



Optimizing Salvage Therapy for Relapsed/Refractory Hodgkin Lymphoma in Resource-Limited Settings in India: A Strategic Approach

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Abstract

Introduction In relapsed–refractory (R/R) Hodgkin lymphoma (HL), the incorporation of immune checkpoint inhibitors (ICIs) to chemotherapy has increased the CMR rates to 95% (in the setting of Pembro-GVD) and post-autologous stem cell transplant (ASCT) progression-free survival (PFS) rates to 70% to 100% (in the setting of Nivo-ICE and Pembrolizumab–Gemcitabine, Vinorelbine, and liposomal doxorubicin [Pembro-GVD]).

Objectives This study aimed to analyze the response and survival in patients with primary R/R HL who received ICI with or without chemotherapy.

Materials and Methods This retrospective study was conducted in the Medical Oncology Department of a tertiary cancer center in India. It included patients with R/R HL treated with ICI in the salvage setting. We analyzed 15 patients.

Results Among the 15 patients enrolled, there were 9 males and 6 females (M:F = 1.33) with a median age of 28 years. Six patients had early-stage, unfavorable disease, and nine had advanced disease. All patients received Doxorubicin, Bleomycin, Vinblastine, Dacarbazine (ABVD) as the first-line treatment. After first-line chemotherapy, seven patients attained CMR, and eight had persistent disease.

Of the eight patients who had primary refractory disease, the second-line treatment was salvage chemoimmunotherapy in four patients (three Nivolumab, Ifosfamide, Carboplatin, Etoposide [NICE], one Pembro-GVD), Nivolumab in one, and chemotherapy alone in three patients. In the chemoimmunotherapy group, all attained CMR. The remaining three patients treated with salvage chemotherapy showed persistent disease on reevaluation. All of them later received chemoimmunotherapy (two Pembro-GVD and one NICE) and attained CMR. The patient treated with Nivolumab alone had disease progression and later received NICE, Pembro-GVD regimen, Brentuximab Vedotin, and had persistent disease.

Among the seven patients who relapsed after primary treatment, one patient was treated with NICE, one received Nivolumab, and the other five patients were treated with chemotherapy. All patients on salvage chemotherapy had persistent disease, and four received chemoimmunotherapy as the third-line treatment. One patient was treated with Nivolumab alone after multiple prior lines of treatment and attained CMR. All patients

Keywords

- Hodgkin lymphoma
- chemoimmunotherapy
- complete metabolic response
- survival

post-ICI $\pm$ chemotherapy attained CMR. The study showed an overall response rate of 93%, with a 1-year PFS and overall survival of 93% and 100%, respectively.

Conclusion In our study, it is evident that chemoimmunotherapy remains the best salvage option in R/R HL, with CMR rates of more than 90%.

Introduction

Hodgkin lymphoma (HL) is a malignancy of lymphoid origin with bimodal age distribution and is defined by the presence of Reed–Sternberg (RS) cells. Treatment involves chemotherapy with or radiotherapy, depending on the disease stage. However, about 10% to 30% of patients are refractory to primary treatment or eventually relapse.¹ For these relapsed or refractory cases, salvage chemotherapy followed by consolidation with high-dose chemotherapy and autologous stem cell transplant (ASCT) can achieve long-term progression-free survival (PFS) in about 50% to 60% of patients.² The disease burden pre-ASCT is an important prognostic factor for survival after transplant.³ Conventional salvage chemotherapy has resulted in pre-ASCT complete response (CR) rates of about 20% to 25% and overall response rates (ORRs) of 60% to 70%.⁴ The introduction of novel agents like Brentuximab Vedotin (BV) and immune checkpoint inhibitors (ICIs) and their incorporation into salvage regimens have improved response rates and survival. ICIs, such as Nivolumab and Pembrolizumab, have been administered alongside salvage chemotherapy before ASCT, used as single-agent maintenance post-ASCT, and given to patients who have failed multiple lines of salvage treatment, including BV and ASCT. They have also been tried in the setting of allogeneic stem cell transplant. HL is one of the most “inflamed” human tumors, since RS cells account for less than 10% of the tumoral mass, and 97% of cases are associated with alterations in the programmed death ligand 1 (PDL1), PDL2, or Janus kinase 2 (JAK2) genes. HL has various mechanisms of immune escape that ICIs block. In the primary salvage setting, regimens incorporating ICIs like NICE or Pembrolizumab–Gemcitabine, Vinorelbine, and liposomal doxorubicin (Pembro-GVD) have increased the pre-ASCT complete metabolic response (CMR) rates to 85% to 95%.⁵ There are no reports of excessive toxicities associated with transplant in these patients.

