

SURVIVAL OUTCOMES OF RITUXIMAB-BASED CHEMOTHERAPY IN HIGH-RISK B-CELL NON-HODGKIN LYMPHOMA IN PAKISTAN: EXPERIENCE FROM A LOW- AND MIDDLE-INCOME COUNTRY

N. Ali¹, N.Shaheen¹, Il.Sindhu ¹ A. Rashid¹, S. Ali².

¹Shaukat Khanum Memorial Cancer Hospital and Research Centre, Pediatric Oncology, Lahore, Pakistan.
²Shaukat Khanum Memorial Cancer Hospital and Research Centre. Pediatric surgical Oncology. Lahore.

OBJECTIVE

Pediatric mature B-cell non-Hodgkin lymphoma (NHL) is a highly aggressive malignancy; over years with survival has improved tremendously with the use of short courses of intensive chemotherapy and the addition of rituximab in high-income countries. However, outcomes in low- and middle-income countries remain inferior due to advanced disease at presentation, with higher treatment-related mortality, insufficient treatment facilities, and difficulties in supportive care delivery.

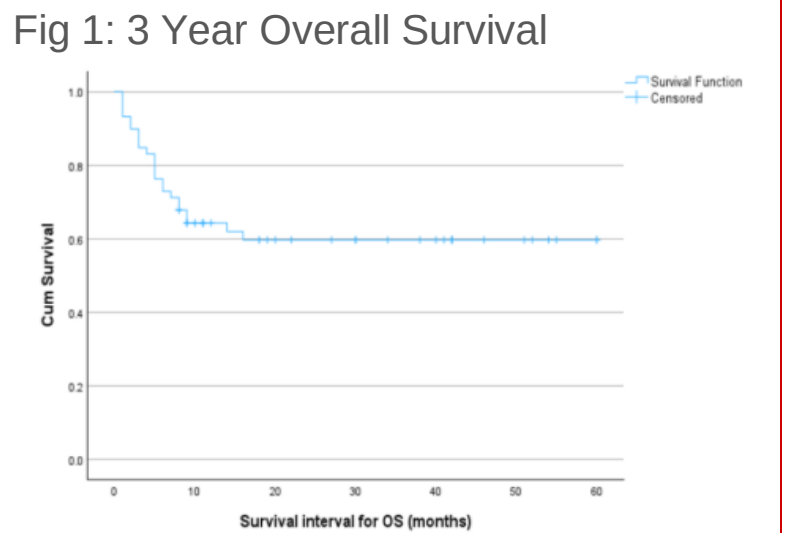
This study aimed to ascertain benefit of adding rituximab to chemotherapy, survival outcomes and treatment-related toxicities in children with high-risk

CONCLUSION

Rituximab-based immune-chemotherapy has significant survival benefits in children with high-risk mature B-cell non-Hodgkin lymphoma in lower-middle-income countries. However, treatment-related infectious mortality remains a significant challenge, emphasizing the need for stronger supportive care and better infection-control measures in resource-limited settings.

RESULTS

The actuarial 3 years overall survival of the whole group was 61.0% (Figure 1) The actuarial 3 years event free survival of the whole group was 50.8% (Figure 2).



METHODS

This retrospective study was conducted at a tertiary cancer care center in Pakistan in children under 18 years of age between January 2020 to June 2024 with newly diagnosed high risk (stage 4 with bone marrow involvement >25%, CNS involvement and patients with inadequate response on reassessment evaluation) in mature B cell NHL. This retrospective observational study investigates treatment outcomes, toxicities, and deaths treated with rituximab-based chemotherapy regimen. Overall survival (OS) and event-free survival (EFS) were estimated using the Kaplan–Meier method and compared using the log-rank test.

The cohort included 59 patients with a median age of 4 years (range 2–11). Males accounted for 89.2% of cases. Burkitt lymphoma was the predominant subtype (89.8%), and most patients presented with stage IV disease (62.7%), With a median follow-up of 21.5 months, the 3-year OS and EFS were 61% and 50.8%, respectively. Infection-related mortality, particularly sepsis, was the leading cause of death. Common toxicities include febrile neutropenia, mucositis, tumor lysis syndrome, and pneumonia.

Table 1. Toxicity related to chemotherapy.

