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ДИАГНОСТИКА И ПРОФИЛАКТИКА ЧЕСОТКИ У МАЛОМОБИЛЬНЫХ ПАЦИЕНТОВ С КОГНИТИВНЫМИ НАРУШЕНИЯМИ

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Diagnosis and Prevention of Scabies in Low Mobility Patients with Cognitive Impairment

Резюме

Чесотка представляет собой инфекционное кожное заболевание, вызываемое специфичным для человека эктопаразитом Sarcoptes scabiei var. hominis. Несмотря на всестороннюю изученность чесотки, проблема ее своевременной диагностики у маломобильных пациентов с определенными неврологическими и когнитивными нарушениями остается актуальной во всем мире. Одновременное назначение большого количества лекарственных препаратов маломобильным пациентам может маскировать клинические проявления чесотки и ошибочно относить зуд к проявлениям кожных аллергических реакций или иных дерматозов. Авторы наблюдали пациента К., который находился в ФГБУ «ФЦМН» ФМБА России с 14.11.2022 по 15.11.2022. Клинический диагноз при поступлении: I69.3. Последствия инфаркта мозга. Основное заболевание: ранний восстановительный период ишемического инсульта в бассейне левой средней мозговой артерии от 09.08.2022, атеротромботический подтип по критериям TOAST. Правосторонний гемипарез. Грубая афазия. Нарушение функции тазовых органов. Шкала реабилитационной маршрутизации 5 баллов. Фоновые заболевания: гипертоническая болезнь III стадии 3 степени, контролируемая, риск сердечно-сосудистых осложнений — 4 (очень высокий). Целевое значение артериального давления менее 135/85 мм рт. ст. Окклюзия левой передней мозговой артерии, средней мозговой артерии. Токсико-аллергический дерматит (лекарственный) в фазе обострения. На основании комплекса клинических данных и лабораторного обнаружения возбудителя пациенту К. был поставлен диагноз: B86 — чесотка. Несмотря на то, что пациент находился под медицинским наблюдением на догоспитальном этапе, чесотка не была своевременно диагностирована. Поздняя диагностика чесотки ведет к распространению заболевания и поддержанию неблагоприятной эпидемиологической ситуации.

Ключевые слова: *чесотка, маломобильные пациенты, когнитивные нарушения, зуд, диагностика чесотки*

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Abstract

Scabies is an infectious skin disease caused by the human-specific ectoparasite Sarcoptes scabiei var. hominis. Despite the comprehensive study of scabies, the problem of its timely diagnosis in low-mobility patients with neurological and cognitive impairments remains relevant all over the world. Simultaneous administration of a large number of medications to patients with limited mobility may mask the clinical manifestations of scabies and mistakenly attribute itching to manifestations of skin allergic reactions or other dermatoses. The authors observed patient K., who was admitted in FCBRN of FMBA of Russia from 14.11.2022 to 15.11.2022. Clinical diagnosis upon admission: I69.3. The consequences of a stroke. Early recovery period of ischemic stroke in the basin of the left middle cerebral artery from 09.08.2022, atherothrombotic subtype according to TOAST criteria. Right-sided hemiparesis. Gross aphasia. Violation of the pelvic organs function. RMS 5. Comorbid diseases: arterial hypertension, controlled, the risk of CVE 4 (very high). The target blood pressure is less than 135/85 mmHg. Occlusion of the left anterior cerebral artery, middle cerebral artery. Toxic-allergic dermatitis (medicinal) in the acute phase. Based on a set of clinical data and laboratory detection of the pathogen, patient K. was diagnosed with B86 — scabies. Even though the patient was under medical supervision at the ambulatory step, scabies was not diagnosed timely. Late diagnosis of scabies leads to the spread of the disease and an unfavorable epidemiological situation.

