

MDR PULMONARY TB + HIV STAGE 3 + SUSPECTED RIGHT LUNG TUMOR

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ABSTRACT

Acquired Immunodeficiency Syndrome is a collection of symptoms and infections or syndromes that arise due to damage to the human immune system due to infection with the Human Immunodeficiency Virus (HIV). HIV is a virus that weakens immunity in the human body. Pulmonary tuberculosis (TB) is an infectious disease caused by the bacterium Mycobacterium tuberculosis (M. Tb). Tuberculosis is the most common opportunistic infection in people with HIV/AIDS (PLWHA) in Indonesia, HIV infection facilitates Mycobacterium tuberculosis infection. Tumors are abnormal lumps in the body, which can be benign or malignant, which are usually caused by malignancy or infection. Malignancy is a group of diseases in which the cells spread abnormally and grow uncontrollably. Hypercoagulation is a blood coagulation disorder, namely a shift in hemostatic balance due to an increase in procoagulant factors. This tends to cause a thrombus. The coagulation process is influenced by inhibitory factors that maintain the clotting status of a thrombus. Purpose: The purpose of this writing is to discuss HIV + MDR Pulmonary TB + Suspected Right Lung Tumor + Hypercoagulation from definition to nutritional management so that patients can be treated properly.

Keyword: MDR TB, HIV, Lung Tumors.

BACKGROUND

Human Immunodeficiency Virus (HIV) is a type of virus that infects white blood cells which causes a decrease in human immunity. Acquired Immune Deficiency Syndrome (AIDS) is a collection of symptoms that arise due to decreased immunity caused by HIV infection. Clinical symptoms in HIV are divided into 2, namely major and minor symptoms. Major symptoms include weight loss > 10% in 1 month Chronic diarrhea, lasting > 1 month Prolonged fever > 1 month Decreased awareness Dementia/HIV encephalopathy while minor symptoms are persistent cough > 1 month Dermatitis generalized Herpes Zoster multisegmental and recurrent Oropharyngeal candidiasis Herpes simplex chronic progressive generalized lymphadenopathy Recurrent yeast infection of the female genitalia Retinitis Cytomegalovirus. The diagnosis of HIV/AIDS is

based on an overall history and then finding risk factors and finding clinical findings on physical examination. HIV diagnostic tests consist of 1. Routine blood in the form of Hemoglobin, Hematocrit, Leukocytes, Platelets, Erythrocytes 2. Immunological tests in the form of antibody detection, ELISA, Rapid Tests, Western Blot, Indirect Immunofluorescence Assays (IFA), HIV Antibody Enzyme Test (EIA) 3. Test Virology in the form of HIV culture, qualitative HIV DNA (EID), quantitative HIV RNA, polymerase chain reaction (PCR).

Drug-resistant tuberculosis (RO-TB) RO-TB is tuberculosis (TB) caused by M. tuberculosis that has become resistant to anti-tuberculosis drugs (OAT). Category of Resistance to Anti-TB Drugs (OAT) Resistance of M.tuberculosis germs to OAT is a condition where germs can no longer be killed with OAT.

Factors causing OAT resistance to *M. Tuberculosis* bacteria include:

- a. Microbiological factors Genetically, the bacilli are resistant to the type of OAT given. *Basil* has mutations in resistance to one type of drug and receives inadequate anti-TB therapy. This inadequate therapy can be caused by consuming only one type of drug (direct monotherapy) or taking a combination drug but only one that is sensitive to these bacilli (indirect monotherapy).
- b. Clinical Factors Many clinical factors contribute to the occurrence of MDR TB. This factor causes *M. Tuberculosis* which was initially sensitive to anti-TB drugs to become resistant. This often occurs in patients with inadequate drug regimens. Medicines cannot be absorbed properly, for example, rifampicin is taken after meals.
- c. Patient non-compliance factor, the biggest supporting factor for the occurrence of MDR TB is the non-compliance of TB clients in undergoing their treatment.

Diagnostic criteria for MDR TB: Rapid Test.

