, cornu cutaneum, Bowen's disease, leukoplakia.

• Malignant epithelial tumors (basal cell carcinoma and squamous cell carcinoma).

• Skin melanoma.

• Seborrheic dermatitis.

• Contact (irritant and allergic) dermatitis.

• Atopic dermatitis.

• Erythema exsudativum multiforme and Stevens-Johnson syndrome.

• Toxic epidermal necrolysis.

• Bullous pemphigoid.

• Pemphigus vulgaris.

• Dermatitis herpetiformis Duhring.

• Chronic discoid and subacute cutaneous lupus erythematosus.

• Localized scleroderma.

• Acne vulgaris.

• Rosacea.

• Bacterial diseases of the skin (pyodermas).
• Parasitic skin diseases (scabies, pediculosis).
• Viral skin diseases (herpes simplex, herpes zoster, common, flat and plantar warts, molluscum contagiosum).
• Fungal skin diseases (fungal infections of the scalp, glabrous skin and nails, pityriasis versicolor, candidamycosis).
• Syphilis (primary, secondary, tertiary, congenital, neurosyphilis).
• Anogenital human papilloma virus (HPV) warts.
• Genital herpes.
• Trichomoniasis.
• Gonococcal infection.
• Urogenital chlamydial infection.
• AIDS-related mucocutaneous diseases (Kaposi's sarcoma, xeroderma, psoriasis, seborrheic dermatitis, eosinophilic folliculitis, hairy leukoplakia, bacterial angiomatosis and other bacterial, viral, fungal infections and parasitic diseases).

Infectious diseases

• Epidemiology of infectious diseases.
• Pathogenetic mechanisms of infectious diseases.
• Examination of the infectious disease patient, indications for hospitalization.
• Microbiology laboratory tests and laboratory guidance in therapy, antimicrobial susceptibility testing.
• Immunological and molecular diagnostic methods applied in diagnostics of infectious diseases.
• General principles of etiotropic, pathogenetic and symptomatic treatment of infectious diseases.
• Antimicrobial therapy of infectious diseases.
• Resistance of microorganisms to antimicrobials.
• Principles of immunoprophylaxis of infectious diseases for adults.
• Protection of health care workers from the blood borne infections.
• Hospital infections, their etiology and treatment.
• Clinical presentation, diagnosis and treatment of HIV infection, follow-up of HIV-infected person.

• Opportunistic infections in HIV/AIDS: the risk of development, clinical manifestation, diagnosis, treatment, chemoprophylaxis.
• The most common infectious diseases among travellers.
• Prevention of infectious diseases in travellers.
• Viral respiratory tract infections (influenza, parainfluenza, adenoviral infection, respiratory

syncytial infection, enterovirus infections).

• Viral infections causing fever and generalized lymphadenopathy syndrome (infectious mononucleosis, CMV infection).

• Diseases caused by spirochaete (Lyme disease, leptospirosis).

• Diseases caused by protozoa (malaria, toxoplasmosis).

• Helminthiasis (trichinosis, toxocarosis, ascaridosis, echinococcosis).

• Generalized bacterial infections (sepsis, meningococcal infection, typhoid fever).

• Mycoplasma infection.

• Herpes simplex and Varicella zoster virus infections.

• Erysipelas, cellulitis, skin infections after animal bites.

• Rare infectious diseases (tetanus, rabies, diphtheria, botulism).

• The issue of bioterrorism and emerging infectious diseases.

3. Aim and objectives of the module

Aim

The aim of the module is to acquire knowledge, practical skills and abilities of the following:

• skin anatomy and functions, pecularities of dermatovenereological examination and treatment of a patient, epidemiology of the most common skin diseases and sexually transmitted infections (listed in the table of contents), the most important ethio(patho)genetic mechanisms, clinics, principles of diagnostics, treatment and prophylaxis,

• etiology, epidemiology and clinical syndromes of infectious diseases, pathogenesis of the diseases, diagnosis, treatment, outcome, prophylaxis, and to gain ability to specify, distinguish and analyze tutorial cases of the module.

Study objectives

- To learn anatomy and functions of the skin.
- To learn the pecularities of dermatovenereological examination and treatment of a patient.
- To learn the epidemiology, most important ethio(patho)genetic mechanisms, clinics, principles of diagnostics, treatment and prophylaxis of the most common skin diseases (listed in the table of contents).
- To learn the epidemiology, clinics, principles of diagnostics, treatment and prevention of the most common sexually transmitted infections (listed in the table of contents).
- To learn pecularities of the clinics and treatment of the most common skin and mucosal diseases associated with AIDS (listed in the table of contents).
- To gain practical skills and abilities needed for the dermatovenereological examination of a patient.
- To gain knowledge of the epidemiology of infectious diseases.

- To learn the pathogenesis and clinical presentation of the most common bacterial, viral and parasitic infections (listed in the table of contents).
- To learn microbiology laboratory tests and laboratory guidance in therapy.
- To learn principles of the appropriate use of antimicrobial drugs for the treatment of infectious diseases.
- To realize the problem, trends, prevention and control of bacterial resistance to antibacterial drugs.
- To become aware of non-specific and specific prophylaxis of infectious diseases.
- To learn to collect the epidemiological data and case history of the infectious disease patient, to be able to examine the patient and find symptoms and signs characteristic for infectious diseases, to make a preliminary diagnosis, to present the plan of laboratory tests, treatment and prophylactic measures.

4. Tutorials

4.1. Case 1. Oncodermatology (nail melanoma).

A light-haired blue-eyed freckled 55 year-old patient I.J. presented to the Department with a nail lesion. 3 years before, a grey-brownish spot developed on the nail plate of the 3rd finger of the right hand. The patient was consulted by a family physician, and fungal infection of the nail was diagnosed. The patient was treated with topical and systemic antifungals. After the treatment, the nail failed to grow back fully, and exudation from the nail bed was observed. Family history: the brother has numerous pigmented tumors; the sister was operated for skin cancer; the father had numerous pigmented nevi and died of skin melanoma. The patient's younger son who accompanied him to the Department has very many brownish pigmented spots on the face (they appeared in early childhood), and the older son has brown pigmented spots on the shoulders (they appeared after severe sunburn).

Physical examination. The nail plate of the 3rd finger of the right hand is rough, eroded, covered with grey-brownish corneous masses, and with an ulcerated node in the distal margin of the nail. On the scalp and very fair body skin (it tends to sunburn severely to redness during the summer, and never tans brown), multiple 0.5–1 cm brownish or dark brown macules and nodules can be seen; some of them are asymmetrical, with irregular margins and color. On the cheeks and the nose, brownish small and large macules with irregular margins can be seen; such macules are also abundant on the shoulders (these lesions developed after severe sunburn). On the back, between shoulder blades, there is an ulcerated brown plaque covered with a crust.

Laboratory examinations. : Microscopic examination for fungus of scraped-off corneous masses from the nail bed – no hyphae found; culture test – no fungal or pathogenic bacterial growth; cytologic examination – no atypical cells found.

With what disease did the patient present?

Which examination(s) will you perform to verify the diagnosis of the nail lesion?

Which examination(s) will you perform for differential diagnostics of the pigmented skin formations?

Which phenotypic (constitutional) characteristics of the patient may be related to the underlying

disease?

Is the patient's family history important for the development of his underlying disease?

What is the treatment plan for the patient's underlying disease?

What pigmented formations on the skin do the patient and his relatives have? Do these formations need treatment?

Concept of the problem: benign and malignant melanocytic and epidermal tumors, their diagnosis, treatment, and prognosis.

Clinical features: multiple brownish and brown macules and nodules, ulcerated plaque covered with a crust, *melanonychia* (dark nail), *onychodystrophia* (impaired development of the nail plate), and skin type I (fair skin with predisposition to sunburns).

Aim

To learn the clinical features, diagnostics, and treatment principles of benign and malignant melanocytic skin tumors; risk factors and prognostic markers of skin melanoma; differential diagnostics of malignant epithelial tumors (basal or squamous cell carcinoma) from premalignant conditions (precanceroses) and the most common benign skin tumors (seborrheic keratoses, hemangiomas, lipomas).

Learning content and objectives

To complete an analysis of this problem the students must know:

- Ephelides and benign melanocytic tumors (lentigines, melanocytic nevi): definition, clinical features, evaluation of clinical signs using the ABCDE rule, diagnostics, and treatment principles.

Subject – Dermatovenereology

Division – Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 379, 384-392.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Malignant melanoma: definition, clinical-histological types, diagnostics, prognostic markers, principles of treatment and prevention, and the epidemiological situation in Lithuania.

Subject – Dermatovenereology

Division – Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 393-406.

Supplementary readings:

Stang A, Valiukeviciene S, Aleknaviciene B, Kurtinaitis J. Time Trends of Incidence, Mortality, and Relative Survival of Skin Melanoma in Lithuania. Eur J Cancer. 2006;42:660–667.

Kaikaris V, Valiukevičienė S, Rimdeika R, Gollnick H, Ulrich J. Sentinel lymph node biopsy in melanoma patients: methods, indications, and Departmental significance. Medicina 2003; 39(7):621–30.

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Malignant epidermal tumors (basal cell carcinoma and squamous cell carcinoma): definition, epidemiology in Lithuania, clinical features, and principles of treatment and prevention.

Subject – Dermatovenereology

Division – Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 419-420, 433-435.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Premalignant skin diseases (actinic keratosis, Bowen Disease, leukoplakia): definition, clinical features, and principles of treatment and prevention.

Subject – Dermatovenereology

Division – Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 417-418.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Other benign skin tumors (seborrheic keratoses, hemangiomas, lipomas): definition, clinical features, and principles of treatment and prevention.

Subject – Dermatovenereology

Division – Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 414-415, 447-448, 454-456.

Supplementary readings :

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

4.2. Case 2. Differential diagnosis of facial skin lesions (allergic contact dermatitis and acne vulgaris).

19 year old saleswoman of perfumery A. P. was referred to a dermatologist with an itching rash on her eyelids and neck. The skin lesions appeared six weeks ago after the use of new face cream. The patient discontinued the use of the cream and was treated with topical medications prescribed by her family doctor. The skin condition wasn't improving.

During childhood the patient had skin lesions on the flexural surfaces of the extremities. One year ago allergic rhinitis and sensitization against house dust were diagnosed. Several years ago acne on the patient's face and back appeared. Her mother has allergic asthma.