Key words: *scabies, patients with limited mobility, cognitive impairment, itching, diagnosis of scabies*

Conflict of interests

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BP — blood pressure; ALT — alanine aminotransferase; AST — aspartate amino transferase; HMF — higher mental functions; DS BCA — duplex ultrasonography screening of brachiocephalic arteries; CHD– coronary heart disease; BMI — body mass index; chest CT — chest computer tomography; CPK — creatine phosphokinase; LV — left ventricle; HDLPs — high-density lipoproteins; LDLPs — low-density lipoproteins; ARU — anaesthesiology and reanimation unit, AMI — acute myocardial infarction; ACE — acute cerebrovascular event; PTPS — postthrombophlebitic syndrome; EMS– emergency medical service; CVCs — cardiovascular complications; LVEF — left ventricular ejection fraction; CCCH — Central City Clinical hospital; RR — respiratory rate; HR — heart rate; RRS — rehabilitation routing scale

Relevance

Scabies is a contagious skin disease caused by human-specific ectoparasite Sarcoptes scabiei var. hominis. According to the World Health Organisation (WHO), over 200 million of people all over the globe have scabies at the same time [1]. Outbreaks often occur in closed, mostly overcrowded closed institutions [2]. Despite the extensive studies of scabies, the issue of its timely diagnosis in handicapped patients with certain neurological and cognitive disorders is still a burning problem globally [3]. There are several causes for this. On the one hand, clinical manifestations of scabies in this group of patients can be unrepresentative; on the other hand, they can be interpreted as symptoms of other skin diseases. In some neurological disorders, collection of complaints and history is practically impossible, especially if the patient does not have any close relatives who care for them constantly. Prescription of a number of drugs to handicapped patients can obscure clinical signs of scabies, and intense itching can be interpreted as a sign of skin allergies or other dermatoses. Delayed diagnosis of scabies causes spread of the disease and contributes to an unfavourable epidemiological situation.

CASE STUDY

Patient K., 47 years old, was hospitalised to the inpatient unit for the rehabilitation of patients with CNS dysfunctions of the Federal State Budgetary Institution Federal Centre for Brain and Neurotechnology at the Federal Medical and Biological Agency of Russia from 14 November 2022 to 15 November 2022. Clinical diagnosis upon admission: I69.3. Cerebrovascular accident complications. Primary disease: early period of recovery after ishemic stroke in the left medial cerebral artery area dated 09 August 2022, atherothrombotic subtype (TOAST categories). Right-sided hemiparesis. Severe aphasia. Pelvic organs dysfunction. Rehabilitation routing scale (RRS): 5 points. Background diseases: controlled stage III hypertensive disease, 3rd degree; risk of cardiovascular complications (CVCs): 4 (very high). Target blood pressure (BP) is below 135/85 mm Hg. Occlusive disease of the left anterior cerebral artery, medial cerebral artery. Comorbidities: coronary heart disease (CHD), postinfarction cardiosclerosis. Chronic cardiac failure with interim left ventricular ejection fraction (LVEF 42 %), stage IIA, functional class III. Thrombosed postinfarction aneurysm of the left ventricular apex. 50 % stenosis of the right carotid artery. Acute toxic

allergic dermatitis (drug-induced). Suprapubic urinary catheter user from 12 August 2022. Postthrombophlebitic syndrome (PTPS).

Complaints upon admission: collection of complaints and history is challenging due to speech disorders. According to the relatives, the patient has speech disorders, weak right limbs, especially the arm, impaired pelvic organ functions, itching, and skin rash all over the body.

Medical History

According to the medical records and relatives, on 10 August 2022, the patient was found lying on the floor. The emergency medical service (EMS) team transported him to the Reutovo Central City Clinical Hospital (CCCH); brain CT confirmed ishemic stroke in the left medial cerebral artery (MCA) area. The patient was transferred to the Federal Centre for Brain and Neurotechnology on 10 August 2022 for the treatment in the anaesthesiology and reanimation unit (ARU). Examinations: chest computer tomography (chest CT) — bilateral minor hydrothorax; lower limb vein duplex ultrasonography screening — superficial vein thrombosis of the right shank; duplex ultrasonography screening of brachiocephalic arteries (DS BCA) — obliterating atherosclerosis; echocardiography — delated left heart chambers; LVEF 47 %; thrombosed postinfarction aneurysm of the left ventricular (LV) apex. The patient underwent a rehabilitation course at the same institution. Discharged on 14 September 2022 with positive changes.

