Carcinomatous meningitis

Carcinomatous meningitis or Leptomeningeal carcinomatosis (LC) is a rare complication of cancer in which the disease spreads to the membranes (meninges) surrounding the brain and spinal cord.

Leptomeningeal disease is a feared sequelae of malignant pediatric brain tumors.

Central nervous system involvement is a rare complication of multiple myeloma, and it can present as either an intraparenchymal or a leptomeningeal disease.

Epidemiology

Carcinomatous meningitis epidemiology.

Clinical Features

Carcinomatous meningitis clinical Features.

Diagnosis

Carcinomatous Meningitis Diagnosis.

Carcinomatous Meningitis Differential Diagnosis

Carcinomatous Meningitis Differential Diagnosis.

Treatment

Carcinomatous meningitis treatment.

Complications

see Leptomeningeal carcinomatosis complications.

Outcome

Carcinomatous meningitis outcome.

Systematic review

A systematic review examines the proportion of patients with leptomeningeal disease included in phase 3 randomized clinical trials for patients with metastatic breast cancer, lung cancer, and melanoma [1].

Case series

226 patients with LM (from 2001 to 2021 among 1495 grade 2 to 4 glioma patients, 88.5% of LM patients being IDH wild-type glioma with complete information on IDH mutation, 1p/19q codeletion, and MGMT promoter methylation status were enrolled. Predictors of overall survival (OS) of entire patients were determined by time-dependent Cox analysis, including clinical, molecular, and treatment data. Subgroup analyses were performed for patients with LM at initial diagnosis and LM diagnosed at recurrence (herein, initial and recurrent LM). Identical analyses were performed in IDH-wildtype glioblastoma patients.

Median OS was 17.0 (IQR 9.7-67.1) months, with shorter median OS in initial LM than recurrent LM patients (12.2 vs 20.6 months, $P < 0.001$). In entire patients, chemotherapy and antiangiogenic therapy were predictors of longer OS, while male sex and initial LM were predictors of shorter OS. In initial LM, higher KPS, chemotherapy, and antiangiogenic therapy were predictors of longer OS, while the male sex was a predictor of shorter OS. In recurrent LM, chemotherapy and longer interval between initial glioma and LM diagnoses were predictors of longer OS, while the male sex was a predictor of shorter OS. A similar trend was observed in IDH-wildtype glioblastoma.

Active chemotherapy and antiangiogenic therapy demonstrated a survival benefit in glioma patients with LM. There is a consistent female survival advantage, whereas a longer interval between initial glioma diagnosis and LM development suggests longer OS in recurrent LM [2].

1)
Sharma AE, Corbett K, Soliman H, Sahgal A, Das S, Lim-Fat MJ, Jerzak KJ. Assessment of Phase 3 Randomized Clinical Trials Including Patients With Leptomeningeal Disease: A Systematic Review. JAMA Oncol. 2023 Feb 9. doi: 10.1001/jamaoncol.2022.7364. Epub ahead of print. PMID: 36757707.
2)
Park YW, Han K, Kim S, Kwon H, Ahn SS, Moon JH, Kim EH, Kim J, Kang SG, Chang JH, Kim SH, Lee SK. Revisiting prognostic factors in glioma with leptomeningeal metastases: a comprehensive analysis of clinical and molecular factors and treatment modalities. J Neurooncol. 2023 Feb 25. doi: 10.1007/s11060-022-04233-y. Epub ahead of print. PMID: 36841906.

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