Physical examination . Erythematous macules and papules covered by fine scales, several erosions and crusts in the linear distribution (excoriations) are seen on the eyelids, cheeks and neck. The skin lines on the eyelids and neck are accentuated (lichenification). Dilated openings of hair follicles with grey or black plugs (opened comedones), solitary 1-2 mm size papules with narrow openings of hair follicles (closed comedones) and 2-4 mm size red papules are seen on the forehead, chin, chest and back. Pustules are seen in the centre of some red papules. Three, not elevated scars, 5 mm in size, are seen on the forehead. The skin of all the body is dry. The dermographism is white.

Other examinations. The patch test with the baseline series of contact allergens showed positive reaction to fragrance mix.

What skin diseases can you suspect according to the history data, type and localization of skin lesions and patch test results?

How can you explain the persistent skin lesions after the discontinuation of the face cream use?

Which clinical signs can be related with the positive patch test reaction?

Which other examinations would you make to confirm the diagnosis?

What treatment for the skin diseases would you propose?

What prophylactic measures for the skin diseases would you propose?

Concept of the problem: differential diagnosis of skin diseases affecting face.

Clinical signs : erythematous macules and papules, scales, excoriations, lichenification on the eyelids, cheeks and neck, opened and closed comedones, follicular papules, pustules, scars, dry scaling skin, white dermographism.

Aim

To obtain knowledge, practical skills and abilities about ethio(patho)genetic mechanisms, provoking factors, clinical features, principles of diagnosis and treatment of irritant and allergic contact dermatitis, atopic dermatitis and other skin diseases affecting facial skin – acne vulgaris, rosacea, autoimmune connective tissue diseases (chronic discoid lupus erythematosus, subacute lupus erythematosus, localized scleroderma), seborrheic dermatitis.

Learning objectives and contents

To complete an analysis of this problem the student must know:

- Clinical features and principles of treatment of acute and chronic dermatitis.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 195, 199.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Irritant and allergic contact dermatitis: etio(patho)genesis, clinical features, principles of diagnosis, treatment and prophylaxis.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 43-45, 195-200.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Atopic dermatitis: ethio(patho)genetic mechanisms, diagnostic criterions, clinical forms, principles of treatment.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 190-194, 596-600.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Acne vulgaris and rosacea: etio(patho)genetic mechanisms, provoking factors, clinical features, principles of diagnosis and treatment.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 530-536.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Autoimmune connective tissue diseases (chronic discoid lupus erythematosus, subacute lupus erythematosus, localized scleroderma): etio(patho)genetic mechanisms, clinical features, principles of diagnosis and treatment.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 203-208, 216-217.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Seborrheic dermatitis: etio(patho)genesis, clinical features, principles of diagnosis and treatment.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 276-277.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Photo(chemo)therapy: physical basics, effects of ultraviolet radiation to the skin, skin types, kinds of phototherapy.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 49-51, 295-296, 605-608.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

4.3. Case 3. Bullous diseases (Bullous Pemphigoid).

Mr. J.P. is 74 year old pensioner. Two weeks ago he visited his family doctor due to pruritus and eruptions. At that time in different areas of the body (extremities, trunk, intertriginous areas) erythematous, urticarial, 1-5 cm in diameter patches and plaques without scaling developed. Some years ago on several occasions after chill he often was developing painful vesicles on the lips, and later blue-white-red in colour, iris-shaped, with vesicles in the centre macules and papules on hands and feet. These lesions always healed spontaneously over weeks. The patient for many years has had high blood pressure and hypercholesterinemia, and for that reason every day was using three medications: nifedipine, atenolol and furosemid. Family doctor prescribed for him dimetindene cream (Fenistil®), however without positive results. Two days ago pruritus intensified and big blisters one after another developed. The patient was referred by family doctor to the Dermatovenereological Department.

Physical examination. Physical examination of different areas of the body (extremities, trunk, intertriginous areas) revealed, erythematous, urticarial, from 1 to 5 cm in diameter patches and plaques without scaling and with formation of 0,5–1,5 cm in diameter, tense blisters with a serous and partially hemorrhagic content in some areas. Some blisters have ruptured and the eroded, weeping areas were observed. The Nikolsky sign was negative.

Laboratory examinations. Blood test – 132 g/l of haemoglobin, $3{,}9\times10^{12}$/l of erythrocytes, 6×10^{9}/l of leucocytes, 68,6% of neutrophils, 22,1% of lymphocytes, 1% of monocytes, 8% of eosinophils, 0,3% of basophils, 292×10^{9}/l of trombocytes.

What kind of primary and secondary lesions did the patient develop?

What are the preliminary diagnosis and this diagnosis confirming data of anamnesis and physical examination?

Which skin diseases can you suspect patient has had in the past? Please give your opinion confirmative arguments.

What kind of tests should be performed for the patient to confirm the diagnosis?

What are the possible reasons of the disease patient is suffering now?

What kind of treatment would you recommend in this case?

Concept of the problem: bullous diseases of the skin.

Clinical features: erythematous patches and plaques, blisters, weeping erosions, Nikolsky sign.

Aim

To get knowledge, practical skills and facilities in fundamental etiopathogenetic mechanisms, clinical peculiarities and principles of treatment of autoimmune bullous diseases (bullous pemphigoid, pemphigus vulgaris, dermatitis herpetiformis) and acute inflammatory skin reactions (erythema multiforme, Stevens–Johnson syndrome, toxic epidermal necrolysis).

Learning objectives and contents

To complete an analysis of this problem the student must know:

- Fundamental etiopathogenetic mechanisms, clinical peculiarities and principles of treatment of autoimmune bullous diseases (bullous pemphigoid, pemphigus vulgaris, dermatitis herpetiformis).

Subject – Dermatovenereology

Department – Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 229-237, 241-243.

Supplementary readings:

John C. Hall. Sauer's Manual of Skin Diseases. The 8th edition. Lippincott Williams & Wilkins, Philadelphia, USA. 2000. p. 234-237.

Gailevičius P. Dermatology.-Kaunas, 1994. p. 79-84.

- Fundamental etiopathogenetic mechanisms, clinical peculiarities and principles of treatment of acute inflammatory skin reactions (erythema multiforme, Stevens–Johnson syndrome, toxic epidermal necrolysis).

Subject – Dermatovenereology

Department – Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 184-186, 281, 282.

Supplementary readings:

John C. Hall. Sauer's Manual of Skin Diseases. The 8th edition. Lippincott Williams & Wilkins, Philadelphia, USA. 2000. p. 107, 108.

Gailevičius P. Dermatology.-Kaunas, 1994. p. 84-86.

4.4. Case 4. Infectious and noninfectious mucocutaneous manifestations and sexually trasmitted infections in HIV/AIDS (ulcerative necrotic form of Herpes Zoster)

A.B., a 35-year-old HIV infected male visited the dermatovenereologist because of suffering from not healing ulcers on the left side of the chest for about 2 weeks, fever, tiring itching of the skin, especially worse at night, lesions of the whole body, including genital area.

The patient is divorced and has no children. He doesn't work anywhere and lives in Klaipeda. The last sexual intercourse with unknown man was a year ago. For about 10 years till HIV was diagnosed he used intravenous drugs.

The patient has been suffering from itching and lesions on the body, face and genital area for about one year and he hasn't referred to any doctor for help. Two weeks ago the patient felt pain on the left side of the chest, on the following day multiple blisters and not healing wounds appeared, three days ago A.B. got fever and used paracetamol. In the childhood the patient had chickenpox.

Physical examination . His body temperature is 37.8°C. On the left IV–VII intercostal regions there are multiple painful ulcers covered with hemoragic crusts and left axillary lymphnodes are enlarged. It is seen hair loss over the whole scalp, but there are some bald areas on the scalp too. The tongue has a ribbed whiteness with verrucous plaques along the sides. On the hard palate the reddish blue rough macula is seen. On the temporal regions there are multiple pearly to flesh-colored papules dimpled in the center with a white curdlike core which may be squeezed out easily. The skin of the trunk is dry and inflammation (pustules) of multiple hair follicles is seen. There are brownish and scaly patches on the back. The areas under the arms, groin, umbilicus, pinnae are affected by confluent red papules and plaques covered with whitish scales. Several nummular and guttatic papules are seen on the extensor surfaces of the extremities (when the scales are scraped off, a number of small, bleeding points can be seen underneath and it is called *Auspitz* sign). On the scratched places papules in one line locate (possitive Kobner's phenomenon). The buttocks, wrists and interdigital areas of the hands are affected by small double nodules and crusts. On the distal phalanges of the II and IV left hand fingers confluent nodes rough to the touch are seen. There are brownish macular lesions on the palms and soles. The plates of toenails are brownish and grey in some places with marginal onycholysis ('oil spot' symptom). Two weeks ago a red bleeding node appeared on the left cheek after the scratch of a cat. The examination of genital area showed the redness of the urethral opening and the partial obturation of the urethra because of white confluent swellings. On the inner lamina of the prepuce there is a white atrophic scar 1 cm in diameter. In the anal area there are confluent whitish eroded growths.

Laboratory examinations: *Peripheral blood examination***:** Hb 116g/l, WBCs $4{,}0x10^9$/ l, lymphocytes $2{,}0x10^9$/l. *Immunological blood test (CD4+ T lymphocytes count estimation)*: CD4+ T lymphocytes 150/µl. *CRP*: 90mg/l. *Biochemical blood tests*: liver enzymes GOT (AST) 70 U/l (normal 5 – 40 U/l for adults) and GPT (ALT) 84 U/L (normal 5 – 45 U/l for adults); creatinine 99 umol/l (normal 44 – 94 µmol/l for adults). *Direct microscopy of urethral smear*: >20 PMNL (PolyMorphoNuclear Leucocytes)/field in every 5 fields of vision; intracellular diplococci are seen. *Microscopic (KOH) test of a toenails' sample for fungus*: no hyphae found.
Microscopic test of a sample for fungus from the scaling patches on the back: hyphae similar to yeast are seen. *Culture from pustules*: no pathogenic bacteria growth.