Objectives

This study aimed to evaluate treatment response and survival outcomes in patients with relapsed or primary refractory HL who received ICI, either alone or combined with chemotherapy, as salvage therapy in a resource-constrained setting in India.

Materials and Methods

Study Setting

This was a retrospective study conducted in the Department of Medical Oncology at a tertiary cancer center in India. The

study included patients with primary refractory or relapsed HL who had been treated with ICIs as part of salvage therapy. We analyzed 15 patients.

Inclusion/Exclusion Criteria

Eligibility criteria included patients who were treated with ICI in the salvage setting. Patients who received ICI along with first-line chemotherapy or as maintenance after ASCT alone were excluded. Patients who were treated with salvage chemotherapy alone were also excluded.

Primary and Secondary Outcomes

The primary outcome was response to chemoimmunotherapy or immunotherapy alone in the salvage setting. The secondary outcome was overall survival (OS) at 1 year post-salvage chemoimmunotherapy or immunotherapy.

Methodology

Data about demographic details, clinical history and physical examination, baseline investigations, staging investigations, including imaging, histopathology report, and bone marrow studies, and details of primary treatment and treatment response were obtained from the medical records of patients. Data regarding chief complaints, clinical findings, and stage at relapse, salvage treatment received, response to treatment, and transplant details were also noted. Disease staging was done using the Ann Arbor staging system. Treatment response was evaluated with PET-CT imaging. PFS was calculated from the start of salvage chemoimmunotherapy until documented progression or death, while OS was determined from the beginning of definitive chemotherapy to either the last follow-up or death.

Statistical Analysis

The baseline patient characteristics, treatment details, and response assessment were analyzed using descriptive statistics. OS was obtained by the Kaplan–Meier method, using SPSS v. 11.

Ethical Approval

The study was approved by the Institutional Review Board, IRB number 08/2025/04, on August 28, 2025. Informed consent was waived due to the retrospective nature of the study. All procedures performed in the study were according to the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Results

Baseline Characteristics and Primary Treatment (► Table 1)

There were 15 patients in this study, with 9 males and 6 females (M:F = 1.33). The median age of our study group was 28 years (range 16–44 years). Six patients had early-stage, unfavorable disease, 9 had advanced disease (2 patients with stage III and 7 with stage IV) at diagnosis, and 10 had bulky disease at presentation. The most common extranodal site of involvement was the lung. Other sites included liver, bone, and soft tissue. All except two patients had B symptoms at presentation. All patients received Doxorubicin, Bleomycin, Vinblastine, Dacarbazine (ABVD) as the first-line treatment. Nine patients received six cycles. In four patients, chemotherapy was de-escalated to AVD after the interim PET scan, and in one patient, treatment was intensified to escalated BEACOPP. Six patients received involved site radiotherapy (ISRT) to the bulky site as consolidation. After first-line chemotherapy, seven patients attained CMR, and eight had persistent disease.

Salvage Treatment (► Table 2)

Patients with Primary Refractory Disease

Primary refractory disease was noted in eight patients, and at the time of relapse, all had an Eastern Cooperative Oncology Group (ECOG) performance status (PS) of 1; two had leukocytosis, one had anemia, and one had hypoalbuminemia. Stage I disease was observed in one patient, stage II in one patient, stage III in four patients, and stage IV in two patients.

Among the eight patients, four received chemoimmunotherapy, one received programmed death-1 (PD-1) inhibitor monotherapy, and three received chemotherapy alone as salvage treatment. In the immunotherapy ± chemotherapy group, three patients received NICE, one received Pembro-GVD, and one received Nivolumab as a single agent. All those who received chemoimmunotherapy attained CMR, two underwent ASCT, and two are awaiting the same. The remaining three patients who received salvage chemotherapy showed persistent disease on evaluation. All of them later received chemoimmunotherapy. Two patients received Pembro-GVD, and one received the NICE regimen. All three of them attained CMR, two underwent ASCT, and the third patient is awaiting transplant. Disease progression was observed in the patient who received single-agent Nivolumab, and she later received NICE, Pembro-GVD, and BV. She still has a persistent disease.

