

ORIGINAL ARTICLE

INCIDENCE AND TREATMENT ABANDONMENT IN TEEN AND YOUNG ADULT CANCERS

(Col) Prakash.G Chitalkar¹, Rakesh Taran², Prashant Kumbhaj³, Deepak Singla³**Author's Affiliations:** ¹Professor; ²Associate Professor; ³Senior Resident, Department of Medical Oncology, Sri Aurobindo Institute of Medical Sciences, Indore, Madhya Pradesh**Correspondence:** Dr Prashant Kumbhaj Email: drprashantkumbhaj@yahoo.com

ABSTRACT

Background: The cancer patterns in teen and young adults (TYA) differ from those in children and older adults. The incidence of those affected is increasing rapidly although this has not been much focus of attention in cancer control and prevention. Treatment abandonment is the common problem in teen and young adult cancer patients, reasons of treatment abandonment varies depending upon socioeconomic background.

Material and method: It is a retrospective observational study and data were collected from records of TYA Patients registered from January 2013 to December 2015 at cancer center Sri Aurobindo Medical College and postgraduate Institute Indore. TYA Patients age between 15 to 39 were included in the study. The cases were analyzed for Age, sex, number of cases year wise, diagnosis of malignancy according to international classification of disease (ICD), number of undiagnosed and abandoned cases. The findings were compared with other similar studies

Results: On analyzing data of three years, hematolymphoid malignancy (28%) cases are the most common cases seen followed by Breast (10%) and head and neck (10%), cervix (6%), CNS (5%), Bone (4%). 38% TYA cancer patients abandoned treatment. Telephonic tracking, financial support, counseling of whole family are methods employed in reducing abandonment.

Key words- Teen and young adolescents, hematolymphoid cancer, treatment abandonment.

INTRODUCTION

Patients aged 15 to 39 years old at their initial diagnosis constitute the adolescent and young adult (TYA) cancer population, which includes approximately 700,000 patients diagnosed each year, or 2 percent of all invasive cancers diagnosed and less than 10 percent of all cancer survivors¹. The cancer pattern in Teen and young adults (TYA) differ from those in children and older adults¹. The cancers involved are more likely related to genetic predisposition, specific health behavior / lifestyle among young people exposing themselves to causative agents². When diagnosed, TYA suffer from adverse psychosocial effects³. Survival rates for AYAs have not improved to the extent that they have for younger children or older adult cancer populations⁴. Some data suggest that the poorer outcomes in AYAs (particularly those with colon or breast cancer) are in part related to their biology, including different genomic risks, tumor histopathology, oncogenic pathway deregulation, and chemotherapy sensitivities^{5,6}. In addition, there appears to be a tendency for AYA patients to be diagnosed at later stages compared with older patients^{7,8}. Although the incidence of invasive

cancer in AYAs is lower than in younger children or older adults, the psychosocial needs of AYAs often exceed those seen in older adults. TYA suffer from adverse psychosocial effects because most of their potential years of life ahead of them has to be spent with effects of cancer, its treatment or tragically shortened lives with major repercussions on their families and society in general²⁻³. The psychosocial effects has components of worry about recurrence, hypervigilance about symptoms, concerns about family and finances, and the stress of managing health needs, as well as changes in self-perceptions, body image, and feelings of vulnerability. Treatment abandonment is the common problem in teen and young adult cancer patients, reasons of treatment abandonment varies from psychological issues to socioeconomic background. The incidence of those affected is increasing rapidly although this has not been much focus of attention in cancer control and prevention¹¹. We have done a retrospective observational study of incidence and treatment abandonment TYA cancer patient's at Sri Aurobindo Medical college, Indore.

METHODOLOGY

It is a retrospective observational study and data were collected from records of TYA Patients registered from Jan 2013 to December 2015 at cancer center Sri Aurobindo Medical College and postgraduate Institute Indore. It is a medical college hospital including a multi disciplinary cancer centre. Patients from 17 districts have access to this centre. TYA Patients age between 15 to 39 were included in the study. The cases were analyzed for Age, sex, year wise number of cases, diagnosis of malignancy, number of undiagnosed and abandoned cases. The findings were compared with other similar studies. Institutional ethical clearance was obtained for conducting this study.

RESULTS

Approximately 800 new cancers patients present to this centre every year. During years 2013, 2014 and 2015 a total of 2376 patients with a cancer diagnosis were enrolled for a cancer diagnosis, out of which 947 were TYA age group. The median age was 22 years (range 2-87 years), 591 were males and 356 females, 604 from rural background and 343 from urban background.

Table 1 shows Age, sex, socioeconomic status wise proportion of TYA patients. It also shows socioeconomic background of abandoned TYA patients. Of 947, TYA patients 62% were male and 38% female.

