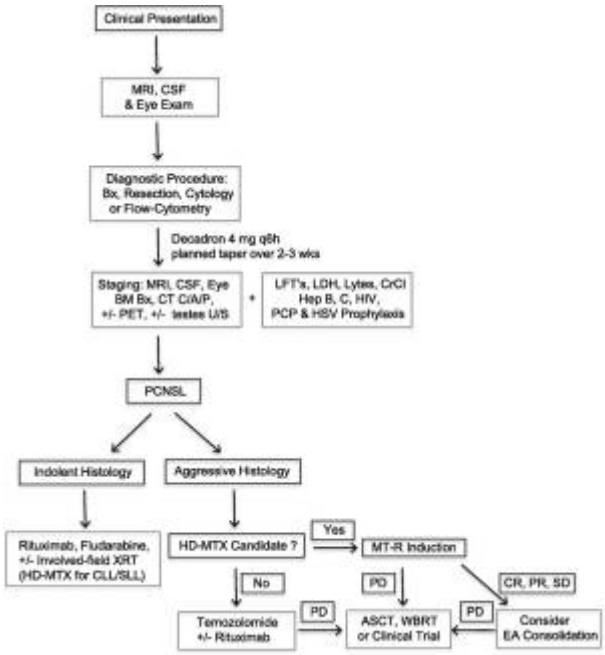
Primary central nervous system lymphoma treatment



Newly diagnosed PCNSL patients should be treated with combined high-dose methotrexate-based regimen and can be treated with a rituximab-inclusive regimen at induction therapy. Autologous stem cell transplantation can be used as a consolidation therapy. Refractory or relapsed PCNSL patients can be treated with ibrutinib with or without high-dose chemotherapy as re-induction therapy. Stereotactic radiosurgery can be used for PCNSL patients with a limited recurrent lesion who were refractory to chemotherapy and have previously received whole-brain radiotherapy. Primary vitreoretinal lymphoma (PVRL) or PCNSL patients with concurrent VRL can be treated with combined systemic and local therapy [1)]

A study described a new miR-370-mediated mechanism of MGMT regulation in PCNSL.

Li et al., first showed that miR-370 was downregulated in PCNSL tissues, while MGMT was inversely overexpressed. It was also observed that miR-370 suppressed the expression of MGMT. Additionally, upregulation of miR-370 significantly increased TMZ sensitivity dependent of MGMT, thus suppressed Raji cell proliferation and induced apoptosis in vitro. In conclusion, these results suggest that miR-370 is a potential target in PCNSL treatment [2)].

In a retrospective study, the aim was to analyze the outcome in PCNSL patients treated with the combination of Rituximab, methotrexate (MTX), cytarabine (Ara-C) and dexamethasone (R-MAD). Eighteen patients from Beijing Tiantan Hospital (Beijing, China) between January 2010 and March 2014 were newly diagnosed with PCNSL [diffuse large B-cell lymphoma (DLBCL) type] and received R-MAD as first-line treatment. The dosage was as follows: 375 mg/m2 Rituximab was administered on day 0, 3.5 g/m2 MTX was administered on day 1, 1 g/m2 Ara-C was administered on day 2 and 10 mg dexamethasone was administered on days 1-3, every 3 weeks. After 6 cycles, the overall response

rate was 94.5%. Ten (55.6%) patients achieved complete response (CR), 7 (38.9%) achieved partial response (PR) and 1 (5.6%) had progressive disease (PD). Patients were followed up from the start of the treatment, median 24.2 months (range 6-48). The overall survival (OS) rate was 94.5% and progression-free survival rate was 94.5%. The median OS was 22 months (95% confidence interval, 19.4-24.6). The high level of serum lactate dehydrogenase (LDH) concentration was associated with a poor outcome. Among 5 patients with an abnormally high LDH concentration, 1 achieved CR, 3 had PR and 1 had PD. None of the patients experienced any grade 4 toxicity. These results indicated that the R-MAD immunochemotherapy regimen is effective in PCNSL patients without serious toxicity. A prospective investigation with more patients should be administered in order to understand the more accurate effect of the regimen [3].

Surgery

see Primary central nervous system lymphoma surgery.

Radiation therapy

see Primary central nervous system lymphoma radiotherapy.

Chemotherapy

see Primary central nervous system lymphoma chemotherapy.

1)
Chen T, Liu Y, Wang Y, Chang Q, Wu J, Wang Z, Geng D, Yu JT, Li Y, Li XQ, Chen H, Zhuang D, Li J, Wang B, Jiang T, Lyu L, Song Y, Qiu X, Li W, Lin S, Zhang X, Lu D, Lei J, Chen Y, Mao Y. Evidence-based expert consensus on the management of primary central nervous system lymphoma in China. J Hematol Oncol. 2022 Sep 29;15(1):136. doi: 10.1186/s13045-022-01356-7. PMID: 36176002.
2)
Li X, Xu X, Chen K, Wu H, Wang Y, Yang S, Wang K. miR-370 Sensitizes TMZ Response Dependent of MGMT Status in Primary Central Nervous System Lymphoma. Pathol Oncol Res. 2019 Feb 2. doi: 10.1007/s12253-019-00605-4. [Epub ahead of print] PubMed PMID: 30712191.
3)
Liu J, Sun XF, Qian J, Bai XY, Zhu H, Cui QU, Li XY, Chen YD, Wang YM, Liu YB. Immunochemotherapy for primary central nervous system lymphoma with Rituximab, methotrexate, cytarabine and dexamethasone: Retrospective analysis of 18 cases. Mol Clin Oncol. 2015 Jul;3(4):949-953. Epub 2015 May 12. PubMed PMID: 26171213; PubMed Central PMCID: PMC4486824.