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

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### 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

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### 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

 

platelet engraftment has been known as preferred method for mobilization. Peripheral blood stem cells can be extracted from the autologous or allogeneic donor. Mobilization of the stem cells for autologous stem cell transplant is traditionally done using growth factors alone or in combination with chemotherapy, with or without an additional mobilizing agent. A significant number of hematological malignancy patients are poor mobilizers, (i.e., they are unable to achieve the minimal target cell dose during their first round of mobilization).Therefore, a prediction for a successful stem cell mobilization ideally should be made before initiating any apheresis procedure to spare those with a low rate of success from the risks associated with apheresis procedure. Preapheresis CD34 cell count can predict postapheresis yield and hence, can help to reduce the collection sessions. Reduction of apheresis sessions decreases the discomfort, inconvenience, time, and monetary expenses.

**Objectives** This study was aimed to analyze preapheresis and postapheresis CD34+ cell counts.

**Materials and Methods** Patients of any age and gender with diagnosis of hematological malignancies admitted for autologous stem cell transplantation for hematological malignancies (including Hodgkin lymphoma, non-Hodgkin lymphoma, and multiple myeloma) and germ cell tumors in our institute from July 2008 to July 2016 were included in the study. The post-GCSF CBC, preapheresis CBC, CD34+ cell counts, and postapheresis CBC, CD34+ cell counts, mononuclear cell counts to predict the outcome of amount of yield. The effect on engraftment will be measured according to the defining criteria of achieving a sustained peripheral blood neutrophil count of >500 × $10^6$/L (Wolff 2002) and a platelet count of >20 × $10^9$/L (Teltschik et al. 2016) independent of platelet transfusion for at least 7 days. Collection of stem cells was done using apheresis machine (COBE SPECTRA). Complete peripheral blood counts using automated analyzers. Peripheral blood CD34 + cell counts and postapheresis CD34+ cell count using BD FACS CANTO II flow cytometer. To calculate postapheresis yield, the related CD34 count measured by flow cytometer was multiplied by the apheresis product volume and divided by the recipient's body weight (kg). Number of CD34+ cells collected = (CD34 cell concentration in final product) × (final product volume).

**Results** A total of 100 patients who underwent a total of 320 apheresis sessions were included in the study. There were 78 males and 22 females. We also found a significant correlation between preapheresis CD34 + cell count and postapheresis CD34 percentage on days 1, 2, and 3 of the apheresis sessions. In our study, to obtain more than 1.31 × $10^6$ cells (median = 1.04, range: 0.15–4.70), an absolute count of pre apheresis CD34 + cells ≥14 cells would be necessary. A target of CD34 + cells ≥ 2 × $10^6$/kg was obtained in majority of patients if a concentration of ≥25 CD34 + cells was present in postapheresis collection.

**Conclusion** Compiling our results with the previous published data, we conclude that there is a strong correlation between preapheresis absolute CD34 + cell counts and postapheresis CD34 + cell count. Our study also suggests that the minimum absolute cell count of >10 cells/μL is required, to achieve a target of >2–5 × $10^6$ cells for postapheresis yield.

**Keywords:** autologous stem cell transplantation, preapheresis, CD34 + cell count

## Epidemiology of Adolescent and Young Adult Cancers in a Tertiary Hospital in South India

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### Abstract

**Introduction** There has been an increase in the incidence of malignancies in young Indians, and there is no data reflecting the trend and profile of adolescent and young adult (AYA) cancers.

**Objectives** This study was aimed to ascertain the epidemiology of AYA cancers in a tertiary care center in south India and the trend of AYA cancers during the past 9 years.

**Materials and Methods** All patients aged 15 to 39 years with the diagnosis of cancer who were registered and received treatment with M.S. Ramaiah Hospital during a 9-year period from January 2011 to December 2019 were included. Basic demographic information on age, gender was available along with address and contact information. Using cancer site and morphology codes, the cancers were grouped by the ICD-O coding system of AYA cancers and their clinical information on disease and treatment status were collected retrospectively and analyzed.

**Results** Of the total 946 registered AYA cancer patients, majority of AYA cancer were in age group of 35 to 39 years (39%) and females (58%). When analyzing the data and dividing the AYA population into early (15–24 years) and late (25–39 years), we found that whereas the majority of the patients had hematolymphoid malignancies (48%) in the early group (15–24 years), the late group (25–39 years) had more carcinomas (68%). The percentage distribution of AYA cancers among the study population, lymphoma and leukemia contribute 11% and 15%, respectively, to the patient load and still the carcinomas formed the bulk (58%) of the population. It is interesting to know that breast, genitourinary, and gastrointestinal (GI) malignancies constituted 17.75%, 14.16%, and 14.69% individually.

**Conclusion** AYA oncology consists of a heterogeneous population and the profile differs by geography, sex, and other factors. There has been limited improvement in the past decade but there is a lot more to be done. To assess the problem, we have to identify and characterize the problem and look at the epidemiology of this population. This will require multicenter and international studies with focus on improving outcomes as in pediatric inspired ALL protocols. The trials should be started at local levels to ensure maximum participation. We need to generate data on epidemiology and channel our resources properly to save this precious but so called lost tribe of oncology.

**Keywords:** AYA oncology, India, epidemiology

## Weekly Etoposide and Platinum in Small-Cell Lung Cancer: Hope and Scope for Fragile Patients

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### Abstract

**Introduction** Small-cell lung cancer (SCLC) is an aggressive and chemo-sensitive disease. Many patients present in an advanced stage and with a poor performance status (PS). In such a condition, the treatment dilemma due to poor condition advocates alternative treatment approach rather than standard chemotherapy. One way of usual practice is to split the chemotherapy into a weekly schedule. However, there is limited data regarding the actual benefit of weekly chemotherapy. We hypothesize that a weekly chemotherapy with etoposide/platinum combination will be feasible and safe in patients of advanced-stage SCLC with poor PS.

**Objectives** This study was aimed to determine whether weekly etoposide/platinum chemotherapy is a safe option for patients with advanced stage, poor PS, and SCLC who are otherwise unfit for systemic anticancer therapy.

**Materials and Methods** We retrospectively analyzed the data of SCLC patients presented to our center from July 2018 to September 2020. We analyzed that treatment, survival, and clinical benefit data. We also analyzed the benefit of weekly etoposide/platinum in otherwise unfit for chemotherapy.

**Results** One hundred and fifty patients of lung cancer presented to our department between July 2018 and September 2020; SCLC constituted 34% (53 cases). In SCLC patients, the median overall survival was 2.5 months. Fourteen (26%) patients with SCLC were unable to start any oncological intervention. Ten (19%) patients could receive

 