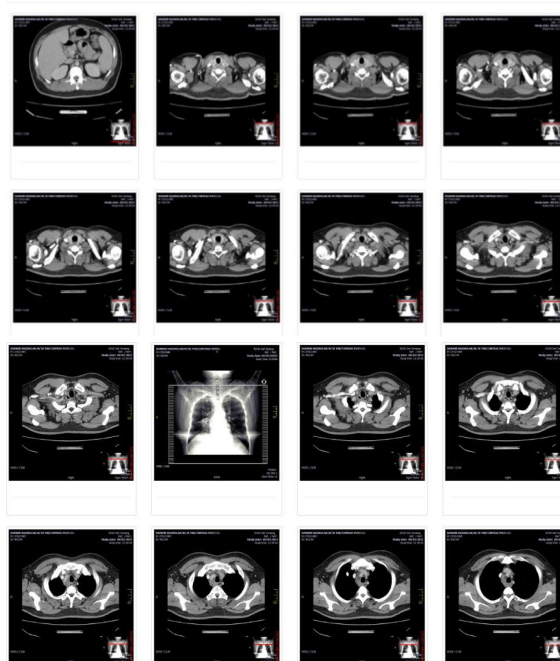
- Using Xpert MTB/RIF or better known as Molecular Rapid Test (TCM) or GeneXpert. Used to determine resistance to rifampicin. If the results of Rifampicin resistance detected are set as TB RR.
- Using a first line probe assay (LPA): Used to determine resistance to Rifampicin and Isoniazid. The LPA examination showed RR TB or MDR TB.

Lung cancer in a broad sense is all malignancy in the lung, including malignancy originating from the lung itself (primary) as well as malignancy from outside the lung (metastasis). In a clinical sense, primary lung cancer is a malignant tumor originating from the bronchial epithelium (bronchial carcinoma). Lung cancer is generally divided into two broad categories, namely small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC). The NSCLC category is subdivided into adenocarcinoma, squamous cell carcinoma, and large cell carcinoma. About 80% of lung cancer cases are NSCLS.

CASE

A 38 year old man came to the pulmonary clinic at Deli Serdang Hospital with complaints of fever for 3 weeks. It is known that the patient has a history of typhus and the patient feels that the fever goes up and down.

On physical examination of the chest at inspection found asymmetry, right chest lagging behind, palpation right and left lung stem fremitus not the same (increased on the right), percussion sonor on the left lung field and difference on the right lung base, bronchovesicular auscultation on the right lung.



On supporting examination SGOT : 78 u/l (reference value : <35 u/l), FT4 : 21 pmol/l (reference value : 9-20 pmol/l), CD4 : 16 cells/Ur (reference value : 450- 1500 cells/Ur), quantitative HIV : 149.83 (reactive) COI, MCHC : 36.4 gr/dl (reference value : 32-36 gr/dl), RDW : 15.4 % (reference value : 11.5-14 .5%), MPV : 11.5 fL (reference value : 7-11 Fl), Neutrophils : 86.66% (reference value : 50-70 %), D Dimer : 2.8 mg/l (reference value : 0.0-0.5 mg/l), CT Scan examination: TARGET LESION: 1. Malignant lung mass in the superior segment of the inferior lobe of the right lung; 2. Subpleural nodule in anterior mid-left hemithorax; 3. Suspicious lymphadenopathy in the right upper paratracheal; NT LESION: 1.

Anterior and apicoposterior segment nodules of the superior lobe of the left lung; 2. Nodules in the liver and spleen:- Subcentimeter lymphnode in the right and left lower paratracheal, right subcarina and supraclavicular; (AJCC Staging 8th ed: T3N3M1c

DISCUSSION

Acquired Immunodeficiency Syndrome is a collection of symptoms and infections or syndromes that arise due to damage to the human immune system due to infection with the Human Immunodeficiency Virus (HIV). HIV is a virus that weakens immunity in the human body. People who are exposed to the HIV virus will be susceptible to opportunistic infections or prone to tumors. The HIV virus is generally transmitted through direct contact between the inner layers of the skin (mucous membranes) or the bloodstream, with HIV-containing fluids such as blood, semen, vaginal fluids, preseminal fluids, and breast milk. The typical course of untreated HIV infection lasts for about a decade. The stages include primary infection, spread of virus to lymphoid organs, clinical latency, increased HIV expression, clinical disease and death. The duration between primary infection and progression to clinical disease averages about 10 years. In untreated cases, death usually occurs within 2 years of symptom onset. After primary infection, during the 4-11 day period between mucosal infection and initial viremia, viremia may be detectable for about 8-12 weeks.

Clinical symptoms in HIV are divided into 2, namely major and minor symptoms. Major symptoms include weight loss > 10% in 1 month Chronic diarrhea, lasting > 1 month Prolonged fever > 1 month Decreased awareness Dementia/HIV encephalopathy while minor symptoms are persistent cough > 1 month Dermatitis generalized Herpes Zoster multisegmental and recurrent Oropharyngeal candidiasis Herpes simplex chronic progressive generalized lymphadenopathy Recurrent yeast infection of the female genitalia Retinitis Cytomegalovirus.

