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CLINICAL CASE OF INFECTIVE ENDOCARDITIS IN IV DRUG ABUSER

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Infective endocarditis in intravenous drug abuser is reviewed on the example of clinical case. Clinical examination, the clinical diagnosis, recommendations for surgical treatment, choice of optimal therapy are outlined in patient with infective endocarditis. The features of infective endocarditis in IV drug abused patients were studied.

KEY WORDS: infective endocarditis, drug abuser, pharmacotherapy, treatment, disease prevention

КЛІНІЧНИЙ ВИПАДОК ІНФЕКЦІЙНОГО ЕНДОКАРДИТУ У НАРКОМАНА

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Інфекційний ендокардит у внутрішньовенного наркомана розглядається на прикладі клінічного випадку. Клінічне обстеження, клінічний діагноз, рекомендації з оперативного лікування, вибір оптимальної терапії описані у пацієнта з інфекційним ендокардитом. Вивчені особливості течії інфекційного ендокардиту у внутрішньовенних наркоманів.

КЛЮЧОВІ СЛОВА: інфекційний ендокардит, зловживання наркотиками, фармакотерапія, лікування, профілактика захворювання

КЛИНИЧЕСКИЙ СЛУЧАЙ ИНФЕКЦИОННОГО ЭНДОКАРДИТА У НАРКОМАНА

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Инфекционный эндокардит у внутривенного наркомана рассматривается на примере клинического случая. Клиническое обследование, клинический диагноз, рекомендации по оперативному лечению, выбор оптимальной терапии описаны у пациента с инфекционным эндокардитом. Изучены особенности течения инфекционного эндокардита у внутривенных наркоманов.

КЛЮЧЕВЫЕ СЛОВА: инфекционный эндокардит, злоупотребление наркотиками, фармакотерапия, лечение, профилактика заболевания

INTRODUCTION

Infective endocarditis (IE) – defined as an infection of the endocardial surface of the heart, which may include one or more heart valves, the mural endocardium, or a septal defect. IE still remains a diagnostic challenge because of its diverse nature and evolving epidemiological profile. The clinical picture of IE differs much depending on causative microorganism, pre-existing cardiac disease, the presence or absence of prosthetic valves or cardiac devices have their influence too. Because of that, diagnosis IE should be suspected in different clinical situations [1].

Between all cases of IE, right-sided disease accounts about 5–10 %. Right-sided EI is the most frequent for intravenous drug abusers (IVDAs), especially in patients with concomitant human immunodeficiency virus or in immunosuppressed patients [2, 3]. In case of IE of the right heart side, the tricuspid valve will be an affected part of the valvular system, but other valves may be infected too [4]. Right-sided IE in IVDA patients with tricuspid valve vegetations greater than 2 cm in diameter [5] and present acute respiratory distress syndrome [6] usually have higher mortality than the same patients with involvement in the pathological process other heart parts. The most appropriate

theory of IE development in IVDA is based on understanding that caused by bacterial «bombardment» endothelial damage of the tricuspid valve [6]. The usual clinical signs and symptoms of right-sided IE are persistent fever, bacteraemia and multiple septic pulmonary emboli, which may onset as chest pain with cough or haemoptysis. When systemic emboli happens, paradoxical embolism or associated left-sided IE should be suspected. Despite its rare frequency, isolated right HF can be caused by pulmonary hypertension or severe right-sided valvular regurgitation [4]. Tricuspid IE usually easy to observe because of the anterior position of this valve and large vegetations in diameter nature [7].

CLINICAL CASE

Man, 24 years old, unemployed, resident of urban area.

COMPLAINTS

Patient was admitted to the hospital with complains on dyspnea, impossibility of deep inhale, increasing of body temperature above 38°C, palpitation, edemas of low extremities, icteric skin color.

ANAMNESIS MORBI

05 – September – 2015 was delivered by ambulance in the therapy department after infectious diseases specialist consultation with diagnosis: Community – acquired 2-sided pneumonia. Chronic toxic hepatitis. Secondary enteropathy. Sepsis?

10 days before admission patient felt bad, first time was appeared high body temperature till 39 °C, yellowish color of skin, palpitation. Ambulance was called, didn't visit local family doctor.

Previously was drug addict (IV drugs injections).

