

## Highlights of Abstracts on Lymphoma in the Annual Conference ISHBT Kochi 2018

Rakhee Kar<sup>1</sup>

Received: 10 December 2018 / Accepted: 21 December 2018 / Published online: 7 January 2019  
© Indian Society of Hematology and Blood Transfusion 2019

**Abstract** Lymphomas constitute a vast and heterogenous group of predominantly solid haematopoietic malignancies. Immunohistochemistry has always played a pivotal role in the diagnosis of lymphomas. Many new prognostic immunohistochemical markers have also come up and are being increasingly employed. The unraveling of molecular pathways in the study of lymphomas has opened the possibility of various new prognostic markers. Staging of lymphomas relies a lot on imaging. With the increasing use of positron emission tomography/computerized tomography scan for staging, many studies have shown that it has a high sensitivity for detecting bone marrow (BM) involvement especially in Hodgkin lymphoma thereby obviating the need for BM biopsy. Treatment option though heavily chemotherapy-regimen based, relapsed/refractory lymphomas pose a therapeutic challenge despite the advent of salvage chemotherapy, monoclonal antibodies and stem cell transplantation. Response rates to therapy also show a great deal of variation. The 59th Annual Conference of ISHBT “Haematocon” 2018 held at Kochi, Kerala had 27 abstracts which included 17 case series and 10 case reports presented under the lymphoma track. This brief review summarizes the salient findings as a reflection of on-going studies on lymphoma from various parts of our country.

**Keywords** Abstract · DLBCL · Extra nodal · Hodgkin lymphoma · Lymphoma · PET-CT

### Introduction

Lymphomas constitute a vast and heterogenous group of predominantly solid haematopoietic malignancies. Apart from their phenotypic and genotypic heterogeneity, there is also a great deal of regional variation in the types of lymphomas encountered. This brief review summarizes the salient findings of the original abstracts on lymphoma presented in the 59th Annual Conference of ISHBT, “Haematocon” 2018 held at Kochi, Kerala as a reflection of on-going studies on lymphoma from various parts of our country.

### Methodology

Review of published abstracts and inputs recorded from personally attended sessions have been summarized as highlights presented herein. There was one study on lymphoma selected for presentation in the JC Patel award category, two abstracts for oral presentation and 25 abstracts for poster presentation under the lymphoma track. The abstract selected for JC Patel award category was also included under poster section. Hence a total of 27 research abstracts were reviewed. These were scrutinized based on regional distribution and type of study and were then segregated into the broad subtypes of Hodgkin lymphoma (HL), non-Hodgkin lymphoma (NHL), extra nodal lymphoma (ENL), cutaneous lymphoma and other studies in general. Case series highlighting important findings were preferentially selected along with few exceptional case reports with novel findings. A large series on hairy cell leukemia (HCL) was also included in lymphoma track of published abstracts and hence has been summarized under

---

✉ Rakhee Kar  
drrakheekar@gmail.com

<sup>1</sup> Department of Pathology, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry 605006, India

NHL. Lymphoma studies presented under other tracks like stem cell transplant were excluded to avoid duplication.

## Results

The 27 research abstracts included 17 case series and 10 case reports. The regional distribution was 11, eight, four and four papers from southern, northern, western and eastern part of India respectively. There were six studies on HL, 15 studies on NHL of which seven were on ENL and two on cutaneous lymphoma and four were general.

### Hodgkin Lymphoma

In a case series on 43 patients of HL, estimation of plasma Epstein-Barr Virus (EBV) DNA at diagnosis showed 37.2% positive cases. The complete remission (CR) rate was better for patients who were positive for EBV DNA (81.8%) compared with those who were negative for EBV DNA (68%) although the observation was not statistically significant [1]. In a study on 98 patients of HL with biopsy proven bone marrow (BM) involvement, positron emission tomography (PET) scan was positive for BM in 98% patients. In 17.3% patients, BM was the primary site of involvement [2]. In another large study on 321 patients of HL, 268 completed 6 cycles of ABVD with response assessment being positron emission tomography/computerized tomography (PET/CT) in 185 and ultrasonography in 83. A significantly higher number of patients in the PET/CT group received involved field radiation therapy. However, there was no difference in event free survival (EFS) between the two groups. Hence the authors conclude that basic imaging modalities could still be used as assessment tools in a resource limited setup [3].

### Non-Hodgkin Lymphoma

There were two case series looking at prognostic markers in Diffuse Large B Cell Lymphoma (DLBCL). In one of them, 93 patients treated with R-CHOP were enrolled. A cut-off of 1.81 lymphocyte monocyte ratio (LMR) defined as absolute lymphocyte count/absolute monocyte count derived from receiver operating characteristic (ROC) curve was used. Patients with  $LMR < 1.81$  were associated with poor treatment outcome and likelihood of relapse compared with those with  $LMR > 1.81$  [4]. In another study on 35 patients, expression of immunohistochemical markers for programmed cell death ligand1 (PDL1) and programmed cell death1 (PD1) was studied. There was no statistically significant association between PDL1 and PD1 status with respect to clinical features, Hans subtype, staging, risk stratification and survival characteristics

although the overall survival (OS) was better in PD1 high group compared with PD1 low group [5].