Pulmonary tuberculosis (TB) is an infectious disease caused by the bacterium *Mycobacterium tuberculosis* (M. Tb). TB

infection can attack human organs such as the respiratory tract, lymph glands, kidneys, bones and joints, larynx, middle ear, skin, intestines, peritoneum and eyes. The main symptoms of pulmonary TB patients are coughing up phlegm for 2 weeks or more followed by additional symptoms such as coughing up blood, shortness of breath, weakness, decreased appetite, decreased body weight, malaise, night sweats without physical activity, and chills for more than one month. Drug-resistant tuberculosis (RO-TB) RO-TB is tuberculosis (TB) caused by *M. tuberculosis* that has become resistant to anti-tuberculosis drugs (OAT). Category of Resistance to Anti-TB Drugs (OAT) Resistance of *M. tuberculosis* germs to OAT is a condition where germs can no longer be killed with OAT.

Tuberculosis is the most common opportunistic infection in people with HIV/AIDS (PLWHA) in Indonesia, HIV infection facilitates *Mycobacterium tuberculosis* infection. People with HIV have a greater risk of suffering from TB than non-HIV. The risk for people living with HIV to suffer from TB is 10% per year, whereas in non-PLWHA the risk of suffering from TB is only 10% for life.

The transmission rate can be seen from the number of germs expelled from the lungs, a higher positive degree on sputum examination increases transmission, whereas if the examination results are negative, the patient is not considered contagious. A person who suffers from this infection is determined by how long they breathe the air containing the germ droplets (Kristini & Hamidah, 2020).

Factors causing OAT resistance to *M. Tuberculosis* bacteria include:

- a. Microbiological factors Genetically, the bacilli are resistant to the type of OAT given. Basil has mutations in resistance to one type of drug and receives inadequate anti-TB therapy. This inadequate therapy can be caused by consuming only one type of drug (direct monotherapy) or taking a combination drug but only one that is sensitive to these bacilli (indirect monotherapy).
- b. Clinical Factors Many clinical factors contribute to the occurrence of MDR TB. This factor causes *M. Tuberculosis* which

was initially sensitive to anti-TB drugs to become resistant. This often occurs in patients with inadequate drug regimens. Medicines cannot be absorbed properly, for example, rifampicin is taken after meals.

- c. Patient non-compliance factor, the biggest supporting factor for the occurrence of MDR TB is the non-compliance of TB clients in undergoing their treatment.

Tumors are abnormal lumps in the body, which can be benign or malignant, which are usually caused by malignancy or infection. Malignancy is a group of diseases in which the cells spread abnormally and grow uncontrollably. Uncontrolled cell spread can cause death. The death rate from lung cancer worldwide reaches approximately one million people each year. Because our recording system is not yet good, the exact prevalence of lung cancer in Indonesia is unknown. In other developing countries, the incidence of lung cancer is reported to be increasing rapidly due to excessive cigarette consumption, for example China, which consumes 30% of the world's cigarettes. Most lung cancer affects men (65%) with a life time risk of 1:13, while in women the risk is 1:20. The prevalence of primary lung cancer in developed countries is very high. In the USA in 2002 there were reported 169,400 new cases (representing 13% of all newly diagnosed cancers) with 154,900 deaths (representing 28% of all cancer deaths). Indonesia is ranked 4th with the most lung cancer in the world.

Lung cancer is generally divided into two broad categories, namely small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC). The NSCLC category is subdivided into adenocarcinoma, squamous cell carcinoma, and large cell carcinoma. About 80% of lung cancer cases are NSCLS (Detterbeck, 2018).

Hypercoagulation is a blood coagulation disorder, namely a shift in hemostatic balance due to an increase in procoagulant factors. This tends to cause a thrombus. The coagulation process is influenced by inhibitory factors that maintain the clotting status of a thrombus. Hemostasis can be disrupted if procoagulant activity increases or coagulant inhibition decreases. Hemostasis comes from the Greek,

haeme means blood and stasis means stop. Thrombohaemorrhagic balance is maintained by the body through complex interactions between coagulation and fibrinolytics. The relationship between cancer and thrombosis has long been recognized.

CONCLUSION

1. On May 2, 2023 (Treatment at Hospital General Center H. Adam Malik), the patient refused to undergo bronchoscopy to assess the histopathological results of the patient's lung tumor.
2. On May 10, 2023, the patient underwent a repeat control at Hospital Regional General Drs. H. AMRI TAMBUNAN, the patient's condition improved, the patient's weight increased by 5 kg, and the patient was ready to undergo bronchoscopy.
3. At the patient's treatment stage, no drug interactions were found between Mdr's OAT and ARV drugs and the patient stated that the drug given was suitable for the patient.

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