Patients with Relapsed Disease

Seven patients relapsed after primary treatment. The median disease-free interval was 9 months (range 3–31 months). All patients had an ECOG PS of 1. Laboratory evaluation revealed anemia in one patient and leukocytosis in five patients. Extranodal involvement was noted in three patients, including lung involvement in two and skeletal lesions in two patients. Bulky disease was present in one patient. Regarding treatment, one patient received the NICE regimen, another was treated with single-agent Nivolumab, and the remaining five patients received salvage chemotherapy alone. All patients on salvage chemotherapy alone as second-line treatment had persistent disease post-chemotherapy, and

Table 1 Baseline characteristics and primary treatment

Characteristics (n = 15)		Frequency, n (%)
Male:Female ratio		1.33:1
Median age (years)		28 (16–44)
B symptoms		13 (86)
Stage	I	0 (0)
	II	6 (40)
	III	2 (13.3)
	IV	7 (46.6)
Bulky disease at presentation		10 (66.6)
First-line regimen	ABVD × 4	1 (6.6)
	ABVD × 6	9 (60)
	ABVD × 2–AVD × 4	2 (13.4)
	ABVD × 4–AVD × 2	2 (13.4)
	ABVD × 2–escBEACOPP × 4	1 (6.6)
Number of patients who received RT		6
Response to first-line regimen	Primary refractory	8
	CMR with later relapse	7

Abbreviations: ABVD, Doxorubicin, Bleomycin, Vinblastine, Dacarbazine; AVD, Doxorubicin, Vinblastine, Dacarbazine; escBEACOPP, Bleomycin, Etoposide, Doxorubicin, Vincristine, Procarbazine, Prednisolone; CMR, complete metabolic response; RT, radiotherapy.

Table 2 Details of salvage treatment

Characteristics (<i>n</i> = 15)			Frequency, <i>n</i> (%)
Median duration of disease-free interval to first relapse			9 months
Regimens used in the second line	NICE		4
	Pembro-GVD		1
	Nivolumab		2
	Chemotherapy		8
Regimens used in subsequent lines	NICE		5
	Pembro-GVD		3
	Single-agent Nivolumab		2
	Brentuximab Vedotin		1
	Chemotherapy		3
	Lenalidomide		1
Median dose of ICI	Nivolumab		140 mg (100–240 mg)
	Pembrolizumab		200 mg (100–200 mg)
Response to salvage regimens	Chemoimmunotherapy	CMR	12
		PD	1
	Chemotherapy	CMR	0
		PD	11
	Single-agent ICI	CMR	2
		PD	1
Number of patients with immune-related side effects			3
Number of patients who underwent ASCT			10
Median duration of DFI after immunotherapy			7 months
ORR after ICI ± chemotherapy			93%
1-year PFS			93%
1-year OS			100%

Abbreviations: ASCT, autologous stem cell transplant; CMR, complete metabolic response; DFI, disease-free interval; ICI, immune checkpoint inhibitor; NICE, Nivolumab, Ifosfamide, Carboplatin, Etoposide; ORR, overall response rate; OS, overall survival; PD, progressive disease; Pembro-GVD, Pembrolizumab, Gemcitabine, Vinorelbine, liposomal doxorubicin; PFS, progression-free survival.

four received chemoimmunotherapy as the third-line treatment (NICE in three and Pembro-GVD in one). One patient, treated with single-agent Nivolumab after multiple lines, achieved CMR. All seven patients post-immunotherapy ± chemotherapy attained CMR, and six underwent ASCT, and one is awaiting the same.

Doses of Immune Checkpoint Inhibitors

Altogether, 11 patients received Nivolumab with a median dose of 140 mg (100–240 mg) and 5 received Pembrolizumab with a median dose of 200 mg (100–200 mg). There were no added toxicities noted during ASCT for patients who received chemoimmunotherapy as salvage.

Immune Checkpoint Inhibitor-Related Toxicities

In the primary refractory setting, one patient experienced grade 2 drug-induced liver injury following treatment with Pembrolizumab, and another had drug-induced autoimmune myasthenia gravis with inflammatory myopathy after

three cycles of NICE. The patient who had liver injury received supportive measures, and ICI was continued after liver function normalized. For the other patient who developed autoimmune myasthenia gravis, ICI was discontinued. But he had attained CMR and is currently awaiting ASCT. His neurological status has improved after drug cessation.

In the relapsed setting, one patient developed drug-induced lung injury after one cycle of Pembro-GVD. He was treated with steroids, and further doses of ICI were avoided. He attained CMR and is currently awaiting ASCT.

Survival

The OS of the cohort was 100% at 1 year, and the median OS was 31 months.

