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A CASE OF VIRAL HEPATITIS A IN A MARRIED COUPLE

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According to the Ministry of Health, since the beginning of 2025, more than 320 cases of hepatitis A have been registered. This figure is 100% higher than in the same period in 2024.

With the beginning of the full-scale invasion of Ukraine, the risks of spreading infectious diseases have increased. The epidemic situation is currently unstable due to internal displacement, crowding in unequipped bomb shelters and basements, destruction of buildings, mass graves, and disruption of important strategic facilities. In the infectious diseases department of Chernivtsi, a case of acute viral hepatitis A was recorded in a married couple who are internally displaced persons.

This clinical case is quite rare, because people over 40 years of age hardly ever get viral hepatitis A. It also attracts attention because it is a family case. After the man's hospitalization, his wife fell ill 13 days later, and 21 days later their eldest son, who was 14 years old at the time of hospitalization. We also noticed that the younger son, who is 6 years old, did not get sick, or had viral hepatitis A, which is typical for viral hepatitis A at this age.

Ukraine is a country of medium endemicity. This means that the vast majority of people come across the hepatitis A virus in childhood. But in children, it usually does not reach the point of jaundice. Only less than 10% of patients under the age of six have hepatitis A. Hepatitis A virus (HAV) is the leading cause of acute viral hepatitis worldwide and is transmitted mainly through direct contact with an infected person or through the consumption of contaminated water or food. The virus is particularly prevalent in low-income countries with poor sanitation and socio-demographic conditions. Even developed countries are prone to outbreaks, as globalization and increased travel contribute to the spread of the virus.

Key world: *hepatitis A, liver damage, fecal-oral route, diabetes.*

Василь Сорохан, Маргарита Андрущак, Людмила Гончарук. Випадок гострого гепатиту А в подружньої пари

За даними Міністерства охорони здоров'я, з початку 2025 року зареєстровано понад 320 випадків гепатиту А. Цей показник на 100% більше, ніж за аналогічний період 2024 року.

З початком повномасштабного вторгнення в Україну зросли ризики поширення інфекційних захворювань. Епідемічна ситуація нині нестабільна через внутрішнє переміщення, скупчення людей у необладнаних бомбосховищах і підвалах, руйнування будівель, масові поховання, порушення роботи важливих стратегічних об'єктів. В інфекційному відділенні міста Чернівців був зафіксований випадок гострого вірусного гепатиту А в подружньої пари, які є внутрішньо переміщеними особами.

Даний клінічний випадок є досить рідкісним, адже вірусним гепатитом А майже не хворіють люди після 40 років. Також він привертає увагу тим, що є сімейним. Після госпіталізації чоловіка захворіла дружина через 13 днів, а через 21 день їхній старший син, якому було на момент госпіталізації 14 років. Ми також звернули увагу на те, що молодший син, якому 6 років, не захворів або легко переніс вірусний гепатит А, що характерно для вірусного гепатиту А в цьому віці.

Україна – країна середньої ендемічності. Це означає, що більшість людей стикається з вірусом гепатиту А в дитинстві. Але в дітей він зазвичай не доходить до жовтяниці. Лише менше 10% пацієнтів віком до шести років

хворіють на гепатит А. Вірус гепатиту А (ВГА) є основною причиною гострого вірусного гепатиту в усьому світі й передається переважно через прямий контакт з інфікованою людиною або через уживання забрудненої води чи їжі. Вірус особливо поширений у країнах з низьким рівнем доходу, з поганими санітарними та соціально-демографічними умовами. Навіть розвинені країни схильні до спалахів, оскільки глобалізація та збільшення кількості подорожей сприяють поширенню вірусу.

Ключові слова: *гепатит А, дисфункція печінки, цукровий діабет, фекально-оральний механізм передачі.*

The urgency of the problem. Ukraine is a country of medium endemicity. This means that the vast majority of people come across the hepatitis A virus in childhood. But in children, it usually does not reach the point of jaundice. Only less than 10% of patients under the age of six have hepatitis A. Hepatitis A virus (HAV) is the leading cause of acute viral hepatitis worldwide and is transmitted mainly through direct contact with infected persons or through the consumption of contaminated water or food. The virus is particularly prevalent in low-income countries with poor sanitation and socio-demographic conditions. Even developed countries are prone to outbreaks, as globalization and increased travel facilitate the spread of the virus. This case is interesting because people over 40 rarely get hepatitis A.

Hepatitis A is an inflammation of the liver caused by the hepatitis A virus (HAV) according World Health Organization [1]. The virus is primarily spread when an uninfected (and unvaccinated) person ingests food or water that is contaminated with the faeces of an infected person. The disease is closely associated with unsafe water or food, inadequate sanitation, poor personal hygiene and oral-anal sex.