Describe and classify the lesions according to a sort and localisation.
What was the underlying skin disease the patient referred to the doctor?
Why the doctor inquire about chickenpox?
Can you suspect this patient AIDS and why?
What non-infectious HIV/AIDS related dermatoses of the patient can you name?
What infectious HIV/AIDS related dermatoses of the patient can you name?
What examinations will you perform to diagnose the diseases? What results of the examinations do you expect?
What diseases related to high risk sexual behavior of the patient can you name?
What tests will you perform to diagnose those diseases?
What prophylactics will you use while doing any invasion procedures for the patient?
What will you recommend health care workers after occupational exposure to HIV patient's body fluids (ex. sputum, blood)? What other diseases of this patient can be transmitted in the same way?
What will be the treatment of the underlying disease the patient referred to the doctor?
What will be the treatment plan for the other patient's diseases you've diagnosed?

Concept of the problem: peculiarities of the epidemiology, clinical features, diagnosis and prophylaxis of infectious and noninfectious HIV/AIDS related skin diseases and sexually transmitted infections.

Clinical signs :

- *Infectious mucocutaneous manifestations:* multiple painful ulcers covered with hemoragic crusts, a ribbed whiteness with verrucous plaques along the sides of a tongue, multiple pearly to flesh-colored papules dimpled in the center with a white curdlike core which may be squeezed out easily, confluent nodes with verrucous surface, double nodules, brownish and scaly patches on a back, a red bleeding node which appeared after the scratch of a cat.

- *Noninfectious mucocutaneous manifestations:* a reddish blue rough macula on the hard palate, the dry skin of a trunk, the plates of nails are brownish and grey, red papules and plaques covered with whitish scales on the extensor surfaces of the extremities and in the flexural areas, possitive Kobner's phenomenon, possitive *Auspitz* sign, "oil spot" symptom, multiple pustules of hair follicles.
- *Sexually transmitted infections*: areal alopecia, brownish macular lesions on palms and soles, confluent eroded whitish growths in the anal area (condylomata lata), a smooth scar on the inner lamina of a prepuce, white confluent swellings in the urethral opening.

Aim

To acquire the knowledge, to get practical skills and abilities on the venereological examination of a patient; on the prevalence, clinical signs, principles of diagnosis, treatment and prophylaxis of sexually transmitted infections (syphilis, chlamydial and gonococcal infections, anogenital human papilloma virus (HPV) related warts, herpes simplex virus (HSV) infections, trichomoniasis); on HIV prevention; on epidemiology, peculiarities of clinical signs, diagnosis and prophylaxis of HIV related mucocutaneous diseases (Kaposi's sarcoma, xeroderma, seborrhoeic dermatitis, eosinophilic folliculitis, psoriasis, hairy leukoplakia, bacterial angiomatosis and other bacterial, viral, fungal, parasitic diseases).

Learning objectives and contents

To complete an analysis of this problem the student must know:

- Pyodermas: epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 73-82.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Viral skin diseases (common, flat and plantar warts, *molluscum contagiosum,* herpes infections): epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 56-64, 67-70.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Psoriasis, lichen planus: etio(patho)genesis, provoking factors, clinical features, principles of diagnosis and treatment.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 262-274, 286-288.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Fungal skin diseases (fungal infections of the scalp, glabrous skin and nails, pityriasis versicolor and candidamycosis): epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 106-117, 522-523.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Parasitic skin diseases (scabies, pediculosis): epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 126-129.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- Sexually transmitted infections (syphilis, chlamydial and gonococcal infections, anogenital human papilloma virus (HPV) related warts, genital herpes infection, trichomoniasis): epidemiology, classification, clinical signs, complications, principles of diagnosis, treatment and prophylaxis.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 134-150.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

- HIV related mucocutaneous diseases (Kaposi's sarcoma, xeroderma, seborrhoeic dermatitis, eosinophilic folliculitis, psoriasis, hairy leukoplakia, bacterial angiomatosis and other bacterial, viral, fungal, parasitical diseases) clinical features and peculiarities of treatment.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 155-165.

Supplementary readings:

Valiukeviciene S. HIV-related dermatoses. Lietuvos bendrosios praktikos gydytojas. 2003; 7(9):59–61.

http://www.medsci.uu.se/klinbakt/stigup/Interesting%20from%20conferences/03%2009%2020-21%20Kaunas%20konf/Conf%20engl%20internet.pdf

Orfanos CE. HIV-associated Kaposi's sarcoma: occurrence, pathogenesis and course. Lietuvos bendrosios praktikos gydytojas. 2003; 7(9):61–62.

http://www.medsci.uu.se/klinbakt/stigup/Interesting%20from%20conferences/03%2009%2020-21%20Kaunas%20konf/Conf%20engl%20internet.pdf

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

4.5. Case 5. Opportunistic infections related with HIV infection/AIDS.

A 32-year old woman with fever up to 39-40°C, headache, episodic dysarthria and disorientation in time and place lasting for a few days, was hospitalized to infectious disease department. She has lost about 6 kg of body weight during last 5 months. She has been living in London and working in a hotel as a cleaning lady for a few years. She was healthy, apart from several mild viral respiratory infections in the past. Currently she has one stable sexual partner. Overall during her life she had had 4 sexual partners, 2 interruptions of pregnancy were performed. She has 10-year old daughter. She had never used intravenous drugs.

Physical examination: height 153 cm, weight 45 kg, BMI= 19.22kg/m². Temperature 39.4°C, intoxicated, HR 109 b/min, rhythmic, BP 109/68 mmHg, somnolent, focal neurologic symptoms and signs of meningeal irritation are absent.

Laboratory findings: WBC $4.1x10^9$/l (neutrophils $2.1x10^9$/l, lymphocytes $1.5x10^9$/l); erythrocytes $2.34x10^{12}$/l; MCV 91.5 fl; MCH 32.3 pg; Hb 100g/l; platelets count $319x10^9$/l; CRP 19.2 mg/l; ESR 82 mm/h. Brain CT revealed a hypodense lesion (diameter 1,2 cm) with a peripheral uniform ring of contrast enhancement in the left frontal area. CSF: cell count 69 $x10^6$/l (82% lymphocytes, 18% neutrophils), protein 2.79 g/l, glucose 2.2 mmol/l (blood glucose 5.59 mmol/l). CSF Gram stained smear negative. Ophthalmologic examination (fundoscopy): right eye - normal, left eye - hyperaemia of the optic nerve disc, haemorrhagia in macular area, cotton-wool spots. Intravenous ceftriaxon 2 g bid, metronidazol 500 mg bid, mannitol 1 g/kg/d and crystalloids have been started. However, fever and headache persisted and patient had lost sight of the left eye. Repeated ophthalmologic examination established normal sight of the right eye and complete blindness of the left eye with new areas of necrosis on the fundus. As soon as negative CSF and blood cultures were reported, magnetic resonance imaging (MRI) of the brain was performed. On the brain MRI, a round, 1.4 cm in diameter subcortical lesion of brain parenchyma with ring contrast enhancement and surrounding mild oedema was detected in the fronto-basal part of the left hemisphere. Two more similar lesions, 0.8 cm and 0.7 cm in diameter, were revealed in the anterior pole of the right temporal lobe and medial part of *gyrus frontalis,* respectively with relatively mild surrounding oedema. The treatment was changed to pyrimethamine (200 mg loading dose, then 75 mg q24h), clindamycin (600 mg qid*)* and folic acid 10 mg/d *per os*. Fever gradually disappeared during the next two days. Positive ELISA and Western blot tests confirmed HIV infection. Immune status test detected CD4 91/mm^3, CD8 2013/mm^3. HIV viral load test (RT-PCR assay) established 1449500 HIV copies per ml.

Anti-HB cor IgG (-), HB_sAg (-), Anti-HCV (-), CMV IgG 250 IU/ml (normal range <15 IU/ml), CMV IgM (-); *Toxoplasma gondii* IgM (-), IgG 43 IU/ml (normal range < 8 IU/ml). Serologic tests for syphilis (RPR, TPHA) negative. Chest X-ray is normal.

Antiretroviral therapy with combivir (zidovudine 300 mg + lamivudine 150 mg) bid, stocrin (efavirenz 600 mg) q24h and TMP-SMX 480 mg q24h have been started.

Within a week the patient's right-eye sight has worsen. Right-eye fundoscopy revealed areas of retinal necrosis with hemorrhages. Under suspicion of CMV retinitis, an intravenous ganciclovir 5 mg/kg (200 mg) bid was started.

4 weeks after an initiation of treatment with pyrimethamine and clindamycine and after 2 weeks since the beginning of treatment with ganciclovir, the right-eye sight started to improve.

Physical examination on discharge from the hospital showed normal right-eye sight and did not find any neurologic symptoms.

Antiretroviral treatment with combivir and stocrin, ganciclovir 5 mg/kg/d (250 mg) iv, followed by peroral valganciclovir 900 mg/d (8 weeks in total) and pyrimethamine, clindamycin and folic acid was continued. The dose of the pyrimethamine and clindamycin was decreased half-and-half after 4 weeks since the beginning of therapy. After 3 months, brain CT detected a markedly decreased hypodense lesion (diameter 0.5 cm) with a peripheral ring of contrast enhancement in the left frontal area. CD4 cell count increased up to 355/mm^3, HIV viral load decreased to 150 copies per ml.

- *List all laboratory tests which are necessary to perform for each patient with newly established HIV infection.*
- *What symptoms and diagnostic test results let to confirm a diagnosis of AIDS?*
- *What CNS diseases related with HIV/AIDS can be suspected to this patient?*
- *What eyes diseases related with HIV/AIDS can be suspected to this patient?*
- *What is a final clinical diagnosis?*
- *What are the main clinical signs of brain toxoplasmosis?*
- *What are the main tests for diagnosis of CNS toxoplasmosis?*
- *Which test is the most important in diagnosis of CMV retinitis?*
- *What are the indications to start antiretroviral treatment for a person infected with HIV?*
- *What laboratory parameters are most important in monitoring the effectiveness of antiretroviral treatment?*
- *Does this patient need a chemoprophylaxis of opportunistic infections?*
- *What kind of precautions must be taken when performing invasive procedures to this patient?*

- *What prophylactic measures are necessary in case of an accidental contact with the patient's blood?*

- *How long the main disease has to be treated?*

Concept of the problem: epidemiology, clinical manifestations, diagnosis, treatment and prophylaxis of opportunistic infections related with HIV/AIDS.

