

# Intrathecal chemotherapy for carcinomatous meningitis

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- [Leptomeningeal Disease: Current Approaches and Future Directions](#)
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- [Clinical utility and predictive value of cerebrospinal fluid cell-free DNA profiling in non-small cell lung cancer patients with leptomeningeal metastasis](#)
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[Leptomeningeal disease](#) (LMD) secondary to [high-grade glioma](#) (HGG), such as [glioblastoma](#) (GBM), is characterized by the spread of [tumor cells](#) to the [leptomeninges](#) which further complicates treatment approaches. [Intrathecal chemotherapy](#) has surfaced as a potential strategy to bypass the [blood-brain barrier](#) and address the challenges posed by disseminated disease.

A systematic review following PRISMA guidelines was conducted by searching [PubMed](#) and [Embase](#) from January 1995 to September 2022 using specified terms related to IT chemotherapy for LMD. Included articles involved patients diagnosed with LMD from HGG, treated with intrathecal chemotherapy, and provided survival data. Data, including demographics, tumor characteristics, treatment, and survival information, were collected and independently extracted.

A total of 68 patients across 10 clinical studies were diagnosed with LMD from HGG and included in the review. Among these patients, the average age at diagnosis was 44.2 years. GBM was the most common tumor type (n = 58, 85.3%). A majority of the patients presented with recurrent disease (n = 29, 60.4%). The review encompassed various IT chemotherapy regimens, including mafosfamide, thio-TEPA, 5-fluoro-2'-deoxyuridine (FdUrd), methotrexate (MTX), and cytarabine; however, dosages and frequencies were inconsistently reported. The mean progression-free survival (PFS) and overall survival (OS) for this cohort were 7.5 months and 11.7 months, respectively. Common side effects of IT chemotherapy included headaches, nausea, and vomiting, with more severe complications such as myelotoxicity, disseminated intravascular coagulopathy, meningitis, and gastrointestinal toxicity reported in some cases.

LMD continues to be an uncommon complication associated with HGG with a poor prognosis. This article provides an overview of the presently available literature on IT chemotherapy for LMD secondary to HGG, and their respective treatment protocols with overall survival attributes. Additional research is warranted to ascertain how to maximize the potential efficacy of IT chemotherapy as a treatment option <sup>1)</sup>.

# Ommaya reservoir

The [Ommaya reservoir](#) and the chemoport are used for administering [intrathecal chemotherapy](#). Use of ventriculo-lumbar perfusion can efficiently deliver chemotherapeutic agents and improve intracerebral pressure. Shunting systems, in conjunction with all of their variations, address the challenge of hydrocephalus in leptomeningeal carcinomatosis.

1)

Singh E, Gurses ME, Costello MC, Berke C, Lu VM, Daggubati L, Komotar RJ, Ivan ME, Shah AH. Intrathecal chemotherapy for leptomeningeal disease in high-grade gliomas: a systematic review. J Neurooncol. 2024 Jan 31. doi: 10.1007/s11060-024-04582-w. Epub ahead of print. Erratum in: J Neurooncol. 2024 Mar 6;; PMID: 38294637.

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Last update: **2024/06/07 02:53**