While in the inpatient unit, in September 2022 the patient developed an unspecified toxic allergic reaction; according to the relatives, the patient was consulted by a dermatologist, who recommended skin care; however, the condition did not improve.

Since the patient had rehabilitation potential, the Clinical Screening Committee at the Federal State Budgetary Institution Federal Centre for Brain and Neurotechnology at the Federal Medical and Biological Agency of Russia decided to hospitalise the patient for rehabilitation on the account of the Federal Compulsory Medical Insurance Fund (FCMIF).

Life History

According to the relatives, the patient had the following conditions: acute myocardial infarction (AMI) — March 2020 (no document were presented), previous acute cerebrovascular accidents (ACE) — denied. History of surgeries: coronary stenting in March–April 2020 (according to the relatives); trocar cystostomy dated 12 August 2022. History of hypertensive disease. Constantly taken medications: apixaban 2.5 mg twice daily; enalapril 10 mg twice daily; cetirizine 10 mg/day; for outward application: clobetasol, emulsion with vitamin E, urea, vitamin A, ceramides. Disability: no; changes in the place of residence: no; bad habits: no.

Epidemiological history. Prior contagious diseases (including TB and TB contacts, infectious hepatitis, STDs — gonorrhea, syphilis, HIV infection) — denied (according to the relatives). The patient did not travel abroad during the past 6 months. The patient did not contact infectious persons and persons with fever, or persons who came from areas with high rates of COVID-19 morbidity.

History of allergies: unspecified toxic allergic reaction, possibly drug-induced (statins, rivaroxaban).

Pre-hospitalisation instrumental examinations are presented in Table 1.

Physical Examination Results upon Admission

Visual examination: overall condition is satisfactory. Height: 186 cm. Weight: 70 kg. Body mass index (BMI): 20.23 mg/m^2.Body temperature: 36.6˚C. Visible mucosa and skin are of normal colour. Widespread rash on limbs, body. Head lice, scabies: absent.

Respiratory organs. The patient breathes naturally.

The chest is hypersthenic.

Respiratory rate (RR) is 17/min. SpO_2 = 99 %. By auscultation, the lung respiration is harsh, even in all sections, without wheeze.

Blood circulation organs. Muffled heart tones, regular rhythm. No heart murmurs. Heart rate (HR) = Ps = 78 bpm. BP: 130/80 mm Hg.

Digestive system. Oral feeding. Th tongue is pink, no plaques. Abdomen is soft, painless. Peritoneal signs are negative. Vermicular movements: observed. No physical signs of liver enlargement; spleen is not palpable. Bowel movements are controlled, regular.

Urinary system. Kidney punch is negative on both sides. Cytostome-assisted urination (according to the relatives, cytostome was replaced on 08 November 2022). By percussion, the fundus of bladder does not protrude over the lap. Diuresis is adequate.

Neurologic State

Cerebral symptoms. Clear consciousness. Contact is challenging due to speech and cognitive disorders. No cerebral symptoms (no complaints of headache, nausea, vomiting).

Higher mental functions. Mixed aphasia with dominating severe motor component. A detailed examination of the higher mental functions (HMFs) is challenging due to speech disorders.