Clinical signs: prolonged febrile fever, opportunistic infections of CNS and eyes in the immunocompromised patient.

Aim:

To obtain knowledge, practical skills and ability in:

- clinical manifestations of HIV infection, diagnosis, immune status evaluation, principles and monitoring of antiretroviral treatment;

- follow-up of HIV infected patients;

- AIDS related opportunistic infections and the risk of their development;

- epidemiology, clinical manifestation, complications, diagnosis, treatment, chemoprophylaxis of opportunistic infections.

Learning objectives and contents

To complete an analysis of this problem the student must know:

- Epidemiology of HIV/AIDS in Lithuania and in the world, mode of spread, risk factors, pathogenesis of HIV infection, clinical classification of HIV infection, diagnosis, immune status tests, principles and monitoring of antiretroviral treatment, differential diagnosis of primary HIV infection, follow-up of HIV infected patient.

Subject- Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch.407-410.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.1076-1140.

Hoffmann C, Rockstroh J.K, Kamps B.S, ed. HIV Medicine.15th ed, 2007. www.HIVMedicine.com, p.23–57.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Clinical manifestation, diagnosis, differential diagnosis of HIV related syndromes. Most common opportunistic infections, principles of chemoprophylaxis of opportunistic infections.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch.411-417.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.1076-1140.

Hoffmann C, Rockstroh J.K, Kamps B.S, ed. HIV Medicine.15th ed, 2007. www.HIVMedicine.com, p.389–460.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Etiology, epidemiology, clinical manifestation, diagnosis, treatment, primary and secondary prophylaxis of toxoplasmosis in AIDS patients.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 370.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.1243–1248.

Hoffmann C, Rockstroh J.K, Kamps B.S, ed. HIV Medicine.15th ed, 2007. www.HIVMedicine.com, p.400–404.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Epidemiology, clinical manifestation, diagnosis, treatment, primary and secondary prophylaxis of CMV infection in AIDS patients.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch.399.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.1049-1053.

Hoffmann C, Rockstroh J.K, Kamps B.S, ed. HIV Medicine.15th ed, 2007. www.HIVMedicine.com, p.406–409.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Protection of health care workers from blood-borne infections.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 411.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.1136–1137.

Supplementary readings:

Material of lectures, practical classes, and seminars

4.6. Case 6. Infectious diseases in travellers.

A 35 year old male presented to the ER of the Infectious Disease Department with chills, fever up to 40°C, accompanied by abundant sweating, myalgia, headache, nausea, vomiting. He started feeling sick four days ago, was taking antipyretics, but episodes of febrile body temperature kept repeating every day, their duration was becoming longer. As he was feeling sicker, he addressed his family physician, who suspected sepsis and referred the patient to be hospitalized for further diagnostics and treatment.

The patient is a business man, he often goes on business trips, one week ago he came back from a several week long business trip in Cameroon. There during his leisure time, he was visiting rural ethnographic sites, took part in an organized wild animal hunt, went fishing. Ten days ago, while swimming in a swimming pool, he injured his left hand. The patient has been vaccinated against yellow fever, hepatitis B. In the last several months he did not take any medications, except for vitamins. As a child, he has had varicella, hepatitis A, later on he had no health related issues. He is physically active, non-smoker.

Physical examination. Height 198 cm, weight 90 kg. His general state is moderately severe, body temperature 39.8℃. The patient is intoxicated, sluggish, sweaty. Facial hyperemia and light jaundice of the sclera is observed. On the dorsal surface of the left hand, in the location of the injury, scabs can be seen. His tongue is dry, coated in white, no oropharyngeal hyperemia is observed. Respiratory rate 20/min, normal breath at auscultation of both lungs. Heart rate 125/min, rhythmical, blood pressure 100/68 mmHg. The abdomen is soft to palpation, tender in the right hypochondriac region, liver edge is palpable. Increased liver size is observed by percussion. Spleen edge is palpable. There are no other abnormal findings.

Laboratory Tests. Complete blood count: hemoglobin 110 g/l, erythrocytes 3.43×10^{12}/l, thrombocytes 80×10^{9}/l, leukocytes $3{,}0\text{x}10^{9}$/ l (bands 6%, segmented 72%, lymphocytes 14%, monocytes 7%, eosinophils 1%). Erythrocyte sedimentation rate 32 mm/h, CRP 88 mg/l, pH 7.1, pCO2 34 mmHg, pO2 81 mmHg, HCO3 20,6 mmol/l, BE–4,4 mmol/l, SO2 96%. Blood potassium 3.46 mmol/l, blood sodium level 13 mmol/l, blood creatinine 138 μmol/l. ALT 114 U/l, AST 95 U/ L, AP 120 U/l, total blood bilirubin 78 μmol/l, majority of which is indirect bilirubin. Blood glucose 3.4 mmol/l. Urinalysis: SG 1,020, pH 5,5, ketone bodies (+), no protein, epithelial cells, leukocytes nor erythrocytes. No growth of pathogenic microorganisms in the blood culture. Microscopy of thick blood smears (Gimza stain) revealed a 20% parasitemia.

The patient was hospitalized at the Intensive Care Unit. Treatment was started with Quinine 20 mg salt/kg loading dose, slow i/v infusion over 4 hours, then 10 mg salt/kg tid, till parasitemia went

down to 2%. Patient was also treated with crystalloid and glucose solutions, antipyretics. Two days after parasitemia had decreased and general status of the patient improved, he was transferred to the Infectious Disease Department, where he was treated with Quinine sulfate and doxycycline for 7 days. When blood smears (Gimza stain) were repeated, no parasites were detected. After 10 days, when the patient had no more fever and his CBC and biochemical blood markers went back to normal, he was discharged from the hospital.

Which travelers' infectious diseases manifest with the syndrome of febrile fever?
Which travelers' infectious diseases manifest with the syndrome of jaundice?
Which travelers' diseases manifest with hepatosplenomegalic syndrome?
Which epidemiologic and clinical features lead to suspect malaria?
Which of malaria's causative agents is the most likely in this case and why?
Which facts of the patient's history and clinical features help differentiate his illness from typhoid, leptospirosis, sepsis?
Which symptoms and laboratory values let us justify the diagnosis of malaria?
What complications of malaria do you know?
Which organism systems are affected and what are the signs for each of them?
What indications are there for this patient to be treated in the Intensive Care Unit?
What are advantages and disadvantages of different medications used to treat malaria?
Do you consider appropriate prophylactic treatment against possible relapse for this patient?

Concept of the problem: differential diagnostics of fever, jaundice and splenomegaly: relevance of travelers' infectious diseases, main features of malaria's epidemiology, clinical appearance, diagnostics, treatment and prophylaxis.
Clinical signs: episodes of febrile repeated fever with jaundice and splenomegaly.
Aim:
To obtain knowledge about travelers' diseases, manifesting with fever, jaundice and splenomegaly, learn the principles of malaria's epidemiology, clinical features, complications, diagnostics, treatment and prophylaxis.
Learning objectives and contents
To complete an analysis of this problem the student must know:

- The problems of infectious diseases in travellers, epidemiologic situation in the world, risk factors, circulation patterns, peculiarities of clinical features and diagnostics, principles of treatment, recommendations for immunoprophylaxis and chemoprophylaxis for travelers.

Subject- Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 308.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.713-731.

Armstrong D, Cohen J, Infectious Diseases. London, 2000; vol. I–II, ch. 6 (2.1–2.10)

Gorbach SL, Barlett JG, Blacklow NR (editors). Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 401–412.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Etiology and epidemiology of malaria, clinical presentation, criteria for diagnosis, treatment, mechanism of action of drugs and their side effects, recommendations for malaria prophylaxis.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 366.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.1218–1233.

Armstrong D., Cohen J., Infectious Diseases. London, 2000, vol. I–II, ch. 6 (26.1–26.10).

Gorbach SL, Barlett JG, Blacklow NR (editors). Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 2290–2308.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Differential diagnosis of fever, jaundice and splenomegaly.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch 302, 308.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.706–713.

Armstrong D, Cohen J, Infectious Diseases. London, 2000, vol. I–II., ch. 6 (4.1–4.6, 8.1–8.4).

Supplementary readings:

Material of lectures, practical classes, and seminars

- Immunoprophylaxis of infectious diseases for adults.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.713-725.

Gorbach SL, Barlett JG, Blacklow NR (editors). Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 371–381.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Leptospirosis: etiology, epidemiology, clinical presentation, diagnosis and principles of treatment.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 344.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.988–991.

Gorbach SL, Barlett JG, Blacklow NR (editors). Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 1832–1837.

- Typhoid fever: epidemiology, main clinical symptoms, principles of treatment and prophylaxis.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch 329.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.897–902.

Armstrong D, Cohen J, Infectious Diseases. London, 2000, vol. I–II, ch. 6 (24.1–24.4).

Gorbach SL, Barlett JG, Blacklow NR (editors). Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 1673–1680.

Supplementary readings:

Material of lectures, practical classes, and seminars

4.7. Case 7. Complicated Skin and Soft Tissue Infection

53 year old female, injured her right big toe with a mattock while weeding her garden. The wound was shallow, around 2 cm long. After the bleeding had stopped, the woman washed her foot with water and covered the wound with a band aid. One day later, when she was exchanging the band aid, she noticed a mild erythema around the wound and a bit of serous secretion. Two days later the woman started feeling pain and tension in the area of the wound as well as pain of the whole foot. Her foot became intensively erythematous and purulent secretion started appearing from underneath a forming yellowish scab. The following night, the patient started having chills and fever up to 40℃. The erythema extended to the mid calf, became intensive, very painful to touching, the patient started feeling strong general weakness. In the morning the family of the patient called the ambulance, which brought the patient to the emergency room of the Infectious Disease Department.

4 years ago the patient underwent a hysterectomy because of a myoma, 1 year ago she underwent a surgery for a hernia of the lumbar part of the spine. Several years ago she was diagnosed with a mild form of type 2 diabetes, which is being treated by dietary measures.

Physical Examination: height 168 cm, weight 66 kg. Body temperature 39.5℃, intoxicated, tongue dry, coated in white, respiratory rate 24/min., heart rate 130/min., rhythmical, BP 90/60 mmHg. By the proximal phalange of the big toe a healing wound is observed, from underneath a yellowish scab a bit of purulent secretion is coming out, the dorsal surface of the foot and the calf up to its middle is erythematous, of higher temperature, swollen, very painful to palpation, superficial varicose veins are observed in both calves. The pulse of *a. dorsalis pedis* of the left foot is weaker due to the swelling of that foot; the pulse of *a. poplitea* is good. There are no pathological findings in the other systems.