ANAMNESIS VITAE

Patient lives with mother and brother in an isolated apartment. He eats irregularly, does not follow any diet.

Childhood infections, injuries, tuberculosis, sexually transmitted diseases were denied by patient. Hereditary diseases are not identified. Allergic history is not burdened.

Smoker during 5 years, do not abuse alcohol.

2013 – appendectomy.

OBJECTIVE EXAMINATION

Patient's condition is severe, consciousness - clear, body position - lying on his back. Patient can orientate himself in place, time, his personality. Yellowish skin and mucosae, herpes labialis. Lobes of the thyroid gland are not palpable, the isthmus is palpated in the form of a uniform cross-strand smooth, 0.5 cm wide. Musculoskeletal system – no pathological changes. BR – 24–26/min, Sp O₂ – 91–92 %. There was found a dullness below scapula angles from both sides during percussion, weak breathing, whizzing in upper parts, crepitation – lower parts 2-sided in auscultation. Activity of the heart was rhythmic, 120 bts/min. Borders of the heart: right border – outside of midsternal right line on 2cm. Heart sounds were rhythmic, muffled, systolic murmur in IV point of auscultation. BP 80/40 mm Hg. Abdomen: normal size, symmetric, pain during palpation in right hypochondrium. Liver margin was 3 cm below right rib cage, painless. The spleen palpated 1 cm below the left costal arch. Pasternatsky's symptom is negative on both sides. Physiological functions: liquid stool, 2–3 times, dark color. Edemas of calves and feet. Varicose vein disease of lower extremities – absent.

Patients temperature ranges in time of treatment in hospital was indicated in pic. 1.

LABORATORY AND INSTRUMENTAL TESTS

Complete blood count (CBC) from 05-sep-2015: hypochromic anemia I stage (Hemoglobin (Hb) – 110 g/l, red blood cells (RBC) – $3.6 \cdot 10^{12}/l$), leukocytosis (white blood cells (WBC) – $12 \cdot 10^9/l$) and Erythrocytes sedimentation rate (ESR) – 15 mm/h.

Complete blood count (CBC) from 22-sep-2015: hypochromic anemia III stage (Hb– 37 g/l, RBC – $1.4 \cdot 10^{12}/l$, color index – 0.79, poikilocytosis), ESR – 82 mm/h.

Complete blood count (CBC) from 22-sep-2015 after blood transfusion: hypochromic anemia III stage (Hb– 53 g/l, RBC – $2.3 \cdot 10^{12}/l$, color index – 0.79, microcytosis, poikilocytosis), ESR – 65 mm/h.

Urinalysis: proteinuria – 0.216 g/l, leukocyturia – 25–30 in the field, hyaline and granular casts – several.

Cardiac markers: CK-MB – in the normal range.

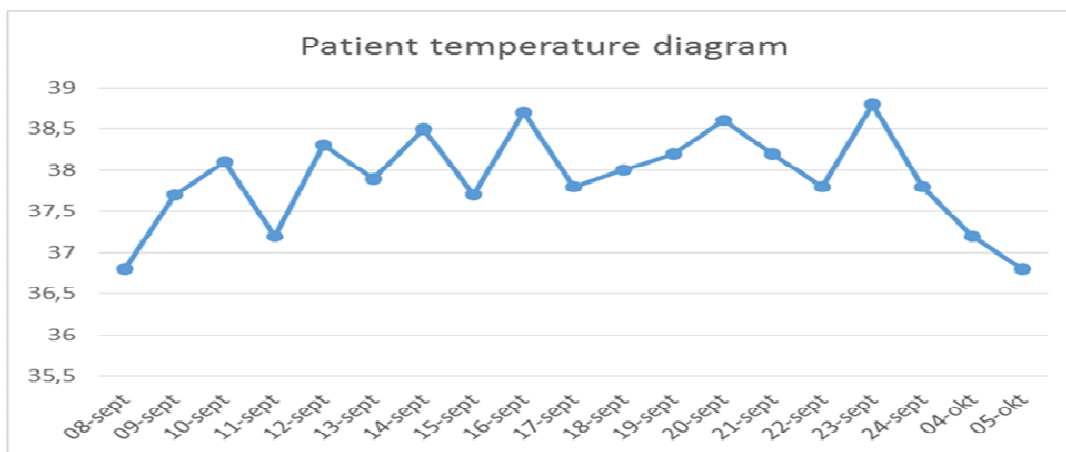
Liver function test: bilirubin was increased – 25 mmol/l, AST level was increased – 63U/l, ALT level was increased – 52U/l. Positive marker for viral hepatitis C were found: Anti-HCV – 0.712.