Table 1. *Instrumental studies at the prehospital stage*

Laboratory and instrumental studies	Results
Computed tomography of the chest organs 10.08.2022	without focal or infiltrative pathology
Ultrasound of the veins of the lower extremities 09.11.2022	no signs of thrombosis
Electrocardiography 08.11.2022	sinus rhythm, heart rate 100 per minute, horizontal position of the electrical axis of the heart. Hypertrophy of the left ventricle (LV) QS V1-M3, cicatricial changes of the myocardium without acute focal pathology
Echocardiography 10.08.2022	LV cavity expansion, HLV, EF 42 %, LV apical akinesis with transition to the septum, apical aneurysm with thinning of the walls and the presence of a blood clot in the cavity 19*16 mm, insignificant hydropericardium
General blood test 08.11.2022	hemoglobin 145 g/l hematocrit 44.2 % erythrocytes 4.9×10^{12}/l platelets 303×10^{9}/l leukocytes 8.9×10^{9}/l ESR 16 mm/hour
Biochemical blood analysis 24.11.2022	ALT 20.0 E/L AST 24.0 E/l total bilirubin 13.6 mmol/l glucose 5.01 mmol/l creatinine 68.0 mmol/l urea 6.1 mmol/l potassium 4.3 mmol/l
Lipid profile 24.10.2022	cholesterol 6.03 mmol/l
General urine analysis 02.11.2022	relative density 1011 reaction pH 7.0 protein is absent glucose is absent leukocytes are absent erythrocytes are absent bacteria are detected in the field of vision
Infectious serology 10.08.2022	antibodies to Treponema pallidum (*Treponema pallidum*) total (screening) — negative antibodies to hepatitis C virus (*Hepatitis C virus*) — negative antibodies to human immunodeficiency virus (HIV types 1/2) and antigen p24 — negative HBs-hepatitis B virus antigen (qualitative) — negative
PCR examination 11.11.2022	coronavirus, RNA (SARS-CoV-2, PCR) quality. — not detected coronaviruses similar to SARS-CoV RNA (SARS-CoV, PCR) quality. — not detected

Note: PCR — polymerase chain reaction, ESR — erythrocyte sedimentation rate, RNA — ribonucleic acid, HLV — hypertrophy of the left ventricle, EF — ejection fraction, LV — left ventricle, HIV — human immunodeficiency virus

The meningeal syndrome is not observed. Small meningeal signs, neck stiffness, Kernig's symptom and Brudzinski's reflex are not observed. Photophobia: no.

Sensory system. A detailed assessment of sensory disorders is challenging due to aphasia. Peripheral nerve stretch symptoms (Lasegue's sign, Neri's sign, Wassermann's test, Mazkewitch's test) are negative.

Coordination system. Static ataxia is not observed. Not observed in Romberg's position. Coordination tests (finger-to-nose test, heel-shin test, pointing test, diadochocinesia test) with the right arm are not possible due to paresis; the patient does not do the tests with his leg as he does not understand the instructions. The gait is paretic; the patient can walk on his own with a cane. The patient's walking pace is decreased.

Vegetative system. Dermographism is red. Pilomotor reflex is preserved. Claude Bernard-Horner syndrome is negative.

Examinations in inpatient settings. Taking into account that patient K. had unspecified toxic allergic reaction (according to his relatives), upon admission the attending physician scheduled a consultation by a STD and skin specialist.

Consultation by STD and skin specialist dated 14 November 2022. Status localis: the pathologic process of the skin is widespread; the rash presents as follicular papules on the interdigital spaces of the hands, on the skin of radiocarpal and elbow joints, armpits, outer abdomen, chest, outer and posterior thigh surface, in pubic region (Figure 1).

On hands, papules are paired (Figure 2). The patient presents with multiple excoriations, haemorrhagic scabs (Figures 3, 4). Hair and nails are normal. Skin scraping for itch mite: itch mite confirmed by laboratory tests (Figure 5). A set of clinical and laboratory data on the causative agent helped make a diagnosis: B86 — scabies.

Figure 1. *Follicular papules on the skin in the left armpit*

Figure 2. *Paired follicular papules on the skin in the interdigital spaces of the left hand. The red circle indicates the place from which the scraping on Sarcoptes scabiei var was taken. hominis*

Rehabilitation-limiting factors: suprapubic urinary catheter, scabies. Rehabilitation potential: moderate. The rehabilitation target was not achieved due to an early discharge of the patient for outpatient management.

Pursuant to SanPiN (Sanitary Regulations and Norms) 3.3686-21, Sanitary and Epidemiological Requirements for the Prevention of Infectious Diseases, in order to prevent an outbreak and spread of infectious diseases in Moscow region, sanitary and antiepidemic (preventive) measures were taken in accordance with the sanitary regulations.

The infectious case of the patient K. was notified by phone within 2 hours; the territorial body in charge of the federal state sanitary and epidemiological monitoring at the patient's place of residence was urgently notified in writing within 12 hours. The infectious case was recorded in the infectious disease log.

