

DRUG RELATED PROBLEMS IN THE TUBERCULOSIS PATIENT AT THE PERSAHABATAN HOSPITAL (RSUP PERSAHABATAN)

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ABSTRACT

Tuberculosis is the critical infection or chronic which is caused by the *Mycobacterium tuberculosis* bacteria⁶. This infection is obtained from an individual who contracted TB active through the air (*airborne*)⁶. The patient, Mrs. EN. Age 44 years old, entered RSUP Persahabatan on the 10th of March 2014 with the diagnosed CAP (*Community Aquired Pneumonia*). TB lungs BTA (+) LLKPO (Lesi wide case drug break) DM type II was not controlled and dyspepsia syndrome. The medical therapy during the treatment was 4FDC, sukralfat, ceftriaxon, ranitidin, streptomisin, humalog and levemir. Based on the result of the clinic secretariat at the ward of lungs disease in RSUP Persahabatan, it could

be concluded that there were DRPs (*Drug Related Problems*) such as the correlation between the medical therapy and the clinical condition such as the reduction of appetite, hipertriglicerida and hipoalbuminemia (indication without the medicine), the regimen of dose which was not appropriate in used of ranitidin dan sukralfat (the dose of the medicine is too low), the medicine interaction (rifampisin and INH; INH and ethambutol; rifampisin and pyrazinamide; INH dan pyrazinamide) and the failure of the patient in receiving the medicine.

KEY WORDS: *Tuberkulosis (TB), lungs disease and RSUP Persahabatan.*

INTRODUCTION

One kind of diseases which become the main cause of the death that is caused by the infection is tuberculosis (TB)⁴. TB is the threat for Indonesian's people, in 2004, about a quarter million people added as the new sufferer and about 140.000 death in every year⁴. Most of the sufferer of TB are the people who is in productive age about 15 – 55 years old,

and this disease become the 3rd main cause after the heart disease and the critical respiration disease in all age⁴. Tuberculosis (TB) is a critical infection or chronic which is caused by the *Mycobacterium tuberculosis* bacterial⁶. This infection could be received from the individual who contract active TB through the air (*airborne*)⁶. Tuberculosis of the lungs scoops 80% from whole the tuberculosis disease, while 20 % more is the extrapulmonar tuberculosis⁵. It has been guessed that a third of the whole world people had been infected microbes *M.tuberculosis*⁵.

The increasing of the TB sufferers is caused by various kinds of factors, such as the lack of the sufferer obedient level to curing and taking the medicine, the high price of the medicine, the appearance of double resistance, the lack of the endurance of *hospes* toward micro bacteria, the reducing of the power of bactericide of the medicines, the increasing of HIV/AIDS cases and economic crisis⁴.

Case presentation

The patient, Mrs. ENW, age 44 years old entered RSUP Persahabatan on the 10th of March 2014. The patient came with the complaint of shortness of breath since a month (before entered to the Hospital). The tight that she felt is when she did the activity and it was reduced when she took a break. The tight was soundless of 'ngik'' and the tight was increased when she cough. She had a cough since 2 month the hospital SMRS and the cough had sputum at that time. The sputum was scarlet. The patient felt the pain in her chest if she had long cough. Two days after entering to hospital, she had had fever and it was descended by itself. The patient had the reducing of appetite, her mouth felt bitter and vomit every time she ate the main food. Her weight lost ± 2 kg in a month. The patient had cured in the small hospital (Puskesmas) at Ujung Menteng. There did checking of sputum 1+/1+/1+ and she was reconciled to RSUP Persahabatan. The patient have the history of DM and OAT allergic.

The Patient had the history of medical treatment in the small hospital (Puskesmas), therapy glucophage (metformin) twice in a day during one year. The cure of TB at puskesmas in 2009 consumed OAT ± 3 weeks appear the red bump, blister and itch. This medicine was stopped by itself and she was reconciled to RSUP Persahabatan. Patient got OAT category II : RHZES (R: Rifampisin; H : Isoniazid; Z: Pirazinamid; E: Etambutol; S: Streptomisin) At RSUP Persahabatan. After taking the OAT in 4 months, the patient stoped it by herself.

Clinical evaluation²

Four FDC (4 FDC) has used as the anti – tuberculosis. Sucralfat was to overcome the cavity sore and duodenum sore. Ceftriaxon was to overcome the bacterial infection in positive gram and negative gram. Ranitidine was for cavity sore and duodenum sore. Streptomisin as the anti tuberculosis in the combination with another drugs. Humalog (Insulin lispro) as the anti diabetes mellitus which is the short activity insulin. Levimir as the anti diabetes mellitus which is the long activity of insulin. Albumin as the plasma or plasma replacement for hipoalbuminemia therapy.