Laboratory Tests: leukocytes 19×10^9/l (bands 16%, segmented 78%), hemoglobin 110 g/l, erythrocytes $3{,}03\times 10^{12}$/l, thrombocytes 100×10^9/l, CRP 330 mg/l, procalcitonin >10 ng/ml, blood potassium level 3,4 mmol/l, blood sodium level 135 mmol/l, blood glucose 3,3 mmol/l, blood creatinine 210 μmol/l, ALT 120 U/l, AST 160 U/L, AP 110 U/l, D–dimers 1,98 mg/l, SPA 51%, INR 1,48, aPTT 47 sek., fibrinogen 1,8 g/l, pH 7,40, pCO_2 40 mmHg, pO_2 80 mmHg, sO_2 95%, ABE –2,4 mmol/l (in the capillary blood). Urinalysis: specific gravity 1032, trace of protein and ketone bodies. Chest X-ray without infiltration. Because of possible necrotizing fasciitis the patient was consulted by a surgeon, ultrasound examination of the soft tissues of the foot and calf was performed, which showed no proof for this pathology. Culture from the wound as well as two blood cultures were taken.

Treatment was initiated with ampicillin (2 g x 4/day i/v), crystalloid infusions and antipyretics.

Within 24 hours there was no improvement in the status of the patient. Two more blood cultures were taken. Antibioticotherapy was modified to cefazolin (2 g x3/day i/v).

During the second day of hospitalization the wound secretion culture came positive with growth of group A hemolytic streptococcus, sensitive to penicillin and erythromycin and *S. aureus*, sensitive to oxacillin, vancomycin, gentamicin, trimethoprim-sulfamethoxazole, fucidic acid, rifampicin, resistant to penicillin, erythromycin, clindamycin. In two blood cultures taken on admission a growth of group A β hemolytic streptococcus, sensitive to penicillin and erythromycin, was detected. In one of the blood cultures taken 24 hours later growth of *S.epidermidis* was observed, this germ was sensitive to oxacillin, vancomycin, gentamicin, trimethoprim-sulfamethoxazole, fucidic acid, rifampicin, resistant to penicillin, erythromycin, clindamycin.

When administering the treatment described above, during the following two days the fever became subfebrile, signs of intoxication disappeared, there was a remarkable decrease in the swelling and erythema of the foot and calf.

What predisposing factors are characteristic to each of the following skin and soft tissue infection agents (streptococci, staphylococci, gram negative bacilli, Pseudomonas aeruginosa, anaerobes)?

What agents are the most probable in the described clinical case?

Do you consider tetanus immunoprophylaxis appropriate for this patient?

Upon what symptoms and laboratory test values could the diagnosis of sepsis be based?

What criteria help differentiate among inflammatory response syndrome, septicemia, severe sepsis and septic shock?

Why was the initial treatment with ampicillin faulty?

After how much time is the effectiveness of antibacterial therapy evaluated?

How should the blood culture with growth of S. epidermidis be interpreted?

When is positive blood culture with growth of S. epidermidis clinically significant?

Concept of the problem: to discuss skin and soft tissue infections, community acquired sepsis and rational antibacterial therapy of these infections.

Clinical signs: sepsis with primary infection site of the skin.

Aim:

To obtain knowledge about the classification of skin and soft tissue infections, their causative agents, antibacterial treatment; learn the classification of sepsis, its most frequent causative agents and their relationship to the infection site, microbiological diagnostics, empiric and specific antibacterial therapy for sepsis of different origin.

Learning objectives and contents

To complete an analysis of this problem the student must know:

- Classification, etiology, clinical features, diagnostics, treatment and prophylaxis of skin and soft tissue infections.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 310,312.

Armstrong D, Cohen J, Infectious Diseases. London, 2000, vol. I–II, ch. 2 (2.1–2.10, 3.1–3.10).

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.740–745.

Gorbach SL, Barlett JG, Blacklow NR (editors). Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 1150–1152, 1155–1159.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Tetanus: epidemiology, main clinical symptoms, principles of diagnostics and prophylaxis.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 319.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.840–842.

Armstrong D, Cohen J, Infectious Diseases. London, 2000, vol. I–II, ch. 2 (18.1–18.8).

- Sepsis in immunocompetent adults with suspected skin, respiratory, urinary, billiary, intra-abdominal or central nervous system source.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Armstrong D, Cohen J, Infectious Diseases. London, 2000, vol. I–II, ch. 2 (47.1–47.14).

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 109, 302.

Fauci AS, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.706–713.

Gorbach SL, Barlett JG, Blacklow NR (editors). Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 561–569.

Gilbert DN et al. The Sanford Guide to Antimicrobial Therapy 2007, 37th ed., Sperryville, USA, Antimicrobial Therapy, Inc; 2007, p. 55–57.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Clinical and laboratory criteria for systemic inflammatory response syndrome, septicemia, severe sepsis, septic shock and multiple organ dysfunction syndrome.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Armstrong D, Cohen J, Infectious Diseases. London, 2000, vol. I–II, ch. 2 (47.1–47.14).

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 109.

Fauci AS, Braunwald E, Isselbacher KJ et al.(editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p. 1606–1612.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Empiric and specific antibacterial therapy for sepsis of different etiology.

Subject - Infectious Diseases

Division - Department of Infectious Diseases

References:

Armstrong D, Cohen J, Infectious Diseases. London, 2000, vol. I–II, ch. 2 (47.1–47.14).

Gilbert DN et al. The Sanford Guide to Antimicrobial Therapy 2007. 37th ed. Sperryville, USA, Antimicrobial Therapy, Inc; 2007, p. 55–57.

Supplementary readings:

Material of lectures, practical classes, and seminars

- Interpretation of microbiological test results.

Subject – Clinical Microbiology

Division – Department of Laboratory Medicine

References:

Gilbert DN et al. The Sanford Guide to Antimicrobial Therapy 2007. 37th ed. Sperryville, USA, Antimicrobial Therapy, Inc; 2007, p. 61–75.

Gorbach SL, Barlett JG, Blacklow NR, editors. Infectious Diseases. 3rd ed. Philadelphia, 2004, p.72–90.

Supplementary readings:

Material of lectures, practical classes, and seminars

5. Lectures

5.1. Skin tumors (3 hours)

Division – Department of Skin and Venereal Diseases

In charge – prof. dr. S. Valiukevičienė

Description

Precursors of malignant melanoma (benign melanocytic tumors, dysplastic melanocytic nevi): definition, clinical and diagnostic peculiarities; skin melanoma: epidemiology, clinical signs, principles of diagnostic and treatment, and prognosis. Precanceroses and malignant epidermal tumors (basal cell carcinoma and squamous cell carcinoma): definition, epidemiology, clinical features, principles of diagnostics and treatment, and prognosis.

5.2. Atopic, contact and seborrheic dermatitis (3 hours)

Division – Department of Skin and Venereal Diseases

In charge – assist. A. Beliauskienė

Description

Atopic dermatitis: definition, conception of atopy, relation of atopic dermatitis with other atopic diseases, diagnostic criterions according *Rajka* and *Hanifin*, assessment of atopic dermatitis severity according SCORAD, principles of diagnosis and treatment. Atopic dermatitis: ethio(patho)genetical mechanisms, diagnostic criterions, clinical forms, principles of treatment and prophylaxis. Allergic and irritant contact dermatitis: definition, etio(patho)genesis, clinical features of acute and chronic dermatitis, principles of diagnosis and treatment. Indications and contraindication of patch testing, procedure and interpretation of patch testing. Seborrheic dermatitis: definition, etio(patho)genesis, clinical signs, principles of diagnosis and treatment.

5.3. Diagnostic and treatment principles of skin diseases affecting face (3 hours)

Division – Department of Skin and Venereal Diseases

In charge – assoc. prof. D. Jasaitienė

Description

Chronic discoid and subacute cutaneous lupus erythematosus: etio(patho)genesis, clinical features, principles of diagnosis and treatment. Localized scleroderma: etio(patho)genesis, classification,

clinical features, principles of diagnosis and treatment. Acne vulgaris: etio(patho)genesis, clinical features, principles of diagnosis and treatment. Rosacea: etio(patho)genesis, clinical features, principles of diagnosis and treatment.

5.4. Etiopathogenesis, clinical features and treatment of bullous diseases (3 hours)

Department – Department of Skin and Venereal Diseases

In charge – assoc. prof. D. Jasaitienė

Description

Fundamental etiopathogenetical mechanisms, clinical peculiarities, diagnostic criteria and principles of treatment of autoimmune bullous diseases (bullous pemphigoid, pemphigus vulgaris, dermatitis herpetiformis) and acute inflammatory skin reactions (erythema multiforme, Stevens–Johnson syndrome, toxic epidermal necrolysis). Indications, contraindications, side-effects of systemic medications (corticosteroids, azathioprine, methotrexate, dapsone) in the treatment of autoimmune bullous diseases. The principles and significance of gluten-free diet in the treatment of dermatitis herpetiformis. The principles of wound care and treatment.

5.5. Fungal skin diseases (3 hours)

Division – Department of Skin and Venereal Diseases

In charge – assist. A. Petkevičius

Description

Fungal skin diseases (tinea capitis, tinea corporis, onychomycosis, tinea versicolor and candidiasis): epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.

5.6. Psoriasis and Lichen Planus (3 hours)

Division – Department of Skin and Venereal Diseases

In charge – assist. A. Petkevičius

Description

Psoriasis, lichen planus: etio(patho)genesis, provoking factors, clinical forms, principles of diagnosis and treatment. Psoriasis Area and Severity Index (PASI), special clinical examination (dermographism, Kobner's phenomenon, *Auspitz* sign).