Pursuant to the Industry Standard "Patient Management Protocol. Scabies" approved by Order of the Ministry of Health of the Russian Federation No. 162 dated 24 April 2003, all contacts were examined. Contacts of the patient were subject to epidemiological follow-up.

Disinfection was conducted to ensure the break of the infection mechanism and to stop the epidemiological process: current and final disinfection, disinvasion, disinfestation.

Figure 3. *The skin pathological process on the outer surface of the abdomen is widespread, rashes are represented by follicular papules, excoriation, hemorrhagic crusts*

Figure 4. *The skin pathological process on the lower extremities is widespread, rashes are represented by follicular papules, excoriation*

Current disinfection was performed in the presence of the patient K. as soon as his disease was confirmed. Current desinfection was performed by the patient's carers once they had been briefed by a medical professional. Current desinfection of the environment was performed over the period from the patient K.'s admission and up to his discharge by the staff of Federal State Budgetary Institution Federal Centre for Brain and Neurotechnology at the Federal Medical and Biological Agency of Russia. Final disinfection was performed after the patient had been isolated at home in accordance with the legislation of the Russian Federation.

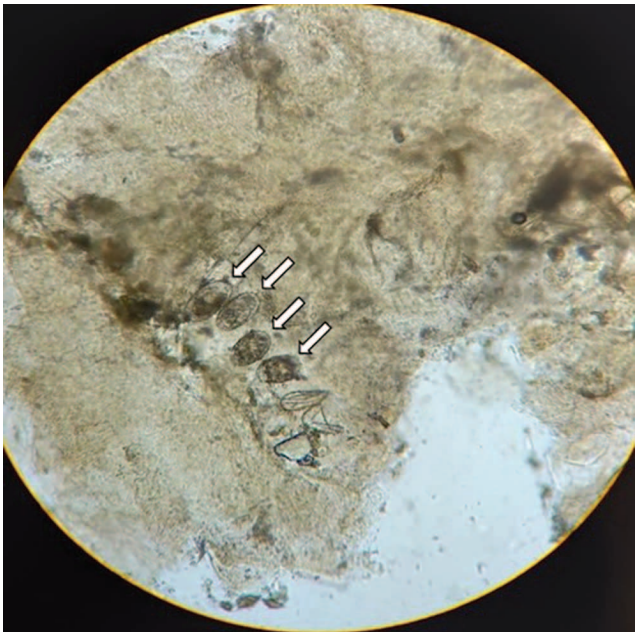

Figure 5. *Scabies mite eggs at various stages of development (white arrows) scraped from the skin in the interdigital space between the thumb and forefinger of the left hand. The location of the scraping is indicated in Figure 2*

Recommendations upon discharge:

1. A diet limiting the intake of easily digested carbohydrates, animal fats. Water intake schedule. Reduction of daily salt intake to 3 g. Reduction carbohydrate intake. Low-cholesterol diet. Nutritious diet (increased intake of seasonal fruits and vegetables).
2. BP, HR monitoring, self-assessment diary (morning, evening), diuresis monitoring. Antihypertensive therapy: Enalapril 5 mg twice daily (morning/evening). Bisoprolol 2.5 mg in the morning. Spironolactone 25 mg in the morning. Follow-up by cardiologist at the place of residence.
3. Anticoagulant therapy: Apixaban 2.5 mg twice daily.
4. Lipid-lowering therapy: Atorvastatin 40 mg once daily in the evening. Blood biochemistry (alanine aminotransferase (ALT), aspartate amino transferase (AST), creatine phosphokinase (CPK), cholesterol, high-density lipoproteins (HDLPs), low-density lipoproteins (LDLPs), triglycerides) in a month; once every 3–6 months.
5. Recommendations by the STD and skin specialist: prior to treatment initiation, the patient should take a warm shower using soap, trying to steam out the skin as much as possible in order to enhance medication penetration, and dry the skin with a towel.

Day 1: 200 mL of benzyl benzoate emulsion 20 % should be thoroughly rubbed in the skin of arms/hands, then of the body and legs, including feet, toes, and external sex organs. Do not wash hands for 3 hours after the procedure; rub in the medication on hands every time you wash your hands. Put on clean underwear and change your bedding.