Among the other studies, a series of 22 cases of T cell/Histiocyte rich large B cell lymphoma (THRBL) with 46.7% BM involvement was presented highlighting the immunohistochemical marker profile and reiterating that nodular lymphocyte predominant Hodgkin lymphoma (NLPHL) is a close differential [6]. In a series on 79 patients with HCL, 53 patients received cladribine. The median time to neutrophil and platelet recovery was 22 and 17 days respectively. While 92% achieved remission, early mortality in 4 patients due to gram negative sepsis was reported. The 5-year EFS and OS was  $85.4 \pm 6.8\%$  and  $94.3 \pm 3.2\%$  respectively [7]. A series of T cell lymphomas was presented with a prevalence of 18.1% [8] which was similar to an earlier prevalence study from southern India with T-NHL comprising 17.3% [9] and the commonest subtype being peripheral T-cell lymphoma-not otherwise specified (PTCL-NOS) in both [8, 9]. A well worked-up rare case of intravascular B cell lymphoma diagnosed at autopsy with widespread dissemination and involvement of glomerular capillaries with BM showing infiltration along with haemophagocytosis was presented [10].

### Extra-Nodal Lymphoma

A study from eastern region found a prevalence of 1% (15 out of 1560 NHL) of exclusive EN involvement among all NHL [11] which is in contrast with an earlier study from the southern region where the prevalence of primary EN lymphomas was 22.6% [12]. DLBCL was the commonest type in both the studies [11, 12]. In a series on thyroid lymphomas [13], DLBCL was the commonest subtype (72.7%) followed by mucosa associated lymphoid tissue (MALT) lymphoma (27.3%) whereas in a series on orbital lymphomas [14], low grade indolent lymphomas were commoner. Both these sites had good response to therapy [13, 14]. In another large series of cases of DLBCL, it was found that two or more EN sites of involvement predicted inferior survival compared to nil or single EN site of involvement. Serosal and skin/soft tissue involvement predicted poor survival [15].

### Cutaneous Lymphoma

A rare case of subcutaneous panniculitis like T cell lymphoma (SPTCL) with associated hemophagocytic lymphohistiocytosis (HLH) with favourable response to BFM-90 protocol was presented [16].

## Other Studies

Among the other studies on lymphomas in general, a large series of 187 cases of lymphoproliferative disorders with various patterns of BM infiltration was presented. Small lymphocytic lymphoma/chronic lymphocytic leukemia (SLL/CLL) comprised 20.3% and HL 13.4%. Peripheral blood involvement was seen in 51% and BMA positivity was seen in 82% [17]. In a study on 75 cases of lymphoma (34 HL, 41 NHL of which 28 were aggressive and 13 were indolent), PET-CT was shown to have excellent sensitivity and negative predictive value for detection of BM involvement in HL and aggressive NHL but not in indolent NHL [18]. A series on 47 pediatric lymphoproliferative disorders reported prevalence of NHL 59% and HL 41% with majority of NHL being T Lymphoblastic Lymphoma (34%) and EN involvement in 40% [19]. Another interesting series of 27 LN biopsies that had features of atypical lymphoid hyperplasia was presented. Subsequent LN biopsy done in nine of these patients turned out to be lymphomas; four revealed HL with interfollicular pattern in the same biopsy; seven cases had other specific patterns of reactive hyperplasia and seven cases still could not be categorized further. This study emphasized the importance of detailed work-up and repeat biopsy in such diagnostically challenging cases with atypical morphology [20].

## Conclusion

In conclusion, this review highlights a potpourri of studies on lymphoma comprising case reports and case series from various institutes across India. Some of these were diagnostic challenges, some were prevalence data, some were on treatment outcome, some were on staging and some were on prognostic markers.

## Compliance with Ethical Standards

**Conflict of interest** The author declares that she has no conflicts of interest.

**Ethical Approval** Not sought as this manuscript is an invited brief review and does not contain any studies with human/animal participants performed by the author.