Dose and indication³

Name of the drugs	Prescription doses	Common Dose	Indication	The Usage
4 FDC 75 mg INH 150 mg Rifampisin 400 mg Pirazinamid 275 mg Etambutol	1 x 3 tablet	BB 38-54 kg, 3 tablet 4 FDC	Anti TB	Oral
Sucralfat syr	3 x 1 c	4 g in a day in 2-4 devided doses	Dispepsia	Oral
Ceftriaxon	1 x 2 gr	Beneath respiration infection 1-2 gr/a day IV/IM in a single dose	Antibacterial	Injection
Ranitidin	2 x 50 mg	50 mg every 6-8 hours	Cavity sore dan duodenum	Injection
Streptomisin	1 x 750 mg	>40 years old and BB <50 kg: 0,5-0,75 gr in a day	Tuberculosis	Injection
Humalog	3 x 20 unit		DM (short activity of insulin)	Injection
Levemir	1 x 15 unit		DM (long activity of insulin)	Injection

Laboratorium data

No.	Parameter	Score	Normal Score
Clinic Chemistry			
11-3-2014			
1	Albumin	3,3 g/dL	3,4 - 5
2	Globulin	3,9 g/dL	1,3 – 2,7
3	Trigliserida	209 mg/dL	<150

Regimen of treatment⁴

The combination of OAT which is used in Indonesia by the Indonesian Government in National Tackling of TB Program :

Kind of the treatment	Intensive Phase	Continued	Continued Phase
Category 1	2HRZE	-	4H3R3
Category 2	2HRZES	HRZE	5H3R3E3
Category 3	2HRZ	-	4H3R3

Note : H = Isoniazid ; R = Rifampisin ; Z = Pirazinamid ; E = Etambutol ; S = Streptomisin

2HRZE= Used in 2 Months, OAT (HRZE) is given everyday

4H3R3= Used in 4 months, OAT (HR) given 3 times in a week

2HRZES= Used in 2 months, OAT (HRZES) given everyday

HRZE= Used in 1 month, OAT (HRZE) given everyday.

5H3R3E3= Used in 5 months, OAT (HRE) given 3 times in a week.

2HRZ= Used in 2 months, OAT (HRZ) given everyday.

Drug related problems

1. The correlation between the therapy of medicine with the disease

It had an indication without the medicine where the patient felt the reducing of appetite. It was suggested to give the additional therapy such as vitamin B complex and there was a monitoring of the appetite condition of the patient. The score of the trigliserida checking of the patient was 209 mg/dl and it was suggested to add the additional therapy such as simvastatin and check the trigliserida standard by periodically. The patient had the hipoalbuminemia with the albumin score 3,3 g/dL and did not get the albumin therapy.

2. Regimen of Doses

The medicine doses was too low that was on the ranitidine prescription 2 x 50 mg in a day, according to Dr. Aine Burns (Renal Drug Handbook, 2009), it should be 3 x 50 mg in a day. Sukralfat 3x1c in a day, according to Aine Burns (Renal Drug Handbook), it should be 4 x 1c in a day. It is suggested to the doctor to evaluate again the usage of therapy doses of ranitidine and sukralfat. It was done the checking list in nurse's note continually.

3. The Medicine interaction¹

Rifampisin and INH which it can increase the toxicity INH by increasing the metabolism. The using of rifampisin and pyrazinamide in equally will increase the toxicity each to another with the interaction of synergic pharmacodynamic (aditif hepatotoxicity). The using of INH and ethambutol equally has been known that there was an experimental evidence that ethambutol is not influence the level of INH serum, but there are some evidences that shows that neuropati optic ethambutol can be increased equally can increase the toxicity one to another with the interaction synergic pharmacodynamic. That was the minor interaction and it was not significant (adatif hepatotoxicity).

4. The faulty in receiving the medicine

The patient was fault in receiving medicine such as injection of ceftriaxone at 12.00 WIB on the 10th of march 2014 and ranitidine injection at 06.00 WIB on 11th of march 2014, at 06.00 WIB on the 12th of march 2014 and at 06.00 WIB on 13th of march 2014. Asked to the nurse and it was checked list of nurse's note continually.

5. Human Error

On the list book of the medicine, sometimes the nurses did not take the note of the medicine that has been given to the patient. So it is suggested to the nurse to always take the note for everything that was given to the patient. it should be done the monitoring of the nurse's note on the medicine list book.

CONCLUSION

Based on the result of the practice of clinic secretariat at the ward of lungs disease at RSUP Persahabatan, it can be conclude that there ware DRPs (*Drug Related Problems*) such as the correlation between the medicine therapy and clinical condition such as the decreasing of appetite, hypertriglycerida dan hipoalbuminemia (Indication without the medicine), the regimen of dose that was not appropriate in the usage of ranitidine and sukralfat (the dose of the medicine was too low), the medicine interaction (rifampisin and streptomycin; INH and Insulin lispro/insulin detemir; rifampisin and INH; INH and ethambutol; rifampisin and pyrazinamide; INH and pyrazinamide) and the faulty of the patient in receiving the medicine.

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