Days 2 and 3: do not apply ointment, do not wash youself, do not change underwear and bedding.

Day 4: take a shower in the morning using soap, dry yourself with a towel, then thoroughly rub 200 mL of benzyl benzoate emulsion 20 % in the skin of arms/hands, then of the body and legs, including feet, toes, and external sex organs. Put on clean underwear and change your bedding.

Day 5: wash the remaining medication away with warm water and soap; do not rub your skin. Change underwear and bedding.

The healing (repeated scraping) should be checked by the STD and skin specialist at the patient's place of residence on day 3 and 10 after therapy completion.

Discussion

The presented case study demonstrates the peculiarities of the somatic and mental health of the patient that resulted in delayed diagnosis of scabies. It is obvious that primary healthcare professionals should be made aware of possible skin conditions in handicapped persons in order to improve the routing of patients and provide for timely preventive measures.

The intensive scabies morbidity in the Russian Federation in 2011 was 45.9 cases per 100,000 people [4]. In 2017, scabies morbidity was 15.5 cases per 100,000 people; while in 2018 it was 15.0 cases [5]. The actual scabies morbidity might be higher, since diagnosis errors alter the statistics, and late diagnosis causes delays in antiepidemic measures in the focal areas.

In 2011–2014 in the Russian Federation, the scabies morbidity in the age group of 40+ years old demonstrated an almost 2-fold increase [6]. There is no information on scabies morbidity in handicapped patients with cognitive disorders in the Russian Federation. Both Russian [7] and foreign authors [8, 9] point out delayed scabies diagnosis in elderly patients with cognitive disorders. One of the main reasons for long-term immobilisation of patients is cerebrovascular disorders; also, patients have comorbidities which interfere with timely diagnosis of other pathologies. Impaired social functioning aggravates the course of scabies, contributes to its late diagnosis, especially in multiple comorbidities and abnormal clinical progression. Delayed scabies diagnosis in handicapped patients with cognitive disorders is caused by a number of factors: challenging collection of complaints and history, atypical clinical progression, diagnosis errors and inattention by medical professionals, impaired social functioning, social factors, including lower material welfare and poor personal hygiene to a number of reasons, e.g., handicapped status. Despite the fact that the patient K. was followed up at the pre-hospital stage, scabies was not timely diagnosed. According to current observations, a visiting GP (general practitioner) follows up 350–400 handicapped patients, while a nurse follows up 150–200 such patients. On the average, a GP visits a handicapped patient four times a year, while nursing staff — 12 times a year. It is recommended to visit post-ACE patients more frequently. On the average, a GP examines a handicapped patient twice a quarter [10]. A retrospective analysis of 2803 medical records of patients who died in a multidisciplinary inpatient clinic in Moscow in 2011–2012, including 10 % of long-term handicapped patients, demonstrates that every fifth handicapped patient is examined by a GP once every 2–4 months, 27 % of patients are examined more rarely. 33 % patients were examined by a GP once every month; and the example of the patient [11] shows that this is not enough.

We can assume that the patient got infected in September 2022, when first itching rash appeared; however, scabies was diagnosed as late as on 14 November 2022. Cassell J.A. et al. conducted a prospective study to identify scabies in ten care homes accomodating 430 persons. Median age was 86.9 (interquartile range: 81.5–92.3) years; 76 % were women; 68 % of patients had dementia. All patients had various comorbidities: cancer, diabetes mellitus, impaired nutrition, use of corticosteroids. Confirmed, possible or potential scabies was diagnosed in 27 % of examined patients. The highest morbidity was recorded in the age group of 90–94 years old (30 %). 31 patients with confirmed scabies did not complain of itching, rash or scratching; 24 of them had dementia. Researchers concluded that dementa (odd ratio 2.37, 95 % confidence interval 1.38–4.07) is a risk factor for scabies in care homes. The staff failed to see skin manifestations in 12 patients who were later diagnosed with scabies. Median time from infection to confirmed diagnosis was 22 (interquartile range, 7.5–186) days [12]. In order to standartise the diagnostics of scabies, in 2020 the Alliance for the Control of Scabies (IACS) suggested scabies diagnosis criteria which inclide three levels of diagnostic accuracy: confirmed scabies with visualisation of itch mite or its products (level A), clinical scabies (level B), and suspected scabies (level C) [13]. However, these criteria are not designed for the diagnosis of atypical scabies, crusted scabies, scabies in persons with compromised immunity, scabies in elderly persons, scabies in persons with cognitive disorders, and scabies in bed-bound patients. New, more accurate and simple