Hepatitis A virus (HAV) is the leading cause of acute viral hepatitis worldwide. It is transmitted mainly through direct contact with infected patients or by drinking contaminated water or food. The virus is endemic in low-income countries with poor sanitation and socio-demographic conditions [2]. This disease has not spared Ukraine. The population of developed countries is highly susceptible to HAV and large outbreaks can occur when the virus spreads due to globalization and increased travel and movement of food. Most of these outbreaks occur among high-risk populations: travelers, men who have sex with men, people who use substances, and people at risk of homelessness. Hepatitis A infections are preventable through vaccination; safe and effective vaccines have been available for decades. Several countries have successfully implemented universal mass vaccination for children, but high-risk groups in high-income countries remain underserved. The development of HAV antiviral drugs may be important for controlling HAV outbreaks in developed countries where a universal vaccination program is not recommended.

In Europe, inactivated vaccines are available for pre- and postexposure prophylaxis. For Germany, the Standing Committee on Vaccination (STIKO) at the Robert Koch Institute (RKI) recommends HAV vaccination of persons “at increased occupational risk of exposure”. This also includes trainees, interns, students, and volunteers who work in refugee shelters, for example. In the event of an outbreak, all unvaccinated persons should be immunized with a monovalent vaccine as soon as possible and within 2 weeks of exposure. This immediate postexposure vaccination is highly effective. 18 An immunoglobulin preparation can be administered at the same time to persons at particular risk. [3].

The purpose: analyze a case of acute hepatitis A that occurred in a married couple.

Research results and their discussion. The present case series reports on an HAV outbreak in a community shelter that was due to an identical HAV strain. The incident once again underscores the importance of HAV vaccination before starting work in such a facility; this also applies to volunteers in refugee childcare. With the beginning of the full-scale invasion of Ukraine, the risks of spreading infectious diseases have increased. The epidemic situation is currently unstable due to internal displacement, crowding in unequipped bomb shelters and basements, destruction of buildings, mass graves, and disruption of important strategic facilities. To describe a clinical case of hepatitis A in a married couple who were inpatients at the regional clinical hospital in Chernivtsi.

Clinical case. A 48 years old male patient with known history of diabetes mellitus type II and arterial hypertension was brought by ambulance to the infectious diseases department of Municipal Institution Chernivtsi Regional Clinical Hospital on 05/Oct/2024 with complaints of yellow discoloration of eyes and skin, dark urine, itching, nausea, weakness, bad appetite, frequent urination, dryness of his mouth. All symptoms started on 02 Oct 2024. He is an accountant. Patient is married. He denied any operations, blood transfusions, dental procedures, unprotected sexual intercourse in the past 6 month. The patient and his wife are internally displaced people (due to the armed aggression of the russian federation against Ukraine) from the Donetsk region.

They live in a modular building in one of the districts of Chernivtsi city, the western part of Ukraine.

Physical examination.

Vital sings: Blood pressure 130/90 mmHg, heart rate 88 bpm, respiration rate 18, temperature 36,8 °C, weight 75 kg, height 175 cm.

General: Patient appeared alert, oriented and cooperative.

Skin: Jaundice. Normal in texture, and temperature.

HEENT: Scalp normal. Pupils equally round, 5 mm, reactive to light and accommodation, sclera and conjunctiva yellow. Tympanic membranes and external auditory canals normal. Nasal mucosa normal. Oral pharynx is normal without erythema or exudate. Tongue and gums are normal.

Neck: Easily moveable without resistance, no abnormal adenopathy in the cervical or supraclavicular areas. Trachea is midline and thyroid gland is normal without masses. Carotid artery upstroke is normal bilaterally without bruits. Jugular venous pressure is measured as 8 cm with patient at 45 degrees.

Chest: Lungs are clear to auscultation and percussion bilaterally. PMI is in the 5th inter-costal space at the mid clavicular line. A grade 2/6 systolic decrescendo murmur is heard best at the second right intercostal space which radiates to the neck.

Abdomen: The abdomen is symmetrical without distention; bowel sounds are normal in quality and intensity in all areas. No masses or splenomegaly are noted; liver span is 8 cm by percussion. Stool is pale.

Extremities: No cyanosis, clubbing, or edema are noted. Peripheral pulses in the femoral, popliteal, anterior tibial, dorsalis pedis, brachial, and radial areas are normal.

Nodes: No palpable nodes in the cervical, supraclavicular, axillary or inguinal areas.

