

Significance of Detecting Minimal Residual Disease by Flow Cytometry and its Impact on Overall Survival and Prognosis of Pediatric B-Cell ALL Patient Experience from a Tertiary Care Centre in Eastern India

Kalyan K. Mukherjee¹, Debasish Banerjee², Anjan Das³, Subham Halder⁴, Dattatreya Mukherjee⁵, Shyam S. Mondal⁶, Surya K. Roy⁷, Mili Das⁷, Chinmay K. Panda⁸, Utpal Chaudhuri⁹

¹Department of Medical Oncology and Department of Clinical and Translational Research, Chittaranjan National Cancer Institute, Kolkata, West Bengal, India

²Department of Haematology, Vivekananda Institute of Medical Science, Kolkata, West Bengal, India

³Department of Pathology, Coochbehar Behar Medical College, Coochbehar, West Bengal, India

⁴Department of Medical Oncology, Chittaranjan National Cancer Institute, Kolkata, West Bengal, India

⁵Dattatreya Mukherjee, Intern Training, International School, Jinan University, Guangzhou, Guangdong Province, P.R China

⁶Department of Epidemiology and Biostatistics, Chittaranjan National Cancer Institute, Kolkata, West Bengal, India

⁷Department of Clinical Research, Chittaranjan National Cancer Institute, Kolkata, West Bengal, India

⁸Chinmay Kumar Panda, Department of Oncogene Regulation, Chittaranjan National Cancer Institute, Kolkata, West Bengal, India

⁹Utpal Chaudhuri, Ex-Director, IIHTM, Calcutta Medical College, Kolkata, West Bengal, India

Address for correspondence: Dr. Kalyan Kusum Mukherjee, MBBS, MD, FCCM, ECMO, Head of the Department, Department of Medical Oncology and Head of the Department of Department of Clinical and Translational Research, Chittaranjan National Cancer Institute, 37, Shyama Prasad Mukherjee Rd, Bakul Bagan, Bhowanipore, Kolkata, West Bengal 700026, India (e-mail: kkmukherjee4u@hotmail.com).

Abstract

Introduction The improved prognosis of pediatric B-cell acute lymphoblastic leukemia (pBALL) is considered as a good progress of medical science in the field of oncology and hematology. Minimal residual disease (MRD) refers to presence of disease in molecular level is a newer practice with respect to the detection of complete remission by conventional pathologic analysis. Prognostic value of MRD in pediatric ALL (p-ALL) is well known.

Objectives This study was aimed to describe clinical outcomes and prognosis, that is, overall survival and relapse in the patients with pBALL with respect to minimal residual disease detection on day 15, day 29, and postconsolidations in a tertiary care center in eastern India.

Materials and Methods Eight color flow cytometry was used to detect MRD in this study. This contained markers such as CD 19, CD 34, CD 10, CD58, CD 45, CD13, anti-TdT, CD33. Eight panels included were (1) CMPO-FITC/cCD79a-PE/cCd3ECD, (2) CD20-FITC/cCD10-PE/cCd-19ECD, (3) CD34-FITC/cCD117-PE/cCd45 ECD/CD2 PC 5, (4) CD15 FITC/CD33PE/CD45ECD, (5) CD14 FITC/CD13 PE/CD45ECD, (6) HLADR FITC/CD7 PE/CD45 ECD, (7) TdT FITC/CD45 ECD (IF CD34 NEG), and (8) CD58 FITC/CD 45 ECD (IF BOTH CD34 AND TdT NEG; were used to prepare the marker.

Results The study included 52 patients. In the 52 patients, 59.6% patients are alive with a *p*-value of 0.031. MRD was checked on every 15th and the 29th day and postconsolidation of the treatment where in day 15 (*p* = 0.023), it was 53.4% positive and 46.5% negative. On day 29 (*p* = 0.031), MRD was 22.5% positive and 77.5% negative, in post consolidation, it was positive in 20% and negative is 80%. MRD value below 0.01 is taken as negative and above is taken as positive. The overall survival (OS) is of 32.88 + 8.59 with a 6 to 36 months of duration. In relapsed cases, no hemorrhagic relapse was found and two CNS relapses were found.

