Opportunistic Infections in HIV-Infected Patients: Cryptococcal Meningitis

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Educational Objectives:

1. Describe the epidemiology and pathogenesis of cryptococcal infection in an HIV-infected patient.
2. Appreciate the signs and symptoms of disseminated cryptococcal infection.
3. Know the different phases of treatment for cryptococcal meningitis.
4. Understand when to initiate antiretroviral therapy for HIV/AIDs patients diagnosed with cryptococcal meningitis.

CASE ONE:

Mr CM is a 55-year-old man with history of HIV (not adherent on anti-retroviral therapy, last CD4 5 cells/uL, 5 years ago), presenting to the hospital with fever, headache, malaise, and rash for 2 weeks. His wife accompanies him and notes that he seems more confused than usual.

His vitals are T100.3F, heart rate 100 beats per minute, blood pressure 120/90, with 98% oxygen saturation on room air. He is lethargic. He has oral thrush. He has no focal neurologic deficits, but does have a molluscum-like rash on his lower extremities. His lungs are clear on auscultation.

He is found to have CD4 cell count of 5 cells/uL and viral load (VL) of 50,000 copies/mL.

Questions:

1. What is the differential diagnosis of meningitis in an advanced AIDS patient?

2. What diagnostic studies would you order?

CASE ONE CONTINUED:

Mr CM undergoes a CT scan of the head, which shows no mass lesions or herniation. He undergoes a lumbar puncture. He has an opening pressure of 30cm H_2O, CSF WBC is 10 cells/ul, glucose 10mg/dL, total protein 100mg/dL, with CSF CrAg titer of 1:1280.

3. **What is the epidemiology of cryptococcal meningitis? What is the pathogenesis of cryptococcal meningitis?**

4. **What are the signs and symptoms that are associated with cryptococcal meningitis?**

5. **What are the poor prognostic signs for cryptococcal meningitis?**

6. **How will you initially treat Mr CM? What type of side effects arise from treatment?**

CASE ONE CONTINUED:

Mr CM is started on amphotericin B and flucytosine and is treated for two weeks. He has multiple lumbar punctures performed over the course of two weeks due to severe headache. However, the lumbar puncture done at two weeks after therapy shows a CSF culture that is still positive for *C. neoformans.* He continues to have a severe headache, and his opening pressure from the last lumbar puncture is 30cm H_2O.

7. What is your next step in management? What is the role of glucocorticoid therapy?

CASE ONE CONTINUED:

After an additional week of amphotericin B and flucytosine, Mr CM states his headache is improving. His repeat lumbar puncture shows no growth to date.

8. What is your next step in management? When should you start antiretroviral treatment for Mr CM?

CASE ONE CONTINUED:

One and a half years later you see Mr CM in clinic for follow up. He is on a stable antiretroviral therapy and has been on antifungal therapy for 1.5 years. His repeat CD4 was 120 cells/uL four months ago, and today it is 145 cells/uL. VL has been undetectable (UD) for 6 months.

9. What are the criteria to discontinue cryptococcal meningitis maintenance therapy? Are there any additional laboratory studies warranted?

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