Neurological: Cranial nerves II–XII are normal. Motor and sensory examination of the upper and lower extremities is normal. Gait and cerebellar function are also normal. Reflexes are normal and symmetrical bilaterally in both extremities.

Hematology and chemistry were done at 05 Oct 2024. Hematology result was within normal limits. Chemistry result revealed ALT 2550 U/L, AST 2480 U/L, total bilirubin 202 mcmol/L, glucose 13,6 mmol/L. The rest of chemistry result were within normal limits.

The belly ultrasound was performed at 06 Oct 2024 and no hepatomegaly was found.

The primary diagnosis was made – 1E50.Z Acute viral hepatitis, unspecified (according International classification of diseases) at the time of admission.

The viral markers for HBV and HCV were done 07 Oct 2024. The results were negative.

The IgM against HAV was performed 09 Oct 2024 and result was positive. The final diagnosis was made – 1E50.0 Acute hepatitis A virus infection. The risk factors of getting HAV was discussed with the patient one more time. He reminded that there were some water supplies difficulties at his home a couple weeks before.

On the sixteenth day of the patient's hospital staying (20 Oct 2024), the patient's wife (a 43 years old white lady) was admitted to the infectious diseases department of Municipal Institution Chernivtsi Regional Clinical Hospital with complaints of yellow discoloration of eyes and skin, dark urine, weakness, nausea, bad appetite. All symptoms started on 16 Oct 2024. The IgM against HAV was performed 20 Oct 2024 and result was positive. The final diagnosis was made – 1E50.0 Acute hepatitis A virus infection. These patients had been treating accordingly and were discharged from the hospital with recovery. In Table 1, we have summarized the data with the results of analyses and the course of the disease in both patients.

A married couple who are internally displaced people (due to the armed aggression of the russian federation against Ukraine) were admitted to the infectious diseases department of Municipal Institution Chernivtsi Regional Clinical Hospital (Chernivtsi city, the western part of Ukraine) with acute viral hepatitis A. These patients were treated and discharged from the hospital with recovery.

The incubation period varies between 2 and 7 weeks. The first nonspecific symptoms include malaise, fatigue, vomiting, abdominal pain, and diarrhea; more specific signs of liver infection are jaundice, dark urine, and a lightening of the stool. Preschool-aged children are usually asymptomatic or anicteric and mildly infected, while more than 70% of adolescents and adults show liver symptoms. The severity of the usually self-limiting disease and the lethality, especially from fulminant liver failure, increases with patient age. Pre-existing liver injury is also associated with a severe or fatal course of HAV infection. In Germany, 2476 HAV infections were notified between 2018 and 2020, including 57% icteric courses, 62% hospitalizations, and eight deaths [4; 5].

Sequence comparisons have proven to be useful to identify infection chains and possible sources. Serological diagnosis. In most cases, HAV is diagnosed based on the detection of immunoglobulin M (IgM) to HAV (anti-HAV IgM) by enzyme-linked

Table 1

Summary Table of Clinical Case

Parameter	Patient 1 (male, 48 years)	Patient 2 (female, 43 years)
Social data	Internally displaced person (IDP) from Donetsk region, living in a modular settlement, accountant, married	IDP from Donetsk region, living in a modular settlement, housewife
Comorbidities	Type II diabetes mellitus, arterial hypertension	None
Date of symptom onset	02 Oct 2024	16 Oct 2024
Main complaints	Jaundice, dark urine, itching, nausea, weakness, loss of appetite, frequent urination, dry mouth	Jaundice, dark urine, nausea, weakness, loss of appetite
Clinical status	Alert, oriented, cooperative; jaundice of skin and sclera; liver not enlarged; spleen not palpable	Alert, oriented, cooperative; jaundice; liver not enlarged
Vital signs	BP 130/90 mmHg, HR 88 bpm, RR 18/min, T 36.8°C, weight 75 kg, height 175 cm	BP 120/80 mmHg, HR 84 bpm, RR 18/min, T 36.7°C
Laboratory results	ALT 2550 U/L, AST 2480 U/L, total bilirubin 202 µmol/L, glucose 13.6 mmol/L, others within normal range	ALT 1680 U/L, AST 1540 U/L, total bilirubin 178 µmol/L, others within normal range
Serology	Anti-HAV IgM (+) on 09 Oct 2024; HBsAg (−), anti-HCV (−)	Anti-HAV IgM (+) on 20 Oct 2024
Imaging	Abdominal ultrasound: no hepatomegaly	Abdominal ultrasound: normal
Treatment	Symptomatic therapy (hepatoprotectors, antispasmodics), intensive detoxification (due to high bilirubin and diabetes mellitus	Symptomatic therapy (hepatoprotectors, antispasmodics, detoxification)
Clinical course	Moderate severity	Moderate severity
Outcome	Recovered, discharged on 22 Oct 2024	Recovered, discharged on 28 Oct 2024