Discussion

HL is a highly inflamed tumor since Reed–Sternberg (RS) cells constitute a minority of the tumor mass. The HRS cells

exhibit various mechanisms of immune escape, including downregulation of human leukocyte antigen (HLA) class I and II expression, upregulation of *PDL1* and *PD1*, and secretion of paracrine factors like interleukin (IL) 10 and tumor growth factor (TGF) beta, which attract T-regulatory and myeloid-derived suppressor cells, which, in turn, lead to exhaustion of CD8 T cells.⁶ About 97% of HL cases harbor a mutation in the 9p24.1 locus, which includes *PD1*, *PDL1*, and *JAK2*, consisting of copy gains, amplifications, and polysomy. *PDL1* expression is also amplified by tumor-associated macrophages. Increased *PDL1* expression detected by immunohistochemistry is associated with advanced stage and inferior PFS after front-line chemotherapy.⁷ The interaction of *PD1*–*PDL1* can be disrupted by ICI, which causes reactivation of cytotoxic CD8 T cells and natural killer (NK) cells against HRS cells.⁸ They also modulate the microenvironment with rapid clearance of CD4 T-regulatory cells, *PDL1*-positive macrophages, and withdrawal of prosurvival signals.⁹ Additional molecular alterations, such as activation of nuclear factor (NF) kappa-B, microsatellite instability, PI3K signaling, high tumor mutational burden, and NK activation, also enhance the response to PD-1 inhibition.¹⁰ This underlies the rationale for using PD-1 inhibitors in both first-line salvage therapy for HL.

Nivolumab and Pembrolizumab were the first checkpoint inhibitors to be used in recurrent HL in phase 2 trials, Checkmate 205¹¹ and Keynote 087,¹² respectively. Other PD1 inhibitors like Sintilimab and Tislelizumab were subsequently developed in China.^{13,14}

Conventional chemotherapy as first salvage resulted in CR rates of only 20 to 25%. These rates are lower for patients with primary refractory disease. The addition of BV to salvage chemotherapy increased the pre-ASCT CMR rates to 83% with a 2-year PFS ranging from 63% to 81%¹⁵ (► **Table 3**). The addition of ICI to chemotherapy has further increased the CMR rates to 90% to 95%.⁵ Pembrolizumab was combined with the GVD regimen in 39 patients with relapsed, refractory HL for two to four cycles. The ORR was 100%, with 95% of the patients achieving CMR. Ninety-five percent of patients underwent ASCT, and all the patients remained in remission at 1-year follow-up.⁵ Another multicenter, prospective trial explored Nivolumab in combination with ICE in 39 patients with relapsed, refractory HL. Treatment was initiated with six cycles of biweekly Nivolumab. In those patients who remained without CR after six cycles, two cycles of NICE were given. The CR rates were 71% after Nivolumab alone and 89% after NICE. The 2-year PFS and OS in all treated patients were 72% and 95%, respectively. The 33 patients who proceeded directly to ASCT had a 2-year PFS of 94%.¹⁶ A phase 2 study investigated combining Pembrolizumab with ICE chemotherapy in 42 patients with relapsed or refractory HL. After two cycles, the CMR rate was 86.5%, and the 2-year PFS was 88.2%.¹⁷ In our study, there were 15 patients. Nine patients received NICE, four patients received Pembro-GVD, and two received single-agent Nivolumab. All except one patient achieved CMR to chemoimmunotherapy (93% CMR rate). This is comparable to the response rates achieved in trials with Pembro-GVD or NICE. Among the 14 patients who

Table 3 Trials of PD-1 inhibitor-based regimens as first-line salvage in Hodgkin lymphoma

Study	Drug used	Number of patients	Inclusion criteria	CR rate	Overall survival
Moskowitz et al, 2021 ⁵	Pembro-GVD	39	First salvage	95%	100% at 1 year
Mei et al, 2022 ¹⁶	Nivolumab × 6 cycles–NICE × 2 if not in CR	39	First salvage	71% CR after Nivolumab, 89% with NICE	2-year OS 94% with Nivolumab alone and 95% after NICE
Bryan et al, 2021 ¹⁷	Pembrolizumab + ICE	42	First salvage	86.5%	2 died (1 cardiac arrest during stem cell collection, 1 respiratory failure due to engraftment syndrome)
Advani et al, 2021 ¹⁵	BV + Nivolumab	91	First salvage	67%	93% at 2 years
Harker-Murray et al, 2023 ²⁸	BV + Nivolumab × 4–BV if Bendamustine if not in CMR	43	First salvage before ASCT	59% after BV + Nivolumab	NR
Desai et al, 2023 ¹⁹	PD-1 inhibitors ± chemotherapy/BV	65	Salvage before ASCT	–	2-year OS 98.3%
Massa et al, 2025 ²⁹	BV + Pembrolizumab	24	Salvage before ASCT	81%	NR
Our study	Pembrolizumab-GVD, NICE, Nivolumab	15	Salvage before ASCT	93%	100% OS at 1 year