5.7. Sexually transmitted infections (syphilis, chlamydial and gonococcal infections, trichomoniasis (3 hours)

Division – Department of Skin and Venereal Diseases

In charge – lecturer dr. V. Kučinskienė

Description

Classification of syphilis. Primary, secondary and tertiery syphilis: clinical features, principles of diagnosis and treatment. Neurosyphilis: stages, clinical features, principles of diagnosis and treatment. Congenital syphilis: classification, clinical features, principles of diagnosis and treatment. Gonococcal and chlamydial infections, trichomoniasis: epidemiology, clinical features, complications, laboratory diagnosis (demonstration of a causative agent in clinical specimens by microscopy, antigen detection tests, culture, nucleic acid tests), principles of treatment and prophylaxis.

5.8. HIV/AIDS related mucocutaneous diseases (3 hours)

Division – Department of Skin and Venereal Diseases

Person in charge – lector dr. V. Kučinskienė

Description

HIV/AIDS related mucocutaneous diseases (Kaposi's sarcoma, xeroderma, seborrhoeic dermatitis, eosinophilic folliculitis, psoriasis, hairy leukoplakia, bacterial angiomatosis and other bacterial, viral, fungal diseases) clinical features and peculiarities of treatment.

5.9. Etiological Diagnosis of Infectious Diseases (2 hours)

Division – Department of Laboratory Medicine

Person in charge – lecturer dr. A. Vitkauskienė

Description:

Principles of microbiological diagnosis of infectious diseases. The most common methods of bacteriological, virological, parasitological, immunological and molecular diagnostic, evaluation of the results of laboratory tests. Antimicrobial susceptibility testing of different bacterias and evaluation of susceptibility test results.

5.10. HIV infection (2 hours)

Division - Department of Infectious Diseases

Person in charge – assoc. prof. D. Vėlyvytė

Description:

clinical signs of HIV infection, diagnosis, immune status test, principles and monitoring of antiretroviral treatment. Opportunistic infections in AIDS and risk for their development, clinical signs, diagnosis, treatment, outcomes and chemoprophylaxis of the most common opportunistic infections in AIDS. Follow-up of HIV infected individual.

5.11. Infectious diseases in travellers and their prophylaxis (2 hours)

Division - Department of Infectious Diseases

Person in charge – assoc. prof. D. Vėlyvytė

Description:

Issues of the infectious diseases in travellers, their epidemiological situation in the word, risk factors, spread patterns, clinical signs, diagnosis, treatment guidelines and prophylaxis.

5.12. Immunoprophylaxis of infectious diseases for adults (2 hours)

Division - Department of Infectious Diseases

Person in charge – assoc. prof. D. Vėlyvytė

Description:

General overview of immunoprophylaxis of infectious diseases for adults. Recommended adult immunization schedule. Indications and contraindications for vaccination, possible adverse events, pre-exposure and post-exposure prophylaxis of health-care workers.

5.13. Clinical syndromes caused by different bacterial pathogens (2 hours)

Division - Department of Infectious Diseases

Person in charge – assoc. prof. A. Mickienė

Description:

Overview of the main medically important bacterial pathogens: classification, prevalence, mode of spread, virulence factors and their clinical relevance. Clinical syndromes caused by different microorganisms.

5.14. Antimicrobial therapy of Infectious diseases (2 hours)

Division - Department of Infectious Diseases

Person in charge – assoc. prof. A. Mickienė

Description:

The principles of the appropriate use of antimicrobial drugs for the treatment of infectious diseases. The problem, trends, prevention and control of bacterial resistance to antibacterial drugs. Antimicrobial spectra, initial choice of antibacterial therapy, specific treatment of infections caused by different microorganisms. Principles of treatment of nosocomial and community-acquired infections.

5.15. Epidemiology of Infectious diseases and bioterrorism (2 hours)

Division - Department of Infectious Diseases

Person in charge – assoc. prof. V. M. Bareišienė

Description:

Overview of the prevalence of different infectious diseases in the world and in Lithuania. Basics of the epidemiology of infectious diseases. Emerging and rare infectious diseases: etiology, epidemiology, clinical signs, diagnosis and principles of treatment. Bioterrorism. Managing highly contagious infectious diseases patients.

6. Practicals

6.1. Assessment of atopic dermatitis severity according SCORAD, clinical features, principles of diagnostic and treatment (1 hour)

Division – Department of Skin and Venereal Diseases

In charge – assist. A. Beliauskienė

Description

Assessment of atopic dermatitis severity according SCORAD, treatment choice according the severity of the disease, general measures (skin care, elimination of triggering factors and allergen avoidance), topical and systemic medications, phototherapy, planning of treatment in a particular case. Analysis of photo-archive.

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 190-194, 596-600.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

6.2. Photo(chemo)therapy (2 hours)

Division – Department of Skin and Venereal Diseases

In charge – assist. A. Beliauskienė

Description

Photo(chemo)therapy: physical basics, effects of ultraviolet radiation to the skin, skin types, kinds of phototherapy.

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 49-51, 295-296, 605-608.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

6.3. The differential diagnosis of bullous diseases (1 hour)

Department – Department of Skin and Venereal Diseases

In charge – assoc. prof. D. Jasaitienė

Description

Analysis of clinical peculiarities of autoimmune bullous diseases (bullous pemphigoid, pemphigus vulgaris, dermatitis herpetiformis) and acute inflammatory skin reactions (erythema multiforme, Stevens–Johnson syndrome, toxic epidermal necrolysis) using photos of photoarchive. Practical aspects of wound care and treatment.

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 229-237, 241-243, 184-186, 281, 282.

Supplementary readings:

John C. Hall. Sauer's Manual of Skin Diseases. The 8th edition. Lippincott Williams & Wilkins, Philadelphia, USA. 2000. p. 234-237, 107, 108.

Gailevičius P. Dermatology.-Kaunas, 1994. p. 79-86.

6.4. Parasitic skin diseases (scabies, pediculosis) (1 hour)

Division – Department of Skin and Venereal Diseases

In charge – assist. A. Petkevičius

Description

Parasitic skin diseases (scabies, pediculosis): epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.

Subject – Dermatovenereology

Division - Department of Skin and Venereal Diseases

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 126-129.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

6.5. Bacterial and viral skin diseases (2 hours)

Division – Department of Skin and Venereal Diseases

In charge – assist. A. Petkevičius

Description

Pyodermas: classification, epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis. Staphylococcal scalded skin syndrome: etiology, clinical features, principles of

diagnosis, treatment and prophylaxis. Viral skin diseases (common, plane and plantar warts, *molluscum contagiosum,* herpes infections): epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 56-64, 67-70, 73-82.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

6.6. Venereological examination of a patient (2 hours)

Division – Department of Skin and Venereal Diseases

In charge – lecturer dr. V. Kučinskienė

Description

Principles of a routine venereological examination. The collection of genital smear for diagnosis of sexually transmitted infections.

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 24-33.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

6.7. HIV infection (3 hours)

Division – Clinic of Infectious Diseases

In charge – assist. prof. V. Kanišauskienė

Description:

Prevalence and incidence of HIV/AIDS in Lithuania and in the world. Routes of HIV transmission and risk groups. Pathogenesis of HIV infection, clinical stages and their classification, diagnosis, immune status test, principles and monitoring of antiretroviral treatment. Differential diagnosis of primary HIV infection. Follow-up of HIV infected individual.

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch.407-410.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.1076-1140.

Hoffmann C, Rockstroh J.K, Kamps B.S, ed. HIV Medicine.15th ed, 2007. www.HIVMedicine.com, p.23–57.

Supplementary readings:

Material of lectures, practical classes, and seminars.

6.8. AIDS: the most common respiratory opportunistic infections (pneumocystosis); nervous system disorders (CNS toxoplasmosis); gastrointestinal infections (oesophageal candidiasis); CMV retinitis; chemoprophylaxis of opportunistic infections (3 hours)

Division – Clinic of Infectious Diseases

In charge – assoc. prof. D. Vėlyvytė

Description

Clinical signs, diagnosis, differential diagnosis of HIV related syndromes. The most common opportunistic diseases determining AIDS stage, risk of their development regarding immune system status. Etiology, epidemiology, clinical signs, diagnosis, and treatment of pneumocystosis, CNS toxoplasmosis, CMV retinitis, oesophageal candidiasis. The principles of chemoprophylaxis of opportunistic infections.

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch.370, 399, 411-417.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.1076-1140, 1243–1248, 1049-1053.

Hoffmann C, Rockstroh J.K, Kamps B.S, ed. HIV Medicine.15th ed, 2007. www.HIVMedicine.com, p.389–460, 400–404, 406–409.

Supplementary readings:

Material of lectures, practical classes, and seminars.

6.9. Diseases caused by protozoa and helminths (malaria, toxoplasmosis, trichinosis, toxocariasis, ascariasis, echinococcosis) (3,4 hours)

Division – Clinic of Infectious Diseases

In charge – assist. prof. V. Kanišauskienė

Description:

Malaria: etiology, epidemiology, clinical signs, diagnosis, differential diagnosis from remittent fever of different etiology, treatment, prevention, principles of chemoprophylaxis, prevention of recurrence. Toxoplasmosis: etiology, epidemiology, clinical signs, diagnosis, treatment, primary and secondary prevention. Gestational toxoplasmosis. Congenital toxoplasmosis. Toxoplasmosis in immunocompromised persons. Etiology, epidemiology, clinical signs, diagnosis, treatment principles and prevention of trichinosis, toxocarosis, ascaridosis, echinococcosis.

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 366, 370, 375, 378.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.1218–1233, 1243-1248, 1253-1260, 1272-1279.

Armstrong D., Cohen J., Infectious Diseases. London. 2000, vol. I–II, ch. 6 (26.1–26.10, 29.1–29.6, 34.1–34.2), ch. 8 (34.5–34.6).

Gorbach S.L., Barlett J.G., Blacklow N.R., editors. Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 2290–2308, 2334–2339.

Supplementary readings:

Material of lectures, practical classes, and seminars.

6.10. Herpes simplex and Varicella zoster virus infections, erysipelas and celiulitis, skin infections caused by animal bites, Lyme disease (3 hours)

Division – Clinic of Infectious Diseases

In charge – assist. prof. E. Audickienė

Description:

Etiology, clinical signs, diagnostic, treatment and principles of prevention of localized and disseminated forms of *herpes simplex* and *varicella zoster* virus infections, erysipelas and celiulitis. Etiology, clinical signs, diagnosis, treatment of skin infections caused by animal bites. Etiology, epidemiology, pathogenesis, clinical signs, diagnosis, differential diagnosis, treatment and prevention of Lyme disease.