Conclusion It was a study of 52 patients of pBALL with a detection of MRD by FCM. MRD-negative patients had a good prognosis and comparatively lower rate of relapse than the one with positive MRD. Effort should be made to adhere to recommendation of MRD testing in clinical guidelines.

Keywords: pediatric ALL, MRD, flow cytometry, clinical outcomes, prognosis, overall survival

Psychological Status and Attitude of Breast Cancer Patients Post-COVID-19 Outbreak in Chennai: A Observational Survey Study

Chandrasekha Krishnan¹, Latha K. Vivek Subramani¹

¹Department of Medical Oncology, Madras Medical College, Chennai Tamil Nadu, India

Address for correspondence: Chandrasekha Krishnan, MD, DMRT Department of Medical Oncology, Madras Medical College, Chennai 600003, Tamil Nadu, India (e-mail: drchandrakrishnakmc@gmail.com).

Abstract

Introduction The global threat caused by COVID-19 pandemic and the unprecedented lockdown imposed had created emotional stress among the breast cancer patients with dilemma regarding risk of progression of cancer due to interruptions of standard medical care and panic about acquiring the COVID-infection during their frequent visits to the hospital.

Objectives We conducted a questionnaire-based study to assess the psychological impact in this situation affecting their quality of life and their perspective in this current situation.

Materials and Methods Breast cancer patients who had been recently diagnosed, those who were on chemotherapy and visited our OPD in the month of July during the COVID-19 pandemic were assessed for their treatment-related perspectives with a questionnaire. Psychological status was analyzed with GAD-7 (generalized anxiety disorder questionnaire) and PHQ-9 (patient health questionnaire).

Results A total of 202 breast cancer patients were included when lockdown was relaxed after a period of 3 months and COVID-19 status was still up trending. The clinical profile and patient-related information were collected from the medical records. Of them, 55.4% (112 patients) were within the city, 35.1% (71 patients) were from suburban areas of the city, and 9.4% (19 patients) were from adjacent districts/rural areas. Also, 56% were educated. Of these, 87% wanted to continue treatment and did not bother about the spread of the infection, while remaining patients' main concern was to avoid infection than to get oncological management. Also, 76% were aware about the COVID-19 infection and sequelae. A total of 80% patients were aware of the consequences due to delay in cancer treatment. Of these patients, 51%, 42% and 7% had mild, moderate, and severe anxiety respectively and 69%, 25% and 6% had mild, moderate, and severe depression respectively. The severe anxiety and depression correlated with metastatic breast cancer and educated patients.

Conclusion This study reflected that the breast cancer patients were more bothered to continue the treatment in spite of the existing pandemic.

Keywords: COVID-19 pandemic, breast chemotherapy, psychological status

Outcome of Treatment in Elderly Myeloma—A Single-Centre Experience

Gayatri Gopan¹, Geetha Narayanan¹, Sreejith G. Nair¹, Prakash Purushothaman¹, Rona Joseph¹, Rekha A. Nair², Jagathnath Krishna³

¹Department of Medical Oncology, Regional Cancer Center, Trivandrum, Kerala, India

²Department of Pathology, Regional Cancer Center, Trivandrum, Kerala, India

³Department of Biostatistics, Regional Cancer Center, Trivandrum, Kerala, India

Address for correspondence: Gayatri Gopan, MD, DNB, Department of Medical Oncology, Regional Cancer Centre, Thiruvananthapuram, Kerala 695010, India (e-mail: drgayatrigopan@gmail.com).

Abstract

Introduction Multiple myeloma (MM) accounts for approximately 1% of all cancers and 10% of all hematologic malignancies. In our institution, we see around 200 patients with myeloma every year. We present our

experience with multiple myeloma in the patients aged more than 60 years.

Objectives This is a retrospective study of 300 newly diagnosed multiple myeloma patients above 60 years of age treated in the Department of Medical Oncology, Regional Cancer Center, Thiruvananthapuram, Kerala, India, during the period between 2014 and 2017. The medical records of the patients were studied and following data were collected: demographic and clinical details, diagnostic and staging workup, primary treatment, response assessment, relapse, and survival. Survival was estimated using the Kaplan–Meier method.