Abbreviations: ASCT, autologous stem cell transplant; BV, Brentuximab Vedotin; CMR, complete metabolic response; CR, complete response; NICE, Nivolumab, Ifosfamide, Carboplatin, Etoposide; NR, not reported; OS, overall survival; PD-1, programmed death-1; Pembro-GVD, Pembrolizumab, Gemcitabine, Vinorelbine, liposomal doxorubicin.

Table 4 Trials of PD-1 inhibitor-based regimen in other lines of salvage

Study	Drug used	Number of patients	Inclusion criteria	CR rate	Overall survival
Checkmate 205 ¹¹	Nivolumab	243	Failed ASCT and/or BV	21%	87-88% at 2 years
Keynote 087 ¹²	Pembrolizumab	210	Failed ASCT and/or BV	28%	90.9% at 2 years
Orient 1 ¹³	Sintilimab	92	Relapse after ≥ 2 lines	34%	No deaths
BGB-A317-203 ¹⁴	Tislelizumab	70	Relapse after ASCT or ≥ 2 lines	61%	1 death of PD
Song et al, 2019 ³⁰	Camrelizumab	75	Relapse after ASCT or ≥ 2 line	28%	96% at 9 months
Armand et al, 2020 ³¹	Pembrolizumab	31	Relapse after BV	19%	87% at 2 years
Song et al, 2020 ²⁰	Tislelizumab	70	Relapse after ASCT or ≥ 2 lines	63.9%	98.6% at 9 months
Kuruville et al, 2021 ²¹	Pembrolizumab	304	Relapsed refractory HL is not eligible for ASCT	25%	NR
Liu et al, 2021 ³²	Camrelizumab	61	Relapse after ≥ 2 lines	32%	2-year OS: 100%
Ansell et al, 2015 ³³	Nivolumab	23	Relapse after ≥ 2 lines	17%	NR
Wu et al, 2022 ³⁴	Camrelizumab	75	Relapse after ASCT or ≥ 2 lines	ORR 76%	3-year OS: 82.7%
Younes et al, 2016 ³⁵	Nivolumab	80	Relapse after ASCT and BV	9%	OS at 6 months: 98.7%
Beköz et al, 2017 ³⁶	Nivolumab	82	Relapse after ASCT	21%	OS at 6 months: 91.2%
Bair et al, 2019 ³⁷	Nivolumab	53	Salvage after ≥ 2 lines	45%	1-year OS: 89%
Merryman et al, 2021 ²³	PD-1 inhibitor	209	Relapsed HL pre-allo-SCT	–	2-year OS: 82%
Merryman et al, 2017 ³⁸	PD-1 inhibitor	39	Relapsed HL pre-allo-SCT	–	1-year OS: 89%
Haverkos et al, 2017 ²⁴	PD-1 inhibitors	31	Relapse post-allo-SCT	50%	NR
Herbaux et al, 2017 ³⁹	Nivolumab	20	Relapse post-allo-SCT	42%	1-year OS: 78.7%

Abbreviations: Allo-SCT, allogenic stem cell transplant; ASCT, autologous stem cell transplant; BV, Brentuximab Vedotin; CR, complete response; HL, Hodgkin lymphoma; NR, not reported; OS, overall survival; PD, progressive disease; PD-1, programmed death-1.

attained CMR, 10 have undergone ASCT and are disease-free, while the rest are awaiting transplant. In our study, there was an OS of 100% at 1 year. This is comparable with trials incorporating Pembrolizumab with GVD (OS at 1 year 100%) and NICE (OS at 1 year 95%). A recent retrospective study compared outcomes among 183 patients who underwent ASCT from 2011 to 2020 after receiving platinum-, gemcitabine-, BV-, or PD-1 inhibitor-based regimens. The 4-year PFS was 91% among patients treated with PD-1-based therapy compared to 66% in those who received conventional chemotherapy.¹⁸ Similarly, a multicenter, retrospective study of 936 patients receiving various salvage regimens reported a 2-year post-ASCT PFS of 79.7% for patients treated with who received PD-1 inhibitor-based therapy versus 49.6% for those who received chemotherapy alone.¹⁹

