Abstract

The burden of childhood cancer in India is substantially increasing. Multiple inter-related factors are responsible for this increase and for poorer outcome of childhood cancer in India. This study was an attempt to analyze the baseline socioeconomic profile, dietary pattern, nutritional status, and food faddism of the paediatric cancer patients. The study also aimed at finding out association of different variables under study with outcomes of disease viz. overall survival (OS) and event free survival (EFS). The present study was a prospective analytical cross sectional study and was carried out on 626 children (6 months to ≤18 years) with cancer at baseline. Dr. B.R. Ambedkar Institute Rotary Cancer Hospital (Dr. BRAIRCH), Department of Medical Oncology (OPD), All India Institute of Medical Sciences (AIIMS), New-Delhi was selected as a locale to recruit subjects in the study. The subjects were enrolled from October, 2012 to May, 2014.The information regarding outcomes of the disease (overall survival and event free survival) was censored on 20th April, 2018.Data regarding socioeconomic variables, health and hygiene practices was collected using pretested structured questionnaire cum interview schedule. Anthropometric measurements viz height and weight were measured with standard technique and BMI for age was calculated using standard formula. Information regarding dietary pattern and intake was gathered with the help of Food Frequency Questionnaire (FFA). Subjects were categorized for each variable under socioeconomic profile, health and hygiene practices (good and poor), nutritional status (normal, moderate, and severely malnourished) for each of the indicator viz. weight for age, weight for height, height for age and BMI for age, food groups intake (<RDI, ≥RDI) and nutrients intake (adequate and inadequate) and food faddism and restrictions (followed or not) under study and further for the outcomes of the disease to analyze association of the variables. Results revealed that children reported more from rural areas (53.04%) than urban and there was significantly different trend found between age of the children and reporting from the place of dwellings. Majority of the children were from nuclear family (63.25%) and had (71.24%) monthly family income <10,000/month. Reporting trend for treatment: Younger children's (<5 year) reporting was significantly higher from urban areas and also more by educated mothers (65.00% p=0.000, 54.10% p=0.000, respectively).Significantly higher self-employed father reported for their children (p=0.011).Vaccinated children's reporting for treatment was found to be significantly higher (p=0.000). Type of cancer; hematological malignancies (HM) and solid tumors

(ST): Prevalence of HM was higher (55.91%) than solid tumors. Percentage of children with HM was more whose mother was homemaker, whose father was in service class and had higher family income. There was significantly higher event free survival in the children whose mothers were educated (12th: HR=1.90,95% CI=.984-3.69, p= 0.012 and U.G and above: HR=2.28,95% CI=1.19-4.34, p= 0.002). EFS was significantly higher in subjects who received vaccination (HR=1.173,95% CI=1.25-2.39, p= 0.001) and had good hygiene practices (HR=1.637,95% CI=1.27-2.100, p= 0.001). Results showed significantly higher 5 year OS (p=0.047) and EFS (p=0.000) in subjects from urban area, in children with mothers having more education (p=0.000) for overall cancer.5 year OS was significantly higher for sarcomas (p=0.037), other solid tumors (P=0.025) and overall cancers (p=0.000) in the subjects who maintained good hygiene practices. Prevalence of malnutrition: underweight (weight‑for‑age) - 32.27%, stunted (height‑for‑age) - 29.72%, wasted (weight‑for‑height) - 27.38% and underweight as per BMI for age was 30.03%. Prevalence of undernourishment was more in the ST subjects than HM subjects. Severely malnourished children (weight for age) of sarcomas had significantly lower OS (HR=2.58,95% CI=1.13-5.90, p=0.024) and lower EFS (HR=2.39,95% CI=1.05-5.44, p=0.037) as compared to moderately malnourished and normal children. Undernourished children (weight for age) had significantly lower 5 years OS (18.20%, p=0.005) and 5 years EFS (33.30%, p=0.043) as compared to normal children in Sarcoma. Dietary intake: More than 70% of the subjects were consuming cereals, pulses and milk and milk products <RDI. Similarity Roots and tubers, other vegetables, Green leafy vegetables (GLV), and fruits was consumed <RDI by majority of the subjects. Only 28.80% subjects were eating other vegetables ≥ RDI and 13.90% were eating roots and vegetables ≥ RDI. Very few subjects (8.00%) were consuming GLV in their diet ≥ RDI. Sugar and fat consumption was ≥ RDI in majority (93.60% and 92.80%, respectively) of the subjects. Children who consumed ≥RDI had better OS and EFS than those who consumed <RDI for all food groups except sugar and fat, however not found to be significant. 5-year OS and EFS was significantly more for the subjects who consumed ≥RDI of cereals, pulses, roots and tubers and GLV in subjects with sarcoma. Study showed that 20.45% were not taking energy adequately as in overall population and similar pattern were found across all age group. Protein adequacy was 87.40% of the total subjects and similar results were found in all the age groups. In younger subjects (<5 years) fat consumption was higher (63.10%) than 20en% as compared to older

subjects (23% and 25.80% for 5-10 years and >10 years, respectively). Calcium, iron, folic acid and vitamin C was consumed adequately only by 65% of the subjects. Vitamin A intake was inadequate in as high as in 55% of the subjects. Five-year OS was significantly higher for sarcomas and OST subjects who consumed adequately for energy (p=0.035) and protein (p=0.023). Intake of vitamin C was significantly associated (p=0.026) with five year EFS in AML. Intake for energy in sarcomas and protein intake in OST was found to be significantly (p=0.020, p=0.018, respectively) associated with 5 year EFS. Food faddism: Results regarding knowledge of the subjects showed a trend of higher OS and EFS with Good Knowledge Score (GKS), however, not found to be significant. Results regarding restrictions of foods revealed higher OS and EFS in subjects who did not restrict >2 food items in their daily diet. Five year OS was significantly associated (p=0.038) with restriction score.