

Corticosteroids as Salvage Therapy for Shunted Patients With Non-HIV-Associated Cryptococcal Meningoencephalitis

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Introduction

Cryptococcal meningoencephalitis (CM) in immunocompromised or immunocompetent patients[1] often results in a post-infectious inflammatory response syndrome (PIIRS)[2] with intracranial hypertension (ICH) and/or hydrocephalus (HCP). Ventriculo-peritoneal/atrial shunting[3] provides sustained relief from ICH/HCP and improves neurologic outcomes.[4] Ineffective resolution of ICH may lead to shunt revisions[3], and poor long term outcomes.[5] Corticosteroids can relieve ICH in CM[6] by downregulating VEGF[7], but, are often avoided. Use of corticosteroids in HIV-associated CM results in worse outcomes[6], however such data in immunocompetent CM is lacking. We hypothesized that corticosteroid-salvage-therapy (CST) may be useful in the setting of shunted CM with persistent ICH/HCP, and here present our experience supporting this strategy.

Methods

Images and charts from 65 patients treated at the National Institutes of Health (NIH) for CM in immunocompetent patients were retrospectively reviewed. Modified Rankin Scores (mRS) were determined for patients who underwent CSF diversion for ICH/HCP.

Results

Of the 65 non-HIV CM patients, 17 (26%) underwent CSF diversion (16 ventriculoperitoneal shunts, 1 endoscopic fenestration of trapped ventricle). Thirteen patients (76%) received CST due to persistent symptoms/signs of ICH. CST was initiated following microbiologic control of CM. Eight patients received CST at the NIH (161±81 days) and 5 were treated elsewhere. Among 8 patients treated at the NIH, mean pretreatment mRS was 4.2, compared with 3.5 posttreatment. All 8 patients had resolution of ICH (symptoms/signs), and remained at baseline mRS (n=5) or improved (n=3, 1-3 points) following salvage corticosteroid therapy. Objective neurologic improvements were noted in 5 patients (63%). No CST related adverse events were noted.

Conclusions

In patients with non-HIV-associated CM and neurologic symptoms refractory to CSF diversion, salvage therapy with corticosteroids may improve functional outcome. This therapy should be considered patients with non-HIV CM. Further study is needed to clearly identify the role of corticosteroids in the treatment of CM in immunocompetent patients.

Learning Objectives

By the conclusion of this session, participants should be able to:

- 1) Describe the importance of ineffective resolution of intracranial hypertension in immunocompetent cryptococcal meningitis.
- 2) Discuss, in small groups the effectiveness of targeted salvage corticosteroid therapy for resolution of persistent intracranial hypertension in non-HIV cryptococcal meningitis.
- 3) Identify an effective mean of modulating intracranial hypertension in cryptococcal meningitis in addition to standard strategy of shunt revisions.

References

- 1.Chen, S. C. a et al. Clinical manifestations of cryptococcus gattii infection: Determinants of neurological sequelae and death. Clin. Infect. Dis. 55, 789–798 (2012).
- 2.Panackal, A. A. et al. Paradoxical Immune Responses in Non-HIV Cryptococcal Meningitis. PLoS Pathog. 11, 1–27 (2015).
- 3.Park, M. K., Hospenhal, D. R. & Bennett, J. E. Treatment of hydrocephalus secondary to cryptococcal meningitis by use of shunting. Clin. Infect. Dis. 28, 629–33 (1999).
- 4.Cherian, J., Atmar, R. L. & Gopinath, S. P. Shunting in cryptococcal meningitis. J. Neurosurg. 58, 1–10 (2015).
- 5.Liliang, P.-C. et al. Shunt surgery for hydrocephalus complicating cryptococcal meningitis in human immunodeficiency virus-negative patients. Clin. Infect. Dis. 37, 673–678 (2003).
- 6.Beardsley, J. et al. Adjunctive Dexamethasone in HIV-Associated Cryptococcal Meningitis. N. Engl. J. Med. 374, 542–54 (2016).
- 7.Hoepelman, A. I. M., Van der Flier, M. & Coenjaerts, F. E. J. Dexamethasone downregulates Cryptococcus neoformans-induced vascular endothelial growth factor production: a role for corticosteroids in cryptococcal meningitis? J. Acquir. Immune Defic. Syndr. 37, 1431–1432 (2004).

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