Primary CNS Lymphoma in India: A 17-year Experience from All India Institute of Medical Sciences (AIIMS)

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Background and Objective

- In India, PCNSL represents ~1% of all primary CNS neoplasms as per the hospital-based data as there is no population-based information for PCNSL.
- In such scenario a large hospital-based data may put some light and in the present study, we attempt to characterize the clinico-pathological profile as well as the outcome of PCNSL patients treated over a period of 17 years (2001-2017)
- This is a retrospective study spanning from 2001-17.
- The median duration of follow-up is 34 months.

Results

Clinico-Pathological Characteristics

Variable	Frequency (%)
Median Age	50 year (range: 13-70)
Male sex,	65 (65.6%)
HIV positive	1 (1%)
Median Duration of Symptoms	3.5 months (0.5- 48)
Performance Status (ECOG) >2	58 (58.5%)
Multiple intracranial lesions	81 (81.8%)
Infratentorial ± Supratentorial location	32 (32.2%)
Ocular Involvement (n=98)	19 (19.4%)
Positive CSF Cytology (n=82)	13 (15.8%)
Low Serum albumin (<3.5g/dl); n=96	34 (35.4%)
Elevated Serum LDH (n=81)	19 (19.4%)
Surgical Removal	40 (45%)
IELSG risk score (n=56) Low/ Int./High	7.1%/57.1%/ 35.7%
Histopathology	97.7%

Treatment

- Surgical resection was performed in 45% (n=40) due to suspicion of glioma or other brain tumor (n=36).
- Most patients (n=76) were treated with HD-MTX which was administered without PK monitoring.
- Only 27 patients received Rituximab.

Outcome

Factors Predicting Outcome

- Infratentorial involvement [HR, 1.73 (EFS) & 2.00 (OS)],
- Hypoalbuminemia [HR, 2.98 (EFS) & 4.29 (OS)] were found to be independent predictors of poor EFS as well as OS.
- Surgical removal of tumor was found to be associated with improved outcome [HR, 0.41 (EFS) & 0.29 (OS)]

Discussion

- 1. Largest Study from India**
 - A study representative of the experiences across all parts of the country.
- 2. Low Incidence of HIV-associated PCNSL**
 - India has world's third-largest HIV/AIDS population contributing to rise in the incidence of NHL, yet HIV associated PCNSL is rare including autopsy series.
 - The most plausible explanation is the earlier death of these patients due to opportunistic infections e.g.TB.
- 3. Young, Immunocompetent patients**
 - The median age is a decade younger when compared to the west and could be due to different age structure (~8%of popultion >60 years), but the contribution of environment and genetic factors might play a role.
- 4. High-Burden Disease at presentation**
 - The incidence of multiple lesions (81.8%), features of high-ICT (49.4%), patients with very poor PS at presentation (PS= 4, 40.4%) are higher as compared to west and appears to be related to the delayed diagnosis in these cases.
- 5. Better Outcome with Surgical Removal?**
 - The better outcome in patients who underwent surgical removal is possibly because of a selection bias, but the contributions of elimination of drug-resistant clones by surgical removal could not be excluded.

6. HDMTX safe without PK-monitoring

- The mortality related to HDMTX in the present study was 3.9% which is comparable (1-2.5%) tp other studies with PK-monitoring.
 - At centers with no PK-monitoring facilities, HDMTX can still be administered safely with adequate hydration, urine alkalinization, leucovorin, and monitoring of renal function and CBC..
7. Rituximab augments response and survival
- In the present study, addition of rituximab improved the incidence of CR (81.5% vs. 56.5%, p=0.03) and better 2-year EFS (57.3% vs. 40.4%, p=0.02) and 2-year OS (61.6% vs. 53.4%, p=0.056).

Conclusion

- There are significant barriers that still remain in identifying and treating this rare, aggressive yet curable brain tumor in the real world, despite the numerous advances in this field.
- Further efforts are required to improve the care by educating and supporting the community practitioners and developing multidisciplinary care for these patients.
- The survival can still be improved by further intensification during induction and consolidation and better understanding of molecular pathogenesis.

References

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