In our study, three patients developed immune-related adverse events. This included one case of drug-induced lung injury, one with drug-induced liver injury, and one with autoimmune myasthenia gravis. For the patient with lung injury and myasthenia gravis, immunotherapy was stopped. For the other patient, ICI was continued after normalization of liver function with treatment interruption. There

were no additional complications during or after ASCT. In the prospective study of Pembro-GVD, the most common immune-related adverse events were rash (19 patients), transaminitis (16 patients), and hypothyroidism in 5 patients. Grade 3 events were treated with steroids and required treatment interruptions. No patients required discontinuation of therapy, and no additional toxicities were observed during ASCT.⁵ In the multicenter study evaluating Nivolumab/NICE, three patients experienced grade 3 or higher adverse events related to Nivolumab monotherapy (immune-related encephalitis, grade 3 thrombocytopenia, and grade 4 lymphopenia). One patient developed grade 3 hepatitis, colitis, and pruritis post-ASCT, which was attributed to pre-ASCT Nivolumab.¹⁶ In the trial studying Pembrolizumab-ICE, no immune-related adverse events necessitated discontinuation of ICI therapy. However, one patient died from cardiac arrest during stem cell collection, and another succumbed to acute respiratory failure secondary to engraftment syndrome shortly after early ASCT.¹⁷ Recent studies of patients undergoing ASCT following PD-1 blockade have reported a high incidence of engraftment syndrome, especially in those who received

Pembro-GVD, although the rates have been much lower with NICE.

In the primary salvage setting, ICI has been combined with BV. In a phase I/II study, patients with relapsed and patients with relapsed or refractory HL were treated with four cycles of BV–Nivolumab followed by ASCT. The ORR was 85%, with a CR rate of 67%. After a median follow-up of 22.6 months, the 2-year PFS and OS were 78% and 93%, respectively. Most adverse events were grade 1 or 2.¹⁵

ICIs have been administered as monotherapy in patients who relapsed following multiple prior treatments, including BV and autologous SCT, and have been associated with CR rates ranging from 25% to 60%^{11,20} (► **Table 4**). In transplant-ineligible patients who have received multiple lines, Pembrolizumab has demonstrated CR rates of 25%.²¹ They have also been used as maintenance after an ASCT.²² In the setting of allogeneic stem cell transplant, ICI before allo-ASCT has resulted in increased incidence of grade 4 acute graft versus host disease (GVHD), hyperacute GVHD, and liver veno-occlusive disease.²³ Although it may increase the efficacy of allo-SCT, the recommendation is to stop ICI at least 6 weeks before allo-SCT. The use of ICI post-allo-SCT has resulted in increased incidence of severe steroid-refractory GVHD and should be avoided up to 6 months post-transplant.²⁴

Beyond improving CMR rates, ICI may also resensitize heavily pretreated patients to subsequent chemotherapy.²⁵ In patients who experienced disease progression after discontinuing immunotherapy, reintroduction of ICI produced comparable response rates and PFS to the initial treatment course.²⁶ For patients who continue ICI beyond progression, there is an improvement in PFS and a longer time to subsequent treatment failure.²⁷

A phase 3 trial (ECOG-ACRIN 4211) is currently planned to compare a chemotherapy arm (investigator's choice of ICE, GVD, or BV/bendamustine) with Pembrolizumab combined with chemotherapy to definitively assess the role of second-line immunotherapy in a prospective randomized trial.

Conclusion

In our study, it is evident that chemoimmunotherapy remains the best salvage option in relapsed–refractory (R/R) HL, with CMR rates of more than 90%. These regimes are well-tolerated and have manageable toxicities, even during ASCT. Even a dose of 100 mg of Nivolumab is effective when combined with standard salvage chemotherapy in HL.

Patient Consent

Informed consent was waived due to the retrospective nature of the study.

Authors' Contributions

P.N.: Contributed towards the design of the article, definition of intellectual content, literature search, data acquisition, manuscript preparation and editing, and guarantor.

S.M.T.: Contributed towards the introduction of the concept and design of the article, definition of intellectual content, manuscript preparation, manuscript editing, and manuscript review, and guarantor.

P.N.P.: Contributed towards manuscript preparation and manuscript review.

G.A.: Contributed towards manuscript preparation and manuscript review.

S.P.M.: Contributed towards manuscript preparation and manuscript review.

Conflict of Interest

None declared.

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