References:

Armstrong D., Cohen J., Infectious Diseases. London, 2000, vol. I–II, ch. 2 (2.1–2.10, 3.1–3.10).

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 310, 312, 342, 397, 398.

Fauci A S, Braunwald E, Isselbacher KJ et al. (editors). Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p.740-745, 995-999, 1035-1046.

Gorbach S.L., Barlett J.G., Blacklow N.R., editors. Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 1150–1152, 1155–1159.

Wormser GP et all. The Clinical Assesment, Treatment, and Prevention of Lyme Disease, Human Granulocytic Anaplasmosis, and Babesiosis: Clinical Practice Guidelines by the Infectious Diseases Society of America. Clin Infect Dis 2006; 43(1): 1089–1134.

Supplementary readings:

Material of lectures, practical classes, and seminars.

6.11. Generalized bacterial infections (typhoid fever, leptospirosis, meningococcal infection, sepsis) (3,4 hours)

Division – Clinic of Infectious Diseases

In charge – assist. prof. L. Ambraška

Description:

Etiology, epidemiology, pathogenesis, clinical forms, diagnosis, differential diagnosis, complications, treatment and prevention of typhoid fever, leptospirosis, meningococcal infection. Modern classification of sepsis, most common pathogens of sepsis originating from the respiratory, urinary and biliary tracts, intestine, skin, central nervous system. Empirical and specific antibacterial therapy of sepsis of various origin.

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 109, 302, 321, 329, 344.

Fauci A. S., Braunwald E., Isselbacher K.J. et al., editors. Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p. 849–55, 988–91, 897–902, 1606–1612.

Armstrong D., Cohen J., Infectious Diseases. London, 2000, vol. I–II, ch. 2 (47.1–47.14), ch. 6 (24.1–24.4).

Gorbach SL, Barlett JG, Blacklow NR, editors. Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 561–569, 1832–1837,1973–1980.

Supplementary readings:

Material of lectures, practical classes, and seminars.

6.12. Microbiological diagnosis of infectious diseases (3 hours)

Division – Clinic of Infectious Diseases

In charge – assist. prof. G. Sinkutė

Description:

Sampling, storage and transport of the specimens for microbiological tests and their effect on the test results. Interpretation of microbiological test result. Antimicrobial susceptibility testing. Antibiotic sensitivity testing standard for different groups of bacteria.

Reference:

Gilbert DN et al. The Sanford Guide to Antimicrobial Therapy 2007. 37th ed. Sperryville, USA, Antimicrobial Therapy, Inc; 2007, p. 61–65, 71–75.

Supplementary readings:

Material of lectures, practical classes, and seminars.

6.13. Rare infectious diseases (tetanus, rabies, diphtheria, botulism) (3 hours)

Division – Clinic of Infectious Diseases

In charge – assoc. prof. V. M. Bareišienė

Description:

Etiology, epidemiology, main clinical signs and diagnostic principles of tetanus, rabies, diphtheria, botulism. Specific prevention of these diseases. Principles of treatment. Organization of team work of health care professionals (general practitioners, infectious diseases specialists, epidemiologists, public health professionals, laboratory workers, veterinary service) in case of rare infectious diseases.

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 319.

Fauci A. S., Braunwald E., Isselbacher K.J. et al., editors. Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, p. 832–37, 840–845, 1155–1161.

Armstrong D., Cohen J., Infectious Diseases. London. 2000, vol. I–II, ch. 2 (18.1–18.8).

Gorbach SL, Barlett JG, Blacklow NR, editors. Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 2149–2159.

Supplementary readings:

Material of lectures, practical classes, and seminars.

6.14. Viral infections causing respiratory system disorders or generalized lymphadenopathy syndrome. Mycoplasma pneumoniae infection (3,2 hours)

Division – Clinic of Infectious Diseases

In charge – assist. prof. R. Klimienė

Description:

Viral infections causing respiratory system disorders (influenza, parainfluenza, adenoviral infections, respiratory syncytial infections, enteroviral infections (*herpangina, epidemic myalgia, exanthema*), generalized lymphadenopathy syndrome (infectious mononucleosis, CMV infection): epidemiology, pathogenesis, clinical signs, diagnosis, principles of treatment, differential diagnosis, non-specific and specific prophylaxis, preventive measures. Epidemiology, pathogenesis, clinical signs, diagnosis, differential diagnosis, treatment of *Mycoplasma pneumoniae* infection.

References:

Goldman: Cecil Medicine, 23rd ed, 2007 Saunders, An Imprint of Elsevier, ch. 338, 385, 386, 387, 388, 393, 399, 400, 402.

Fauci A. S., Braunwald E., Isselbacher K.J. et al., editors. Harrison's Principles of Internal Medicine. 16th ed. N.Y., 2005, 1008–1011, 1046–1053, 1066–1071, 1143-1148. Armstrong D., Cohen J., Infectious Diseases. London. 2000, vol. I–II, ch. 8 (9.1–9.16, 23.1–23.6).

Gorbach SL, Barlett JG, Blacklow NR, editors. Infectious Diseases. 3rd ed. Philadelphia, 2004, p. 504–508, 1220–1225, 1950–1959, 1987–2016.

Supplementary readings:

Material of lectures, practical classes, and seminars.

7. Seminars

7.1. Anatomy and functions of the skin, elements of skin rash, and peculiarities of the dermatovenereologic examination of a patient (1 hour)

Division – Department of Skin and Venereal Diseases

In charge – lecturer dr. V. Kučinskienė

Description

Anatomy and functions of the skin. Primary and secondary skin lesions (clinical and morphological signs, and diagnostics).

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 1-11, 16-29, 32-33, 43-52.

Supplementary readings:

Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

7.2. Radiological diagnosis in dermatology(1 hour)

Division – Clinic of Radiology

In charge – lecturer dr. G. Kuprionis

Description

Ultrasound scanning in dermatology. Technical requirement for ultrasound equipment. The methods of the procedure. Sentinel lymph node. Lymphoscintigraphy and it's technical details. Clinical significance of sentinel lymph node biopsy in melanoma patients.

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 51-52.

Schmid–Wendtner M–H, Burgdorf W. Ultrasound Scanning in Dermatology. Arch Dermatol. 2005;141:217–224. http://archderm.ama-assn.org/cgi/reprint/141/2/217.pdf

Alazraki N, Glass EC, Castronovo F, Valdés Olmos RA, Podoloff D. Procedure Guideline for Lymphoscintigraphy and the Use of Intraoperative Gamma Probe for Sentinel Lymph Node Localization in Melanoma of Intermediate Thickness 1.0. Journal of Nuclear Medicine Vol. 43 No. 10, p. 1414–1418. http://jnm.snmjournals.org/cgi/content/full/43/10/1414.

Kaikaris V, Valiukeviciene S, Rimdeika R, Gollnick H, Ulrich J. Sentinel lymph node biopsy in melanoma patients: methods, indications, and clinical significance. MEDICINA. 2003, Vol. 39, No. 7., p. 621-630.http://medicina.kmu.lt/0307/0307-01e.pdf

Supplementary readings:

Material of seminars. http://www.dermophoto.com/special_ultrasound_phenomena.pdf

7.3. Microbiological diagnosis of the pathogens of skin and soft tissue infections (1 hour)

Division – Clinic of Laboratory Medicine

In charge – lecturer dr. A. Vitkauskienė

Description

Pathogens of skin and soft tissue. The importance of specimen collection and transportation for the verification of a causative agent and interpretation of results. Rational use of antimicrobial agents based on a cultivated pathogen.

References:

Mandell GL, Benett JE, Dolin R. Principles and Practice of Infectious Diseases 6th ed. 2005; p. 1178–1180; 1188; 2813.

Yu VL, Merigan ThC, Barriere SL. Antimicrobial Therapy and Vaccines. 1999; p. 462–469.

Supplementary readings:

Murray PR, Baron EJ, Jorgensen JH, Pfaller MA, Yolken RH. Manual of Clinical Microbiology 8th ed. 2003; p. 183–266.

7.4. Laboratory diagnosis of sexually transmitted infections (1 hour)

Division – Clinic of Laboratory Medicine

In charge – lecturer dr. A. Vitkauskienė

Description

Laboratory diagnosis of sexually transmitted infections: microscopy, culture, serology, nucleic acid tests. The choice and evaluation of diagnostic method, interpretation of the results, possible errors.

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 24-33.

Savicheva A., Sokolovsky E., Frigo N., Priputnevich T., Brilene T., Deák J., Ballard R., Ison C., Hallén A., Domeika M., Unemo M. Guidelines for laboratory diagnosis of *Neisseria gonorrhoeae*

in East-European countries. Part 1: gonorrhoea, sampling, and microscopy for diagnosis. Acta Medica Lituanica, 2007, Vol 4, No 1, 65-74. (033A)

Savicheva A., Sokolovsky E., Frigo N., Priputnevich T., Brilene T., Deák J., Ballard R., Ison C., Hallén A., Domeika M., Unemo M. Guidelines for laboratory diagnosis of *Neisseria gonorrhoeae* in East-European countries. Part 2: culture, non-culture methods, determination of antibiotic resistance, and quality assurance. Acta Medica Lituanica, 2007, Vol 4, No 2, 123-34. http://www.medsci.uu.se/klinbakt/Stigup/Publications/ARTICLES/article%20archive/034A.pdf

Supplementary readings:
Material of lectures, practical classes, and seminars.

7.5. Viral sexually transmitted infections (1 hour)

Division – Department of Skin and Venereal Diseases

In charge – lecturer dr. V. Kučinskienė

Description

Viral sexually transmitted infections (anogenital human papilloma virus (HPV) related warts, genital herpes infection) epidemiology, clinical features, principles of diagnostics, treatment and prevention.

References:

Sterry W, Paus R, Burgdorf W. Dermatology. Georg Thieme Verlag KG, Stuttgart, Germany. 2006. p. 59-60, 70-72.