ECG showed sinus tachycardia, regular, heart rate – 95 bts/min.

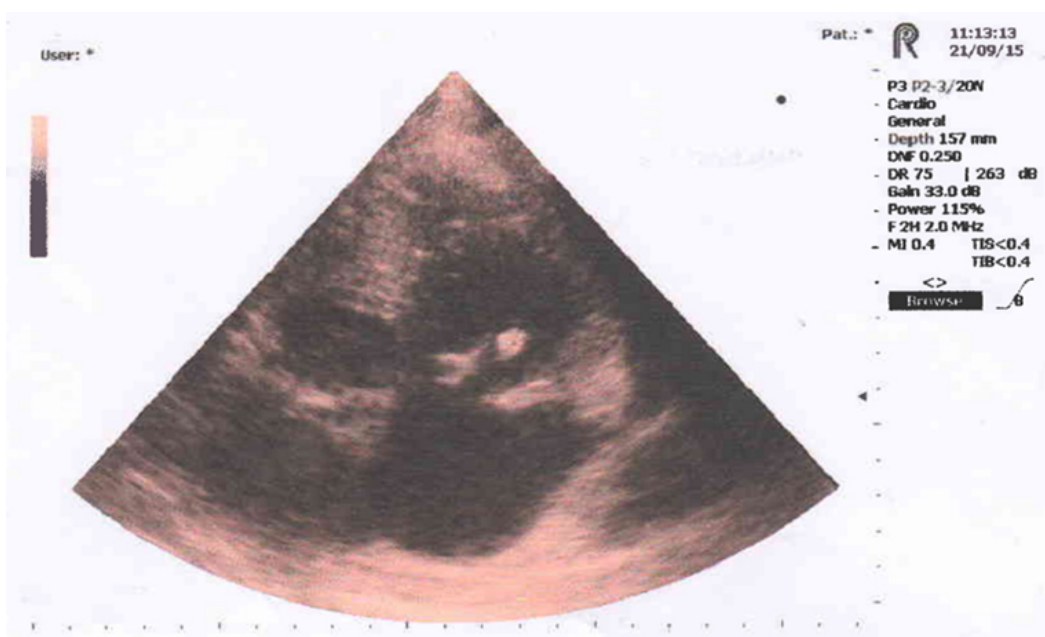
Chest X-ray: In the middle and lower parts of left lung can be seen transparency decreasing due to infiltration. Right lung – in the middle region can be seen focal areas of infiltration. Diaphragm's cupulas are flattened. Sinuses are

poorly differentiated. Flat waist of heart. Right heart border is increased. Elongation of aorta. Conclusion: 2-sided pneumonia.

Echocardiography: EF (ejection fraction) – 60 %. Dilatation of the right heart chambers. Infective endocarditis with involvement of tricuspid valve (on anterior leaflet of tricuspid valve is present a high density vegetation on narrow base – 14 mm. On septal leaflets – 6 mm high density vegetation on wide basement). Tricuspid regurgitation 3rd degree (see pic. 2)



Pic.1 Temperature of the patient while staying in the hospital



Pic. 2 Echocardiography from 11-sep-2015

Ultrasound of kidneys: Right sided nephroptosis. 2-sided hydrocalicosis.

Blood culture was taken 2 times: 12-sep-2015 and 27-sep-2015, but both times it was negative.

Echocardiography was made again in V. T. Zaycev Institution of general and urgent surgery NAMS of Ukraine: EF – 68 %. No akinesia zones. Multiple vegetation's on tricuspid valve. Tricuspid regurgitation 3rd degree. Dilatation of the right heart chambers. Hypertrophy of left ventricle.

Consultation of the cardiac surgeon in V. T. Zaycev Institution of general and urgent surgery NAMS of Ukraine: Acute infectious endocarditis of IV drug users, culture – negative, right – sided, primary affection of tricuspid valve, was recommended to continue antibacterial treatment, routine surgical intervention in V. T. Zaycev Institution of general and urgent surgery NAMS of Ukraine.