Results A total of 300 patients were included in the study. The median age was 66 years with a male-to-female ratio of 1.4:1. The common clinical presentations were backache (134), fatigue (49), lower respiratory infection (20), and paraparesis (14). Monoclonal protein was immunoglobulin (Ig)-G in 199 patients (66.6%), IgA in 52 patients (17.4%), IgM in 2 patients, and IgD in 1 patient. Light-chain disease was seen in 42 patients (14%). One hundred and sixty patients (53.5%) had ISS stage III. Only 285 patients received treatment, of which 203 (67.8%) received bortezomib-based regimen, - bortezomib and dexamethasone (BD; 33.4%); bortezomib, lenalidomide, and dexamethasone (BLD; 19.7%); bortezomib, cyclophosphamide, and dexamethasone (VCD; 8.7%); bortezomib, thalidomide, and dexamethasone (BTD; 2.3%); and bortezomib, melphalan, and prednisolone (3.7%). Nonbortezomib-based regimens used were melphalan and prednisolone (MP) alone or with thalidomide or lenalidomide (15%), lenalidomide and dexamethasone (LD; 10.4%), and thalidomide and dexamethasone (TD; 2%). Response assessment was done as per IMWG guidelines. Fifty-seven (26.3%) patients achieved complete response (CR), 94 (43.3%) achieved very good partial response (VGPR), 19 (8.8%) attained partial response (PR), 15 (5.6%) had stable disease, and 46 (15.4%) developed progressive disease. With bortezomib-based regimens, 119 patients (58.3%) achieved CR/VGPR, and with non-bortezomib based regimens, 42 patients (51.2%) achieved CR/VGPR. One hundred and forty-three patients (47.8%) received maintenance therapy of which 79 received maintenance with bortezomib, 49 with lenalidomide, and 15 with thalidomide. The average duration of maintenance was 24 months. Second-line chemotherapy regimens were used in 37 patients. Agents used were MP, LD, TD, and VCD. With second-line treatment, 15 patients achieved VGPR, 10 patients achieved partial response, and 25 patients developed progressive disease. Third-line chemotherapy regimens were used in 22 patients and the regimens used were pomalidomide and dexamethasone, MP, TD, LD, vincristine, doxorubicin, and dexamethasone and carfilzomib and dexamethasone. At a median follow-up of 34 months, the 2-year overall survival (OS) was 68%. The median progression-free survival was 21 months. The 2-year OS for patients receiving initial bortezomib-based regimen was 67.8% and non-bortezomib based regimen was 68% which was similar.

Conclusion In this study, CR/VGPR rates and 2-year OS in patients treated with bortezomib and non-bortezomib based regimens were not statistically significant.

Keywords: multiple myeloma, elderly, treatment outcome, regional cancer center, India

Epithelial Ovarian Cancer: Real-World Outcomes

Thejeswar Nakka¹, Prasanth Ganesan¹, Luxitaa Goenka¹, Biswajit Dubashi¹, Smita Kayal¹, Latha Chaturvedula², Dasari Papa², Prasanth Penumadu³, Narendran Krishnamoorthy¹, Divya B. Thumathy¹

¹Department of Medical Oncology, JIPMER, Puducherry

²Department of Obstetrics and Gynaecology, JIPMER, Puducherry

³Department of Surgical Oncology, JIPMER, Puducherry

Address for correspondence:

Dr Prasanth Ganesan, MD, DM, Additional Professor and Head, Department of Medical Oncology, JIPMER, Puducherry 605006, India (e-mail: pg1980@gmail.com)

Abstract

Introduction Ovarian cancer is the third most common cancer and the second most common cause of death among gynecological cancers in Indian women. Ovarian cancer is heterogeneous, among them, epithelial ovarian cancer (EOC) is the most common. Primary cytoreductive surgery along with six to eight cycles of a combination of platinum and taxanes chemotherapy is the cornerstone of first-line treatment in EOC.

This study was done to find clinicopathological factors affecting survival outcomes with first-line therapy in EOC in a real-world setting.

