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## 627.AGGRESSIVE LYMPHOMAS: CLINICAL AND EPIDEMIOLOGICAL

### Experience with Gray Zone Lymphoma (GZL) at Mayo Clinic: A Review of Clinical Characteristics and Treatment Outcomes

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**Introduction:**
Gray zone lymphoma (GZL) is a rare lymphoid neoplasm exhibiting features intermediate between diffuse large B-cell lymphoma and Hodgkin lymphoma. Due to its rarity and relatively recent recognition by the World Health Organization in 2008, the natural history, clinical behavior, and best treatment strategies are still evolving. We present a retrospective review of GZL patients diagnosed and managed at the Mayo Clinic. This study aims to explore the clinical characteristics, treatment modalities, and outcomes of this poorly understood disease.

**Methods:**
After reviewing the electronic medical records of patients presented to the Mayo Clinic Cancer Center between March 2012 and July 2022 at the Mayo Clinic, we identified the patients who were diagnosed with GZL. Clinicopathological characteristics, disease features, treatment modalities, and outcomes were analyzed. The Kaplan-Meier method was utilized to assess survival outcomes.

**Results:**
Six patients (n=6) with GZL, all Caucasian and predominantly male 4/6 (67%), were identified. The median age at diagnosis was 37 years (range 24-57). Disease characteristics included high rates of mediastinal involvement 5/6 (83%) and bulky disease 4/6 (67%), with various stages of Ann Arbor classification represented. First-line treatment regimen varied between R-CHOP, ABVD, and DA R-EPOCH. The R-CHOP regimen was received in 3/6 patients (50%); the first patient achieved Complete Remission (CR), then managed with R-ICE, followed by consolidative autologous stem cell transplantation (auto-SCT) when relapsed. The second patient had Partial Response (PR) to R-CHOP and required consolidative radiotherapy to achieve CR, and the third R-CHOP patient achieved CR however, after multiple disease progressions that were managed with multiple regimens including R-ICE, R-CODOX-M/IVAC regimen, Nivolomab/Ipilumuab, consolidative radiotherapy, and Brentuximab vedotin. The ABVD regimen was received by 2/6 patients (33%). The first patient had CR, and the second patient had disease progression, which required treatment with R-ICE, followed by consolidative radiotherapy and auto-SCT. One patient (17%) received the DA R-EPOCH regimen and achieved CR, consolidated with auto-SCT. The median follow-up for our cohort is nine years (range, 5-13). All six GZL patients are alive and in CR (since 2019 or before) at the time of the study analysis, with an excellent flat overall survival curve. For this reason and due to the small patient sample, we could not calculate the progression-free survival data.

**Conclusions:**
Our Mayo Clinic review provides unique insights into managing Gray Zone Lymphoma (GZL), a rare disease. We reported 100% survival and remission in six GZL patients using diverse treatment strategies, contrasting with varied outcomes from other institutions. This underscores the potential of individualized treatments for GZL and the need for further, broader studies to validate our findings and refine optimal treatment approaches for this rare disease entity.

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| Variables | No. (%), or Median [range] |
|---|---|
| **Characteristics at the time of diagnosis** | |
| Age, Years | 37 [24-57] |
| Male | 4 (67) |
| Caucasian | 6 (100) |
| Hemoglobin, g/dL | 11.4 [8.2-14.4] |
| WBC, x $10^9$/L | 5.4 [2.1-13.1] |
| Absolute Lymphocyte Count, x $10^9$/L | 0.9 [0.4-1.3] |
| Platelet, x $10^9$/L | 232 [153-405] |
| Lactate Dehydrogenase, U/L | 222 [163-298] |
| Albumin, g/dL | 4.3 [4-4.9] |
| **Ann Arbor Stage** | |
| II A | 2 (33) |
| II B | 2 (33) |
| III B | 1 (17) |
| IV A | 2 (17) |
| **Unique Disease Features** | |
| Bone marrow involvement at diagnosis | 0 (0) |
| Mediastinal Disease | 5 (83) |
| Bulky Disease | 4 (67) |
| Maximum PET CT scan SUV at diagnosis | 7.3 [2.5-27.6] |
| CD 30 Positivity | 4 (67) |
| EBV Positivity by IHC | 3 (50) |
| EBV Positivity by Peripheral Blood Testing | 1 (17) |
| **Cytogenetics at diagnosis** | |
| Diploid | 6 (100) |
| **First Line Treatment** | |
| R-CHOP | 3 (50) |
| ABVD | 2 (33) |
| DA R-EPOCH | 1 (17) |
| **Other Treatment Modalities** | |
| Consolidation Radiation Therapy | 2 (33) |
| Autologous Stem Cell Transplantation | 3 (50) |
| **Response to First-Line Treatment** | |
| Complete Remission | 3 (50) |
| Partial Response | 1 (17) |
| Disease progression | 2 (33) |
| **Median OS, Years** | Not reached |
| **Median Follow up, Years** | 9 [5-13] |

**Table-1:** Baseline patients' characteristics, treatment modalities, and response to treatment.

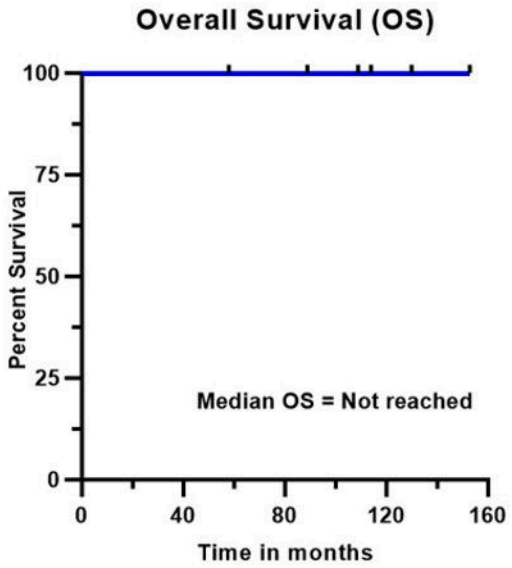


**Figure-1:** OS for patients with Gray Zone Lymphoma

**Figure 1**