diagnostic methods and criteria for Sarcoptes scabiei var. hominis are required. Prevention of scabies in handicapped persons with cognitive disorders has huge social significance; the primary task is to break path of infection transmission from contagious patients to healthy individual. This problem can be resolved easier with the participation of patient's relatives and coordination of medical and non-medical efforts. A contagious person can spread the disease even in the absence of any symptoms. The probability of disease transmission is the highest in direct and close skin-to-skin contact, i.e., among family members. Contacts are recommended to undergo preventive therapy simultaneously with the patient in order to minimise the risk of re-infection [4, 14]. In some endemic heavily populated islands (Fiji), positive experience with the use of Ivermectin for mass therapy and prevention of scabies was described [15, 16]. Literature sources describe development of scabies vaccines [17]. In the Russian Federation, prevention of scabies is performed in accordance with SanPiN 3.3686-21, Sanitary and Epidemiological Requirements for the Prevention of Infectious Diseases: contacts are treated in their households and organised groups with a 2-week follow up and two examinations (when the disease is diagnosed and in two weeks).

Conclusion

Challenges with collection of complaints and history, abnormal clinical progression, multiple comorbidities, and slow augmentation of symptoms in handicapped persons with cognitive disorders hinder early scabies diagnosis and facilitate the spread of this contagious skin disease. In order to prevent outbreaks of scabies, rigorous observation of all sanitary rules and regulations of the Russian Federation is essential. Medical professionals should be more vigilant about patients with impaired social functioning in order to prevent diagnostic errors. Special attention should be paid to the hygiene of skin and cutaneous appendages, a set of additional measures for improvement of the quality of life and prevention of complications.

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Список литературы/ References:

1. Всемирная организация здравоохранения. Чесотка. Информационный бюллетень. [Электронный ресурс]. URL: https://www.who.int/ru/news-room/fact-sheets/detail/scabies (дата обращения: 02.12.2022).
   World Health Organization. Scabies. Fact sheets. [Electronic resource]. URL: https://www.who.int/ru/news-room/fact-sheets/detail/scabies (date of the application: 02.12.2022) [In Russian].
2. Соколова Т.В., Гладько В.В., Малярчук А.П. и др. Чесотка: теневая сторона официальной статистики. Медицинский вестник МВД. 2020; 4(107): 68-76.
   Sokolova T.V., Gladko V.V., Malyarchuk A.P., et al. Scabies: the seamy side of official statistics. Meditsinskiy vestnik MVD. 2020; 4(107): 68-76 [In Russian].
3. Тлиш М.М., Кузнецова Т.Г., Наатыж Ж.Ю. и др. Социально-эпидемиологические особенности чесотки у геронтологических больных. Русский Медицинский Журнал. 2022; 3: 55–58.
   Tlish M.M., Kuznetsova T.G., Naatyzh Zh.Yu., et al. Social epidemiological pattern of scabies in gerontological patients. Russian Medical Journal. 2022; 3: 55–58 [In Russian].
4. Клинические рекомендации. Чесотка. 2016; 23 с. [Электронный ресурс]. URL: https://cr.minzdrav.gov.ru/recomend/245_1. (дата обращения: 02.12.2022).
   Clinical recommendations. Scabies. 2016; 23 p. [Electronic resource]. URL: https://cr.minzdrav.gov.ru/recomend/245_1. (Date of the application: 02.12.2022) [In Russian].