Objectives This study was aimed to find factors affecting progression-free survival (PFS) and overall survival (OS) with first-line treatment in EOC.

Materials and Methods We conducted a single-center retrospective study. We screened all the patients diagnosed with ovarian cancer from January 2015 till December 2019. We locked data in August 2019. Eligible patients were histologically confirmed EOC who underwent primary cytoreduction or received more than or equal to two cycles of chemotherapy or both. Patients who had received first-line treatment at another hospital were excluded.

Results Patients demographics and clinical characteristics: between January 5, 2015 to August 31, 2019, 435 patients with a diagnosis of ovarian malignancy were registered at our center. Among them, 406 (82%) had EOC, 290 (64%) newly diagnosed, and fulfilling eligibility criteria were included in the final analysis. The median age of the cohort was 53 years (range: 21–89 years) and 157 patients (54%) were >50 years of age (the Eastern Oncology Cooperative Group Performance status was ≥ 2 in 124 patients [43%]; median duration of symptoms was 3 months; and stage III/IV: 240 [83%]). Grading of the tumor was available in 240 patients of which 219 (91%) were of high grade. Subtyping was available in 272 patients (94%) of which the serous subtype was the most common constituting 228 patients (79%).

Treatment Most patients received chemotherapy ($n = 283$ [98%]) as the first modality of treatment (neoadjuvant/adjuvant and palliative). As neoadjuvant (NACT) in 130 patients (45%) and as adjuvant following surgery in 81 patients (29%). The most common chemotherapy regimen was a combination of carboplatin and paclitaxel in 256 patients (88%). Among 290 patients 218 (75%) underwent cytoreductive surgery. Among them, optimal cytoreduction was achieved in 108 patients (52%). Optimal cytoreduction rate (OCR) with upfront surgery and after NACT was 44 and 53%, respectively (Chi-square test: 0.86; $p = 0.35$).

Survival The median follow-up of the study was 17 months (range: 10–28 months) and it was 20 months (range: 12–35 months) for patients who were alive. At last, follow-up, 149 patients (51%) had progressed and 109 (38%) died. The estimated median PFS and OS were 19 months (95% CI: 16.1–21.0) and 39 months (95% CI: 29.0–48.8), respectively. On multivariate analysis, primary surgery (HR: 0.1, 95% CI: 0.06–0.21; p -value: <0.001) and early-stage disease (HR: 0.2, 95% CI: 0.1–0.6; p -value 0.04) were associated with superior PFS and primary surgery (HR: 0.1, 95% CI: 0.09–0.2; p -value: <0.001) was associated with superior OS.

Conclusion Primary surgery (upfront or interval) was associated with improved survival. Newer agents like bevacizumab, poly-ADP (adenosine diphosphate)-ribose polymerase inhibitors and HIPEC should be incorporated precisely into first line of therapy to improve outcomes.

Keywords: epithelial ovarian cancer, progression-free survival, overall survival

To Predict Success of Postapheresis Yield and Post–Autologous Transplant Engraftment Based on Preapheresis Peripheral Blood CD34+ Cell Counts: An Indian Scenario–Based Study

Pinki Devi¹, Ganapathi Bhat², Harish S. Ahuja³

¹Department of Pathology, Jaslok Hospital and Research Center, Mumbai, Maharashtra, India

²Department of Medical Oncology and Stem Cell Transplant, Jaslok Hospital and Research Center, Mumbai, Maharashtra, India

³Department of Pathology, Blood Transfusion and Immunohematology, Jaslok Hospital and Research Center, Mumbai, Maharashtra, India

Address for correspondence: Pinki Devi, House No. 27, Sector 2, Rohtak, Haryana, India-124001 (e-mail: drpinkitmr@gmail.com).

Abstract

Introduction The use of hematopoietic stem cells for autologous and allogeneic transplantation has increased in the recent past significantly, due to introduction of newer chemotherapeutic drugs, immunological techniques, and better stem cell technology. Among the bone marrow and peripheral blood stem cells, collection of the latter being more convenient to the patient and associated with faster granulocyte and