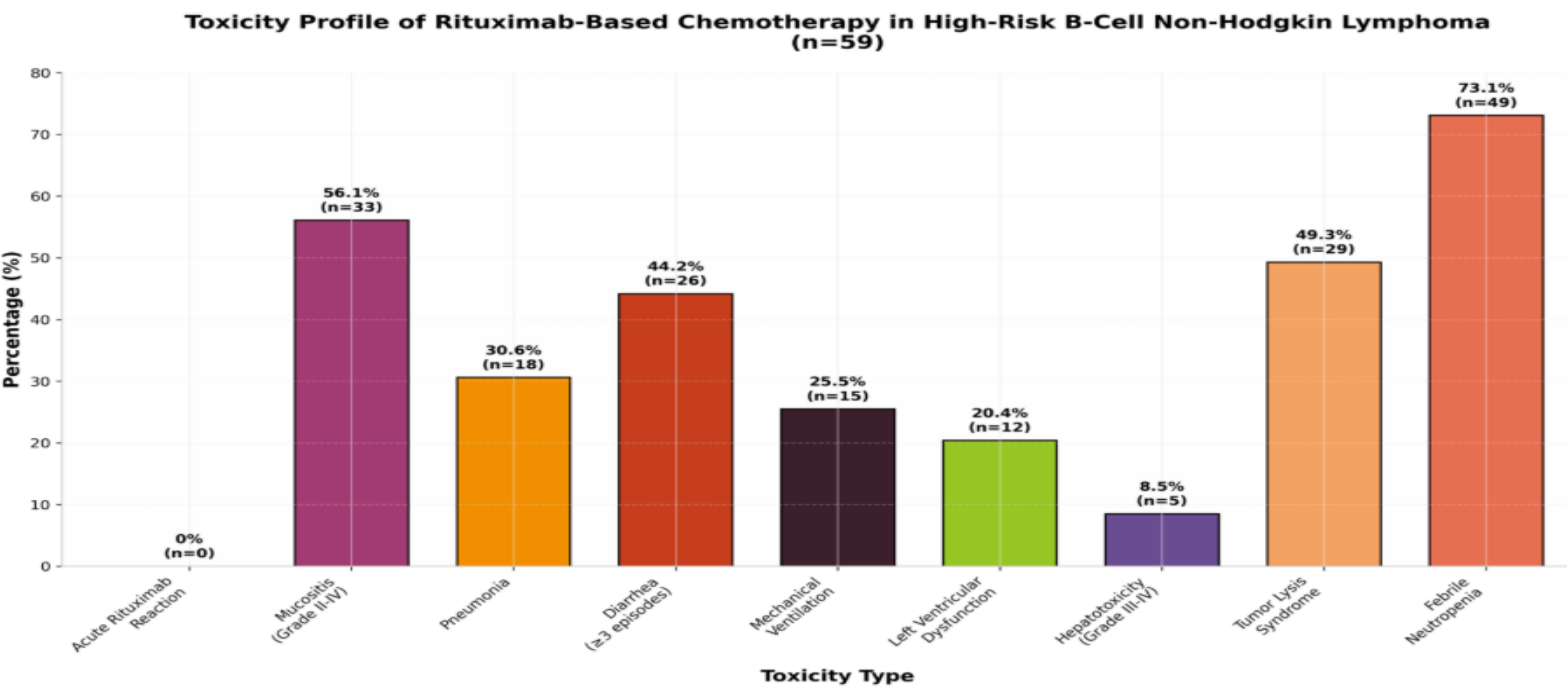


Table 2. Deaths with causes.