5. Ресурсы и деятельность медицинских организаций дерматовенерологического профиля. Заболеваемость инфекциями, передаваемыми половым путем, заразными кожными болезнями и заболеваниями кожи за 2017-2018 годы (статистические материалы). М. 2019; 208 с.
Resources and activities of medical organizations of dermatovenerological profile. The incidence of sexually transmitted infections, infectious skin diseases and skin diseases for 2017-2018 (statistical materials). M. 2019; 208 p. [In Russian].
6. Иванова М.А. Заболеваемость чесоткой в различных возрастных группах населения Российской Федерации в 2010—2014 гг. Клиническая дерматология и венерология. 2016; 15(4): 4-8. DOI: 10.17116/klinderma20161544-8.
Ivanova M.A. The incidence of scabies in various age groups of the population of the Russian Federation in 2010—2014. Klinicheskaya Dermatologiya i Venerologiya. 2016; 15(4): 4-8. DOI: 10.17116/klinderma20161544-8 [In Russian].
7. Щава С.Н., Русинов В.И., Мещерякова К.Э. и др. Современные особенности течения чесотки у лиц старческого возраста. Лечебное дело. 2021; (1): 117-120. DOI: 10.24412/2071-5315-2021-12297.
Shchava S.N., Rusinov V.I., Meshcheryakova K.E., et al. Modern features of the course of scabies in elderly people. Lechebnoe delo. 2021; (1): 117-120. DOI: 10.24412/2071-5315-2021-12297 [In Russian].
8. Thomas C., Coates S.J., Engelman D., et al. Ectoparasites: Scabies. J Am Acad Dermatol. 2020; 82(3): 533-548. DOI: 10.1016/j.jaad.2019.05.109.
9. Arora P., Rudnicka L., Sar-Pomian M., et al. Scabies: A comprehensive review and current perspectives. Dermatol Ther. 2020; 33(4): e13746. doi: 10.1111/dth.13746.
10. Атаева Н.Б., Белостоцкий А.В., Гришина Н.К. и др. Организация патронажной медицинской помощи маломобильным пациентам. Проблемы социальной гигиены, здравоохранения и истории медицины. 2020; 28(2): 306-309. DOI:10.32687/0869-866X-2020-28-2-306-309.
Ataeva N.B., Belostotsky A.V., Grishina N.K., et al. The organization of home-nursing medical care of patients with limited mobility. Probl Sotsialnoi Gig Zdravookhranenniiai Istor Med. 2020; 28(2): 306-309. DOI:10.32687/0869-866X-2020-28-2-306-309 [In Russian].
11. Вёрткин А.Л., Шевцова В.А., Сокол А.А. и др. Маломобильный пациент: критический анализ ситуации. Кардиология и ангиология. 2014; 1(8): 10-15
Vyortkin A.L., Shevtsova V.A., Sokol A.A., et al. Patients with reduced mobility: critical analysis of situation. Kardiologiya i angiologiya. 2014; 1(8): 10-15 [In Russian].
12. Cassell J.A., Middleton J., Nalabanda A., et al. Scabies outbreaks in ten care homes for elderly people: a prospective study of clinical features, epidemiology, and treatment outcomes. Lancet Infect Dis. 2018; 18(8): 894-902. DOI: 10.1016/S1473-3099(18)30347-5.
13. Engelman D., Yoshizumi J., Hay R.J., et al. The 2020 International Alliance for the Control of Scabies Consensus Criteria for the Diagnosis of Scabies. Br J Dermatol. 2020; 183: 808-820. DOI: 10.1111/bjd.18943.
14. Rosumeck S., Nast A., Dressler C. Ivermectin and permethrin for treating scabies. Cochrane Database Syst Rev. 2018; 4(4): CD012994. DOI: 10.1002/14651858.CD012994.
15. Engelman D., Steer A.C. Control Strategies for Scabies. Trop Med Infect Dis. 2018; 3(3): 98. DOI:10.3390/tropicalmed3030098.
16. Lake S.J., Kaldor J.M., Hardy M., et al. Mass Drug Administration for the Control of Scabies: A Systematic Review and Meta-analysis. Clin Infect Dis. 2022; 75(6): 959-967. DOI:10.1093/cid/ciac042.
17. El-Moamly A.A. Scabies as a part of the World Health Organization roadmap for neglected tropical diseases 2021-2030: what we know and what we need to do for global control. Trop Med Health. 2021; 49(1): 64. DOI:10.1186/s41182-021-00348-6.