

EQUAL Cryptococcosis Score 2018: A European Confederation of Medical Mycology (ECMM) score derived from current guidelines to measure QUALITY of clinical cryptococcosis management



Andrej Spec^{1*}, Carlos Mejia-Chew¹, William G Powderly¹, Philipp Koehler², Oliver A Cornely²

¹ Division of Infectious Diseases, Department of Medicine, Washington University School of Medicine, St. Louis, MO, United States of America. ² University of Cologne, Faculty of Medicine, Department I of Internal Medicine; Cologne Excellence Cluster on Cellular Stress Responses in Aging-Associated Diseases (CECAD); Clinical Trials Centre Cologne (ZKS Köln), Cologne, Germany DOI: 10.4126/FRL01-006414360

Background

The EQUAL Cryptococcosis Score weighs and aggregates factors for ideal management of cryptococcal infection. EQUAL Scores reflect the strongest recommendations from current guidelines. The Score Cards are a quick reference to measure guideline adherence and to support antifungal stewardship.

		Mild-moderate disease, non-CNS or localized			Moderately severe-severe, CNS or disseminated		
		Maximum score	Diagnosis	Therapy	Maximum score	Diagnosis	Therapy
Diagnosis		6			13	-4	-9
Management	Antifungal	3	-3	-2	9		-5
	Immuno-modulation			-5			
	ID consult	2					-7
	Follow-up			-1	2		-5
Total		11	8	0	24	20	0

Comments

- HIV infected individuals with CD4 \leq 100 cells/ μ L should be screened prior to ART initiation or re-initiation with serum CrAg, regardless of clinical manifestations, who live in high prevalence areas with cryptococcal antigenaemia (i.e. $>$ 3%).
- All patients with disseminated disease or underlying immunosuppression and positive blood culture, serum CrAg or tissue biopsy) should get LP, even if asymptomatic.
- One week of AmB plus 5-FC is acceptable if no better alternative available.
- Non-transplant, Non-HIV patients and pregnant women may require at least 4 weeks of induction therapy.
- 6 weeks induction therapy in the presence of cryptococcoma, neurological complications (e.g. deterioration, persistent coma or seizures), severe uncorrected immunosuppression or positive fungal CSF culture at the end of 2 weeks of treatment.
- If there is intracranial hypertension \geq 25 cmH₂O, decrease until \leq 20 cmH₂O or reduction of opening pressure by 50%. Therapeutic lumbar drainage should be repeated daily in the setting of clinical symptoms and persistent pressure elevations \geq 25 cm of CSF until stabilized for $>$ 2 days There is no data on the maximum volume of CSF that can be safely drained during LP. .

References

- Spec A, Mejia-Chew C, Powderly WG, Cornely OA. EQUAL Cryptococcus Score 2018: A European Confederation of Medical Mycology Score Derived From Current Guidelines to Measure QUALITY of Clinical Cryptococcosis Management. *Open Forum Infect Dis*. 2018; 5(11): ofy299.



EQUAL Cryptococcosis Score 2018

Diagnosis

Blood fungal culture	3
Serum CrAg	3
Other sites explored based on clinical presentation	
- Tissue/fluid fungal culture not obtained upon biopsy performed	-1
- Histology with fungal stains not obtained if biopsy performed	-1
Immunosuppressed or CNS symptoms	
- LP + opening pressure	3
- CSF fungal culture	2
- CSF CrAg titer	2
- CSF India ink, if no CNS CrAg	1
- Brain CT or MRI not done prior to LP, if focal neurological or immunosuppressed	-1

Treatment

Mild-moderate, localized or non-CNS	
Pulmonary symptoms	
- If bronchoscopy done, no BAL/biopsy sent for fungal culture	-1
- 1 st line: Fluconazole for 6-12 mo	3
- 2 nd Line: Another azole for 6-12 mo	2
- Any azole for <6 months	1

Treatment

Moderately severe-severe, CNS or disseminated	
<u>1. Induction</u>	
- LFAmB + 5-FC for ≥ 2 wks OR	3
- AmBD + 5-FC for ≥ 2 wks OR	2
- LFAmB for 4-6 wks OR	2
- LFAmB + fluconazole for 2 wks OR	2
- Fluconazole +/- 5-FC for 6 wks	1
<u>2. Consolidation</u>	
- Fluconazole for ≥ 8 wks OR	3
- Other azole for 10-12 wks	1
<u>3. Maintenance</u>	
- Fluconazole for ≥ 12 months OR	3
- Itraconazole for ≥ 12 months OR	1
- AmBD 1mg/kg IV per wk	1
- No TDM If itraconazole is used	-1
ICH management (CNS disease)	
- No decompression LP OR no lumbar drain or no ventriculostomy OR VP shunt to maintain CSF pressure <20 cm H ₂ O	-3
- Corticosteroids if no parenchymal edema	-2
- Acetazolamide	-1
- Mannitol	-1

Treatment

ID consult	2
Immunomodulation	
<u>Immunocompetent</u>	
- HIV test not done	-2
- History/immunosuppressive drugs not reviewed	-1
<u>Transplant recipient</u>	
- No decrease in net immunosuppression	-1
<u>HIV positive patient</u>	
- ART started within 2 wks or not started 4 months after diagnosis	-3
Antifungals stopped if IRIS	-2

Follow-up

- Repeat serum CrAg to monitor response	-1
- If CNS disease: Not repeating CSF culture day 14	-1
- If CNS disease: Repeat CSF CrAg to monitor response	-2
- If HIV positive, fluconazole not stopped at 1 year of treatment on those on ART with CD4 ≥ 100 cells/ μ L	-1