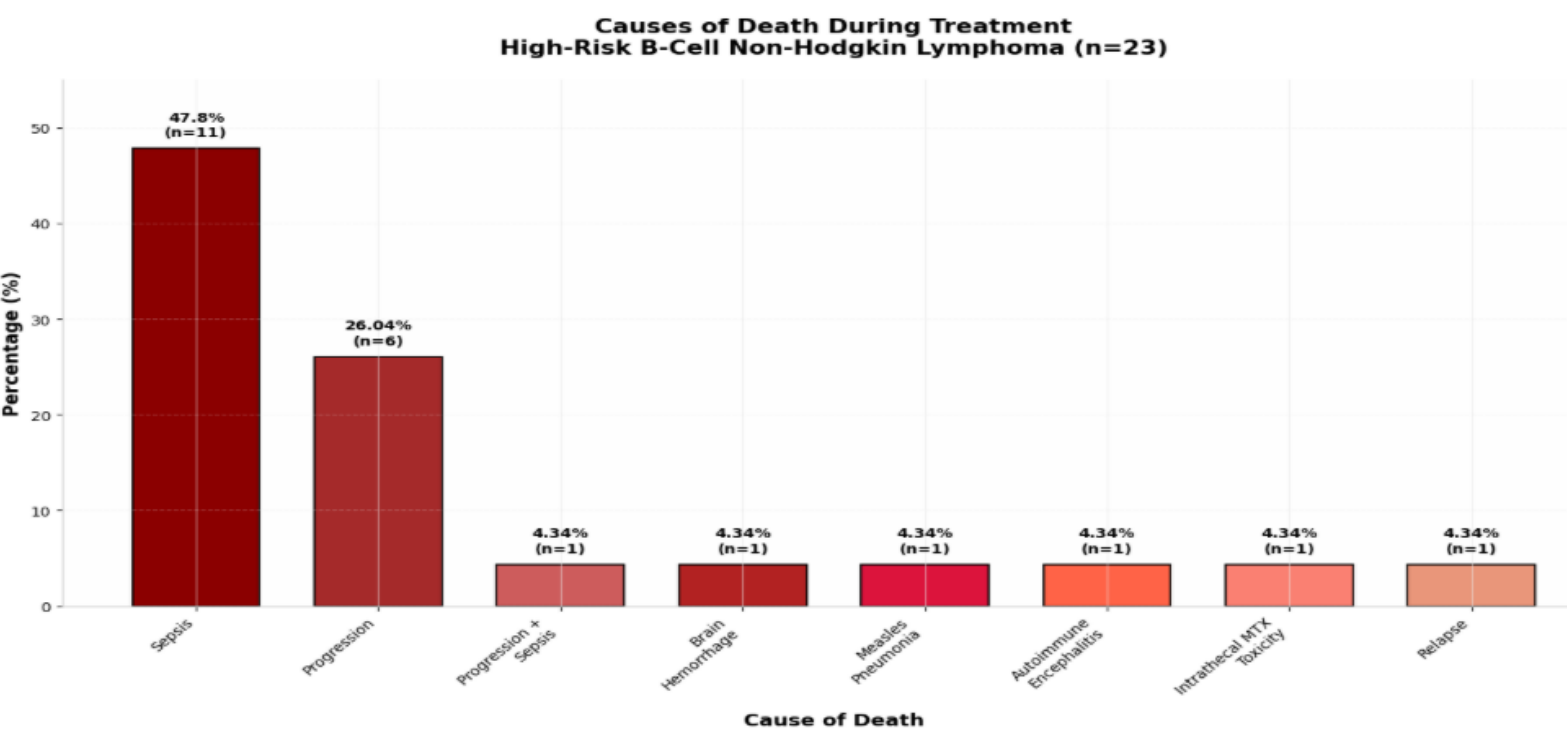


Table 3

Characteristics	N=59
Age at diagnosis(median)	4(2-11) years
<u>Gender</u>	
-Male	53(89.3%)
-Female	06(10.7%)
<u>Primary site</u>	
-Abdomen	34(57.6%)
-Bone marrow	32(54.4 %)
-CNS	11(18.7%)
-Nodal	9(15.3%)
<u>Histopathology subtype</u>	
-Burkitt lymphoma	53 (89.8%)
-Diffuse large B-cell lymphoma	2 (3.4%)
-High-grade B-cell lymphoma	2 (3.4%)
T -cell rich C cell lymphoma	2 (3.4%)
<u>Stage</u>	
-II	1(1.7%)
-III	21(35.6%)
-IV	37(62.7%)
<u>Treatment group</u>	
-B	19(32.2%)
-C	40(67.8%)
<u>Escalation chemotherapy</u>	
-After COP	4 (6.7%)
-After CYM 1	15(25.5%)
<u>Total doses of Rituximab</u>	
<6	18(31.5%)
6	41(69.5%)
<u>Lactate dehydrogenase</u>	
<2 ULN (upper limit normal, <400)	14(23.8%)
≥2 ULN (>400)	45(76.5%)