## References

1. Devi N, Narayanan G, Lakshmi S, Nair S, Prakash NP (2018) Estimation of plasma EBV DNA levels in Hodgkin's Lymphoma and its correlation with treatment response. *Indian J Hematol Blood Transfus* 34(Suppl 1):S353
2. Kumar AS, Epari S, Gupta S, Sengar M, Jain H, Shet T (2018) Marrow involvement in Hodgkin's Lymphoma: pathology findings in a fading disease. *Indian J Hematol Blood Transfus* 34(Suppl 1):S347
3. Korula A, Fouzia NA, Devasia A, Kulkarni U, Abraham A, Srivastava A, George B, Mathews V (2018) Impact of imaging modality on clinical outcome in hodgkin lymphoma in a resource constrained setting. *Indian J Hematol Blood Transfus* 34(Suppl 1):S59
4. Siddiqui S, Kapoor J, Singh R, Agrawal N, Mehta P, Thekkudan SF, Garg A, Bhurani D, Ahmed R (2018) Absolute lymphocyte count/absolute monocyte count may determine prognosis in diffuse large B-cell lymphoma. *Indian J Hematol Blood Transfus* 34(Suppl 1):S350–S351
5. Chawla M, Dhar SK, Saha B, Venkata M, Das M, Nayak M, Damodar S, Badiger S, Bhat S, Nataraj KS (2018) Expression of Programmed Cell Death Ligand1 (PDL1) and Programmed Cell Death1 (PD1) in patients with Diffuse Large B Cell Lymphoma (DLBCL): an Indian Study. *Indian J Hematol Blood Transfus* 34(Suppl 1):S338–S339
6. Dcunha NJ, Chandramohan J, Sigamani E, Korula A, Mathews V, Srivastava A, George B, Manipadam M (2018) T cell/histiocyte rich large B cell Lymphoma (THRLBCL): a clinicopathological and immunohistochemical study. *Indian J Hematol Blood Transfus* 34(Suppl 1):S352
7. Devasia AJ, Korula A, Kulkarni U, Fouzia NA, Abraham A, Srivastava A, George B, Balasubramaniam P, Mathews V (2018) Hairy cell leukemia: long term response to cladribine. *Indian J Hematol Blood Transfus* 34(Suppl 1):S340
8. Sen A, Baul S, Jitani A, Mandal P, De R, Dutta S, Dolai T, Chakrabarti P (2018) T-Cell Lymphoma: an experience from a tertiary care hospital in eastern India. *Indian J Hematol Blood Transfus* 34(Suppl 1):S342
9. Roy A, Kar R, Basu D, Badhe BA (2013) Spectrum of histopathologic diagnosis of lymph node biopsies: a descriptive study from a tertiary care center in South India over 5½ years. *Indian J Pathol Microbiol* 56(2):103–108
10. Seshadri N, Waghmare T, Vaideeswar P, Prabhat D (2018) Intravascular B cell lymphoma: a rare case diagnosed at autopsy. *Indian J Hematol Blood Transfus* 34(Suppl 1):S357
11. Jain M, Baul S, Karthika V, Mandal P, De R, Dolai T, Chakrabarti P (2018) Primary extranodal non-Hodgkin's Lymphoma: a retrospective analysis of its clinicopathological features and treatment response in a tertiary centre of eastern India. *Indian J Hematol Blood Transfus* 34(Suppl 1):S345
12. Mishra P, Das S, Kar R, Jacob SE, Basu D (2015) Primary extranodal non-Hodgkin lymphoma: a 3-year record-based descriptive study from a tertiary care center in Southern India. *Indian J Pathol Microbiol* 58(3):296–300
13. Kashyap R, Garg A, Lal H (2018) Primary thyroid lymphomas: an enigmatic entity- experience from a tertiary care centre. *Indian J Hematol Blood Transfus* 34(Suppl 1):S336
14. Jindal N, Mishra K, Goni D, Jain A, Lad D, Khadwal A, Bal A, Malhotra P, Das A, Prakash G (2018) Clinico-Pathological profile and treatment outcome of Primary Orbital Lymphoma from a single center. *Indian J Hematol Blood Transfus* 34(Suppl 1):S346
15. Nair CK, Kurup A, Raghavan V, Manuprasad A, Shenoy P (2018) Survival prediction by specific sites and numbers of extranodal involvement in DLBCL. *Indian J Hematol Blood Transfus* 34(Suppl 1):S335
16. Singh S, Philip C, John J (2018) Pediatric Subcutaneous Panniculitis like T Cell Lymphoma with hemophagocytosis: complete resolution with BFM 90 protocol. *Indian J Hematol Blood Transfus* 34(Suppl 1):S334
17. Anandani G, Prabhhu M, Sree Rekha J, Jacob SE, Kar R, Basu D (2018) Patterns of bone marrow infiltration in Lymphoproliferative disorders: an experience from a tertiary care centre in south India. *Indian J Hematol Blood Transfus*. 34(Suppl 1):S333

18. Jitani AK, Dutta S, De R, Mandal PK, Baul SN, Dolai TK, Ganguly T, Chakrabarti P (2018) Is PET/CT scan sufficient in detecting bone marrow infiltration in lymphoma? *Indian J Hematol Blood Transfus*. 34(Suppl 1):S57–S58
19. Sahana S, Anantamurthy A (2018) Clinicopathological profile of Paediatric Lymphoproliferative diseases- an Indian study. *Indian J Hematol Blood Transfus* 34(Suppl 1):S341
20. Karthik D, Basu D, Kar R (2018) Atypical lymphoid hyperplasia: a grey zone in lymph node biopsies: a follow-up study of 27 cases. *Indian J Hematol Blood Transfus* 34(Suppl 1):S343

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.