DIAGNOSIS

In clinical practice the diagnosis of IE usually relies on the association between an infective syndrome and recent endocardial involvement. Diagnosis of infective endocarditis in our patient clinical case is definitive, because according to modified Duke criteria of infective endocarditis [1], patient had: 1 major (pathological legions; vegetations or intracardiac abscess) and 3 minor criteria (patient is intravenous drug user; temperature was below 38 °C; echocardiographic findings consisted with endocarditis, but not vegetations – dilation of right chambers, new tricuspid valve regurgitation IIIrd degree).

The underlying disease: Acute right-side infectious native-valve endocarditis of IV drug users, culture – negative, right – sided, primary affection of tricuspid valve, target organs (heart, lungs).

Complications: Congestive Heart Failure with preserved left ventricular pump function (ejection fraction = 60 %), III C functional class by NYHA. Community-acquired 2-sided pneumonia, moderate. RF II stage. Hypochromic anemia 3rd stage.

Comorbid conditions: Chronic C hepatitis with minimal activity.

TREATMENT RECEIVED IN HOSPITAL

Antibacterial treatment: levofloxacin 500mg IV 1 time/day from 05/09 till 15/09/15, amoxicillin/clavulonic acid IV 1000 mg

2 times/day from 05/09 till 13/10/15, vancomycin 1gr IV 2 times/day from 14/09 till 30/09/15 (patient cannot continue therapy due to financial problems), gentamycin 80 mg 2 times/day IM from 19/09 till 13/10/15, «Biseptol» 480 mg 2 tabl 3 times/day from 22/09 till 13/10/15, levomicetin 1 gr 4 times/day IV from 02/10 till 13/10/15.

Other drugs prescribed: dexamethasone 8 mg IV in 200 ml of 5 % dextrose solution #3, trifas 20 mg IV 1 time/day then 10 mg/day orally, ampril 2.5 mg / day, bisoprolol 5 mg 1 time/day, «Glutargin» 1 tabl 3 times/day from 14/09 till 13/10/15, vicasol 1.0 ml IM 5 days, aminocapronic acid 100 ml IV #1.

Blood transfusion (erythrocytes mass) 333 ml gr IV (RH+) IV 24/09/15.

RECOMMENDATIONS

1. Heart failure (HF) is the most frequent complication of IE and represents the most common indication for surgery in IE. The presence of HF is an indication for early surgery in native – valve endocarditis (NVE) and rostatic- valve endocarditis (PVE), even in patients with cardiogenic shock. [1]. Patient was referred to V. T. Zaycev Institution of general and urgent surgery NAMS of Ukraine for planned surgery, but because of financial problems and asocial life-style patient refused, surgery intervention wasn't made). Drug therapy: bisoprolol 5 mg 1 time/day, ampril 2.5 mg / day, spironolactone 25 mg/day.

2. Despite the recommendations of general surgery rejection in patients with right-sided IE [1], for our patient surgical intervention should be recommended because of presence of right HF secondary to severe tricuspid regurgitation and IE caused by organisms that are difficult to eradicate despite adequate antimicrobial therapy (temperature curve on pic. 2).

3. Embolic events are a frequent and life-threatening complication of IE related to the migration of cardiac vegetations [1]. Age, diabetes, atrial fibrillation, previous embolism, vegetation length and S. aureus infection were associated with an increased embolic risk in patient with IE and were used to create an 'embolic risk calculator' [8]. The highest risk of embolism patient with IE usually has during the first 2 weeks of antibiotic therapy, during this period benefits of surgery to prevent embolism are greatest [1]. Patient was prescribed clopidogrel – 75 mg 1 time a day continuously.

CONCLUSIONS

There were no significant changes in clinical and microbiologic picture of IE in IVDA during years. As usually, the most frequent area of infection in this type of patients is the tricuspid valve, the disease prognosis is relatively good and *S. aureus* is the main etiologic agent. In regard that patients with a history of IE are at risk of recurrent infection, must be very strictly developed and introduced in practice re-

infection preventive measures. At discharge, patients should be informed and clearly explained about all signs and symptoms of IE, to help them be aware of possible repeated episode of IE. Patient should understand, that in case of appearance a new fever or chills, or other infection's signs, appropriate testing, including microbiological ones before antibacterial treatment prescription should be requested.

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