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Clindamycin as single therapy for cerebral toxoplasmosis HIV in the history of sulfa allergy: A Case Report

Tommy Sarongku*, I Gusti Agung Gede Ariswanda^{**}, I Ketut Sumada^{*}, Ketut Candra Wiratni^{*} and I Putu Eka Widyadharma^{**,1} *Department of Neurology, Wangaya General Hospital, Bali, Indonesia., **Department of Neurology, Faculty of Medicine, Udayana University/Sanglah General Hospital, Bali, Indonesia.

ABSTRACT Background: Cerebral toxoplasmosis is an opportunistic infection in HIV with CD4 T-cells below < 200/uL. The aetiology is Toxoplasma gondii. Trimethoprim plus sulfamethoxazole (cotrimoxazole) combined pyrimethamine is the first line for the treatment of cerebral toxoplasmosis in immunodeficiency. The second line for treatment is clindamycin combined pyrimethamine in Indonesia. **Case report:** We reported a 48-year-old woman as diagnosed retroviral infection referred to Wangaya General Hospital, with main complaints of vomiting and severe headache. The blood test showed normal limits except lymphocyte account. IgM antibody for toxoplasmosis raised. Brain computed tomography-scan showed a cystic lesion in right basal ganglia with ring-enhancing surrounding by finger-like oedema. She treated with pyrimethamine and cotrimoxazole. The patient had a reddish rash on the skin with thrombocytopenia during 7-day on treatment suspected sulfa and pyrimethamine adverse side effect. Patient treated clindamycin as a single therapy for cerebral toxoplasmosis. Her headache is better within two weeks of admission. Thirty days later, the patient was repeated brain-CT scan, and the mass was found to be smaller. **Conclusions:** Single-therapy with clindamycin in CNS toxoplasmosis showed good outcome in resource-poor setting and the history of sulfonamide allergy.

KEYWORDS HIV, Cerebral toxoplasmosis, Clindamycin, Sulfa Allergy

Introduction

Cerebral toxoplasmosis is a complication of HIV disease that is often life-threatening in developing country.[1] Cerebral toxoplasmosis is a disease that mostly can heal entirely without leaving a neurological deficit if treated correctly.[1] For empirical therapy of cerebral toxoplasmosis is combination pyrimethamine and sulfadiazine or pyrimethamine and clindamycin.[2] HIV patient has hypersensitivity reaction for some drug such as pyrimethamine, and sulfadiazine with adverse drug reaction after admission. Bone marrow suppression, der-

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matologic problems and gastrointestinal disorder are often finding during on treatment.[3] Single therapy with clindamycin is very rare, and limited publish data for cerebral toxoplasmosis treatment.

Case report

A woman, 48-year-old, was referred to Wangaya General Hospital for a progressive chronic headache for four months with a numeric pain rating scale (NPRS) is 5. On physical examination, blood pressure 140/80 mmHg. Intracranial pressure raised with vomiting, headache and papilloedema bilaterally. The meningeal sign was absent, but both Babinski's sign is positive with left motor weakness.

Laboratory investigation showed haemoglobin 12.58 g/dL, white blood cell count 11.02 10ul/L, platelet count 261 10ul/L, haematocrit 42.58% with lymphocytopenia 0.7 10ul/L. Renal, liver function test and electrolytes serum were good. Serology test for HIV was reactive. Ig M antibody for toxoplasmosis

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Figure 1: CT-scan brain axial showing (red's narrow) a cystic lesion in right basal ganglia with ring-enhancing surrounding by (orange's narrow) finger-like oedema.



Figure 2: CT-scan brain axial thirty days after clindamycin showing (orange's narrow) finger-like oedema without cystic lesion.

600u/mL with CD+4 T-cells 57/uL. Chest X-ray is normal. Brain CT-scan showed (Fig. 1) a cystic lesion in right basal ganglia with ring-enhancing surrounding by finger-like oedema. Analysis CSF not done because of contra-indication of mass effect. The patient diagnosed with HIV pre HAART with cerebral toxoplasmosis.

The patient treated with IV dexamethasone, pyrimethamine and cotrimoxazole. During 7-day treatment patient showed whole skin rash and thrombocytopenia (platelet level decrease 76 10ul/L). The clinician stopped pyrimethamine, cotrimoxazole, and changed to clindamycin capsule 600 mg every 6 hours. Her symptoms were gradually better within three weeks of admission. Her headache is better within two weeks of hospitalisation. Thirty days later, the patient was repeated brain-CT scan, and the mass was found to be smaller (figure 2). The patient was advised antiretroviral after the opportunistic infection is apparent. Cotrimoxazole was an administration with sulfa desensitisation protocol for prophylactic.

Discussion

Cerebral toxoplasmosis is one of the opportunistic infectious diseases that often found in HIV-AIDS patients with CD4 cell count <200/uL but the highest risk of cerebral toxoplasmosis occurs if CD4 cell count <50/uL.[4] Cerebral toxoplasmosis results from reactivation of latent cysts in the tissues. Primary infection generally attacks the brain and is a systemic disease. Brain CT scan with contrast showed single or multiple numbers of lesions with a size of > 4cm with preference in the basal ganglia and corticomedullary junction, with appearing cystic masses with bound capsules surrounded by finger-like oedema.[5]

Possible diagnosing for cerebral toxoplasmosis:

- 1. In HIV-infected patients with CD4 levels <200/uL.
- 2. Deterioration neurological deficit.

- 3. Brain CT-scans showed ring-enhancing in preference of cerebral toxoplasmosis.
- 4. Serology antibodies for toxoplasmosis positive (IgM&IgG).

Primary CNS lymphoma, tuberculoma, cerebral abscess becomes the differential diagnosis of cerebral toxoplasmosis. Detection of antibodies anti-Toxoplasmosis is a pathognomonic marker of cerebral toxoplasmosis.[6] Cerebral toxoplasmosis empirical therapy begins if 3 of 4 possible diagnostic criteria fulfilled. Cotrimoxazole is the first line of treatment.[2,4,7] At our Institution, we rarely use cotrimoxazole because of concerns towards Steven-Johnson Syndrome (SJS).[8] Administration clindamycin and pyrimethamine and is alternative medicine.[1,2,7] These patients experience severe sulfa allergy and adverse effects of pyrimethamine in bone marrow suppression with clinical manifestation as thrombocytopenia.[3,9] Patients only received clindamycin capsule 600mg therapy every 6 hours. Depak Maldi et al. "the using of clindamycin as a single therapy has not established in randomised clinical trials."[1] Clindamycin has a unique mechanism by binding with 50S large subunit ribosome bacteria but its not binding with the mammalian ribosome. In vitro, chemical chain reaction for transpeptidation and protein synthetase blocked by clindamycin and become intracellular parasite lethal.[9,10] In 3 days, about 1ng/ml of clindamycin's concentration can reduce 50% multiplication of the Toxoplasma gondii. [9] A good clinical outcome with reduced NPRS 1 for headache and surrounding oedema without mass effect seen, its successful treatment single clindamycin in cerebral toxoplasmosis HIV. Clinical symptoms and brain imaging are an indicator for monitoring treatment.

Conclusion

Single-therapy with clindamycin in CNS toxoplasmosis showed good outcome in resource-poor setting and history of sulfonamide and pyrimethamine allergy.

Competing Interests

There were no financial supports or relationships between authors and any organisation or professional bodies that could pose any conflict of interest.

Abbreviations

HIV: Human Immunodeficiency Virus, CT: Computed Tomography, IgM: Immunoglobulin M, CNS: Central Nervous System

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