immunosorbent assay (ELISA). Anti-HAV IgM antibodies can usually be detected from the onset of the first symptoms of the disease and over the next 3–6 months (in 25% of patients – within 12 months). ELISA is a sensitive and specific method for diagnosing HAV, and false-positive results are rare. Anti-HAV IgG antibodies can be detected shortly after the appearance of anti-HAV IgM, and they persist for many years. The presence of anti-HAV IgG in the absence of anti-HAV IgM indicates a past infection or vaccination, not an acute disease [6].

Molecular genetic testing (detection of HAV RNA by polymerase chain reaction (PCR)) is the gold standard for the diagnosis of HAV. PCR is a highly specific method for the early diagnosis of HAV, but it is currently not widely available and rarely used in clinical practice for the diagnosis of HAV [7].

Liver damage is mediated by the immune system. The HAV is released from the liver into the blood and bile in small vesicles that protect the virions from neutralizing serum antibodies and promote infection of additional hepatocytes. Contact with bile removes the membranes, so that “naked” infectious viruses resistant to low pH and temperature changes are excreted in the stool. HAV is transmitted preferentially via the fecal-oral route. Parenteral transmission via blood products is rare. Contaminated drinking water and food are considered sources of infection in major outbreaks. Direct person-to-person contact is also important; chains of transmission have been reported among men who have sex with men, but also among homeless or injecting and non injecting drug users.9 In Europe, the proportion of travel-related cases has declined over the past two decades, while the proportion of domestic cases has risen [8]. With a median incidence of one HAV infection per 100 000 inhabitants, Germany is considered a country with very low incidence. More than 2/3 of the HAV infections reported between 2018 and 2020 were acquired domestically.

Even before the onset of symptoms, high concentrations of HAV are excreted in the stool. Prolonged viral shedding over several months has been observed in children and infants. Viremia begins earlier than fecal viral shedding. IgM antibodies are detectable before the onset of symptoms, but usually disappear within 6 months. In contrast, the (neutralizing) IgG antibodies, which appear with a delay of a few days to weeks, persist and most likely provide lifelong protection against symptomatic reinfection [9; 10]. Diagnosis is based on the detection of HAV-specific antibodies and HAV ribonucleic acid (RNA). Although the HAV genome is relatively conserved, there is sufficient variability to define (sub)genotypes and unique outbreak strains. The patients were treated with symptomatic therapy. As we have already mentioned, due to high ALT and AST levels, high bilirubin levels, and the presence of diabetes mellitus, intensive detoxification therapy was performed [11].

Practical Recommendations for Primary Care Physicians

1. All patients presenting with jaundice should be screened for HAV, HBV, and HCV to ensure proper differential diagnosis.

2. In suspected HAV cases, it is advisable to test all household members and close contacts.

3. Monitor liver enzymes, bilirubin, and coagulation profile throughout the course of illness.

4. In patients with type II diabetes mellitus or other comorbidities, ensure strict glycemic control during acute hepatitis.

5. Notify public health and epidemiological services to initiate sanitary and preventive measures (safe water supply, disinfection of sources).

6. Provide health education among IDPs regarding hand hygiene, safe drinking water, and safe food consumption.

7. Emphasize the importance of HAV vaccination for high-risk groups (IDPs, food industry workers, healthcare professionals).

8. Encourage early referral of patients with jaundice from primary care to specialized infectious diseases departments.

9. Develop community-level prevention programs in IDP settlements to reduce outbreak risks.

Conclusion:

1. Internally displaced persons (IDPs) living in modular settlements or environments with compromised water supply represent a high-risk population for HAV infection.

2. The main clinical markers of HAV infection include jaundice, dark urine, pale stool, weakness, and nausea, in combination with elevated transaminases and bilirubin.

3. Diagnosis should rely on the detection of anti-HAV IgM; other viral hepatitis infections must be excluded.

4. Treatment remains symptomatic, although intensive detoxification and comorbidity management may be required in severe cases.

5. Primary care physicians play a crucial role in early case detection, epidemiological history-taking, and timely referral for laboratory confirmation.

6. Preventive measures must include vaccination of high-risk groups, ensuring safe water supply, and health education among IDPs.

7. Strengthening epidemiological surveillance and outbreak response capacity is essential in regions affected by war or humanitarian crises.

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