Supplementary readings:
Material of lectures, practical classes, and seminars. http://www.kmuk.lt/klinika18/8.php

7.6. Community acquired and nosocomial infections (2 hours)

Division – Clinic of Infectious Diseases

In charge – assist. prof. G. Sinkutė

Description:

Specific antibiotic therapy of community acquired infections caused by streptococci, pneumococci, staphylococci, *L. monocytogenes, N. meningitidis, Moraxella, Haemophilus spp., Enterobacteriaceae*. Exogenous and endogenous nosocomial infections. Principles of treatment of nosocomial infections caused by methicillin resistant *S.aureus*, *S.epidermidis*, *E.faecium* and

E.faecalis, *Pseudomonas aeruginosa*, nosocomial *Enterobacteriaceae,* broad spectrum beta-lactamase (ESBL) producing *Klebsiella pneumoniae* and *E.coli.*

References:

Gilbert DN et al. The Sanford Guide to Antimicrobial Therapy 2007. 37th ed. Sperryville, USA, Antimicrobial Therapy, Inc; 2007, p. 61–75.

Gorbach SL, Barlett JG, Blacklow NR, editors. Infectious Diseases. 3rd ed. Philadelphia, 2004, p.72–90.

Supplementary readings:

Material of lectures, practical classes, and seminars.

8. Module examination questions:

8.1. Dermatovenereology

1. Anatomy and functions of the skin.
2. Primary and secondary skin lesions: types, clinical and morphological characteristics.
3. Seborrheic keratoses, hemangiomas, and lipomas: definition, clinical signs, diagnostics, and principles of treatment.
4. Ephelides and other benign melanocytic tumors: definition, clinical signs, diagnostics, and principles of treatment.
5. Benign melanocytic tumors (melanocytic nevi): definition, types, clinical features, diagnostics, and principles of treatment.
6. Premalignant skin diseases (actinic keratosis, Bowen Disease, leukoplakia): definition, clinical features, diagnostics, and principles of treatment.
7. Malignant epidermal tumors (basal cell carcinoma and squamous cell carcinoma): definition, epidemiology, clinical features, diagnostics, principles of treatment and prevention, and prognosis.
8. Malignant melanoma: definition, epidemiology, clinical-histological types, diagnostics, prevention, principles of treatment, and prognosis.
9. Seborrheic dermatitis: definition, etio(patho)genesis, clinical signs, principles of diagnosis and treatment.
10. Irritant contact dermatitis: definition, etio(patho)genesis, clinical signs, principles of diagnosis and treatment.
11. Allergic contact dermatitis: definition, etio(patho)genesis, clinical features, principles of diagnosis and treatment.
12. Atopic dermatitis: definition, etio(patho)genesis, clinical features, principles of diagnosis and treatment.
13. Chronic discoid and subacute cutaneous lupus erythematosus: definition, etio(patho)genesis, clinical features, principles of diagnosis and treatment.
14. Localized scleroderma: definition, etio(patho)genesis, clinical features, principles of diagnosis and treatment.
15. Acne vulgaris: definition, etio(patho)genesis, clinical features, principles of diagnosis and treatment.

16. Rosacea: definition, etio(patho)genesis, clinical features, principles of diagnosis and treatment.
17. Erythema multiforme and Stevens–Johnson syndrome: description, etiopathogenesis, clinical features, principles of diagnostics and treatment.
18. Toxic epidermal necrolysis: description, etiopathogenesis, clinical features, principles of diagnostics and treatment.
19. Bullous pemphigoid: description, etiopathogenesis, clinical features, principles of diagnostics and treatment.
20. Pemphigus vulgaris: description, etiopathogenesis, clinical features, principles of diagnostics and treatment.
21. Dermatitis herpetiformis: description, etiopathogenesis, clinical features, principles of diagnostic and treatment.
22. Pyodermas: classification, pathogens, clinical features, principles of diagnosis, treatment and prophylaxis.
23. Parasitic skin diseases (scabies, pediculosis): causative agents, physical and laboratory examinations, principles of diagnosis, treatment and prophylaxis.
24. Herpes simplex: pathogen, clinical forms, physical and laboratory examinations, principles of diagnosis and treatment.
25. Herpes zoster: pathogen, clinical features, principles of diagnosis and treatment, peculiarities in AIDS.
26. Common, plane and plantar warts: pathogen, clinical features, principles of diagnosis, treatment and prophylaxis.
27. Molluscum contagiosum: pathogen, clinical features, principles of diagnosis, treatment and prophylaxis, peculiarities in AIDS.
28. Cutaneous and mucosal candidamycosis: pathogen, clinical forms, principles of diagnosis, treatment and prophylaxis, peculiarities in AIDS.
29. Fungal infections of the nails: pathogens, clinical forms, principles of diagnosis, treatment and prophylaxis.
30. Fungal infections of the scalp: pathogens, clinical features, principles of diagnosis, treatment and prophylaxis.
31. Fungal infections of the glabrous skin: pathogens, clinical features, principles of diagnosis, treatment and prophylaxis.
32. Pityriasis versicolor: pathogen, physical and laboratory examinations, principles of diagnosis, treatment and prophylaxis, peculiarities in AIDS.
33. Psoriasis: description, etiopathogenesis, clinical forms, principles of diagnosis, treatment, peculiarities in AIDS.

34. Lichen planus: description, etiopathogenesis, clinical features, principles of diagnosis and treatment.
35. Syphilis: epidemiology, classification and prophylaxis.
36. Primary syphilis: clinical features, principles of diagnosis and treatment.
37. Secondary syphilis: clinical features, principles of diagnosis and treatment.
38. Tertiary syphilis: clinical features, principles of diagnosis and treatment.
39. Neurosyphilis: staging, clinical features, principles of diagnosis and treatment.
40. Congenital syphilis: classification, clinical features, principles of diagnosis and treatment.
41. Condylomata acuminata: epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.
42. Herpes genitalis: epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.
43. Trichomoniasis: epidemiology, clinical features, principles of diagnosis, treatment and prophylaxis.
44. Gonococcal infection: epidemiology, clinical features, complications, principles of diagnosis, treatment and prophylaxis.
45. Urogenital chlamydial infection: epidemiology, clinical features, complications, principles of diagnosis, treatment and prophylaxis.

8.2. Infectious diseases

1. Etiology, epidemiology, diagnosis, clinical classification of HIV infection.
2. Laboratory test screening of newly diagnosed HIV infected person, follow-up of HIV infected person, chemoprophylaxis of opportunistic infections.
3. Indications for antiretroviral treatment of HIV infection, groups and main agents of antiretroviral drugs, principles of combined therapy, monitoring of treatment effectiveness.
4. Clinical signs, diagnosis, principles of treatment, chemoprophylaxis of *Pneumocystis jerovecy* pneumonia.
5. Clinical signs, diagnosis, principles of treatment, chemoprophylaxis of CNS toxoplasmosis in AIDS.
6. Clinical signs, diagnosis, principles of treatment of CMV retinitis in AIDS.
7. Gastrointestinal candidiasis in AIDS: etiology, clinical signs, diagnosis, principles of treatment.
8. Malaria: etiology, epidemiology, classification of endemic areas and chemoprophylaxis in different endemic areas.
9. Clinical signs, diagnosis, treatment, complications of malaria.

10. Etiology, epidemiology, clinical signs, diagnosis, treatment of primary acquired toxoplasmosis.
11. Diagnosis, treatment, prognosis, prevention of primary toxoplasmosis in pregnancy.
12. Etiology, epidemiology, clinical signs, diagnosis, treatment, prevention of trichinosis.
13. Etiology, epidemiology, clinical signs, diagnosis, treatment and prevention of toxocariasis.
14. Etiology, epidemiology, clinical signs, diagnosis, treatment, prevention of ascariasis.
15. Etiology, epidemiology, clinical signs, diagnosis, treatment principles of echinococcosis.
16. Etiology, clinical signs, diagnosis, treatment, prevention of erysipelas and cellulites.
17. Skin and soft tissue infections caused by cat and dog bites: etiology, clinical signs, diagnosis, treatment.
18. Etiology, epidemiology, clinical stages, course, microbiological diagnosis of Lyme disease.
19. Skin, joint, heart disorders in Lyme disease: clinical signs, diagnosis, treatment.
20. Etiology, epidemiology, clinical signs, diagnosis, treatment of typhoid fever.
21. Etiology, epidemiology, clinical signs, diagnosis, treatment of leptospirosis.
22. Etiology, epidemiology, clinical forms, prevention of meningococcal infection.
23. Clinical signs, diagnosis, complications, treatment of meningococcal sepsis.
24. Definitions of systemic inflammatory response syndrome, septicemia, severe sepsis, septic shock and multiple organ dysfunction syndromes.
25. The most common agents and empirical antibacterial therapy of community acquired sepsis originating from respiratory and urinary tract.
26. The most common agents and empirical antibacterial therapy of community acquired sepsis originating from biliary tract and intestine.
27. The most common agents and empirical antibacterial therapy of community acquired sepsis originating from skin and central nervous system.
28. Etiology, clinical signs, diagnosis, treatment, prevention of influenza.
29. Etiology, epidemiology, clinical signs, diagnosis, treatment of parainfluenza and respiratory syncytial infection.
30. Etiology, epidemiology, clinical signs, diagnosis, treatment of diseases caused by enterovirus and adenovirus.
31. Etiology, epidemiology, clinical signs, diagnosis, treatment of infectious mononucleosis.
32. Etiology, epidemiology, clinical signs, diagnosis, treatment of CMV infection.
33. Epidemiology, clinical signs, diagnosis, treatment of *Mycoplasma pneumoniae* infection.
34. Etiology, epidemiology, main clinical symptoms, prevention of tetanus.
35. Etiology, epidemiology, main clinical symptoms, pre- and post- exposure prophylaxis of rabies.
36. Etiology, epidemiology, clinical forms, principles of diagnosis, prevention of diphtheria.

37. Etiology, epidemiology, main clinical symptoms, principles of diagnosis and treatment, prevention of botulism.
38. Community-acquired infectious agents and their etiologic treatment.
39. The agents of nosocomial infections and their etiologic treatment.
40. Antibiotic sensitivity testing standard for staphylococci and enterococci.
41. Antibiotic sensitivity testing standard for *Haemophilus* and pneumococcus.
42. Antibiotic sensitivity testing standard for *Enterobacteriaceae* and *Pseudomonas aeruginosa*.
43. Immune prophylaxis of infectious diseases in adults.
44. Protection of health care workers from blood-borne infectious diseases.
45. Etiology, epidemiology, clinical signs, principles of treatment and prevention of traveller's diarrhea.
46. Non-specific and specific prophylaxis of infectious diseases in travellers.