Table 1: TYA Patients demographics

Age in Years	Male (%)	Female (%)
15-19	60(10.0)	50(14.0)
20-24	67(11.0)	40(11.0)
25-29	110(19.0)	70(20.0)
30-34	140 (23.0)	90(25.0)
35-39	214 (36.0)	96(27.0)
Total	591(62.0)	356(38.0)
Socioeconomic Status	Urban (%)	Rural (%)
	343(36.0)	604(64.0)
Abandoned at Diagnosis and therapy	Urban (%)	Rural (%)
	56(15.0)	312(85.0)

Table 2: Showing total number & types of TYA cancer cases

TYA Cancer	2013	2014	2015
Total	267	337	343
Hematolymphoid(C-81-96)	80(38.0)	69(21.0)	120(35)
Head & Neck (C-00-14)	23(8.0)	27(8.0)	40(12.0)
CNS (C-71)	16(6.0)	19(6.0)	15(5.0)
Breast (C-50)	20(8.0)	30(9.0)	40(12.0)
Cervix (C-53)	7(2.0)	26(7.0)	25(7.0)
Bone (C40-41)	7(2.0)	20(6.0)	13(3.0)
Undiagnosed	114(36)	146(43)	90(26)
Abandoned	137(52)	151(47)	80(23)

Figure in parenthesis indicate percentage.

In males 36 % were in the age group of 35-39, much more amenable to factors of lifestyle. Followed by 23 % in the age group of 30-34 yrs, while in female 27% in age group of 35-39 yrs, followed by 25% in the age group of 30-34 yrs.

Table 2 TYA Cancers shows data about site wise TYA cancer patients coming to SAIMS Year 2013, 2014, 2015, number of patients abandoned diagnosis and therapy. On analyzing data of three years, hematolymphoid malignancy (C-81-96) (28%) cases are the most common cases seen followed by breast (C-50) (10%) and head and neck (C-76) (10%), cervix (C-53) (6%), CNS (C-72) (5%), Bone (C40-41) (4%). Surprisingly 38% TYA cancer patients abandoned treatment.

DISCUSSION

Approximately 69,212 adolescents and young adults (AYAs) ages 15–39 were diagnosed with cancer in 2011⁹. It is six times the number of cases diagnosed in children ages 0–14. Specific cancer types incidence varies dramatically across the TYA age continuum. Leukemia, lymphoma, testicular cancer (germ cell tumors), and thyroid cancer are the most common cancer types in younger TYAs (15–24 years old). By ages 25–39, breast cancer and melanoma comprise a growing share of cancers among TYAs¹⁰. Transitions in anatomy, the evolving hormonal milieu, maturing development, increase demand in work place, family responsibility and acquiring new lifestyle and habits in a particular region before the old do and also the short period of exposure between the beginning of life and cancer diagnosis giving rise to unique cancer pattern in TYA¹¹. There is increase use of tobacco and alcohol in both genders with onset of this habit at very young age especially in low socioeconomic group. Majority of our patients belong to rural background socioeconomic group. The incidence is increasing faster than the increase in either children or older adults and not been much focus of attention in cancer control and prevention¹¹. The risk factors responsible in this age group are infection, adolescent growth spurts, hormones, growth and development factors associated with genetic predispositions. This is the age of cross over from predominance of non-epithelial cancers in childhood to predominance of epithelial cancers in older adults¹¹.

In our study hematolymphoid cancer is the most common in TYA 28%, breast and head and neck both comprising 10% of total AYA population followed by Cervix cancer (6%) and CNS tumors (5%). The pattern of incidence of TYA is quite similar in our study compare to TYA cancer showing in SEER data. Our study is showing hematolymphoid cancer as a maximum diagnosis in TYA Population whereas SEER data also showing leukemia lymphoma as maximum no of cases. In compare to germ cell tu-

mor and thyroid cases which are common in 15-24 years in SEER Data, our study does not have such cases. After hemotolymphoid case our study has breast and head & neck cases in majority which has been also supported by SEER Data. In our study head and neck cases are also common in TYA population but this is not shown as a common cancer in AYA population in SEER data. This is due to very common practice of chewing tobacco and smoking habits in Indian population. In contrast to SEER data we don't find any melanoma cases in our study which is very rare in Indian population. Our study showed 38% TYA cancer patients abandoned treatment. Abandonment of treatment is very common in Indian TYA population. The reason behind in most of the cases are lack of awareness, lack of financial sources for treatment, distance, lack of transportation facility, cultural beliefs. 85% abandoned cases were of rural background, whereas 15% cases were from urban background. Abandonment in rural areas is particularly frequent (85%), and is consequent to factors like, close and hierarchical family structure, interdependency of the extended family, and inability to multi task, while balancing the pressure of cancer and the need to earn a living. In contrast, the urban patient tend to manage the pressure of keeping treatment appointments and other needs, due to inherent lifestyle characteristics and better resources and awareness and fear of losing fertility are some reasons for treatment delay and abandonment. In low- and middle-income countries, treatment abandonment has been consistently reported as an important contributor to treatment failure and death^{12,13}.

Table.2 shows percentage of abandoned cases declining per year, as in 2013 total abandoned cases were 52% of TYA Population followed by 47% in 2014 and 23% in 2015. There is thus a declining trend in abandonment on preliminary analysis among TYA cancer patients at our centre. Telephonic tracking, financial support, counseling of whole family are methods employed in reducing abandonment.

CONCLUSION

This epidemiological study helps to know the incidence of cancer and treatment abandonment in AYA in the western part of the Madhya Pradesh. Hematolymphoid cancer is the most common in TYA fol-

lowed by breast and head and neck both comprising 10% of total TYA patient population. Abandonment of treatment is very common in TYA population due to lack of awareness, Distance, lack of transportation, lack of financial sources for treatment and cultural beliefs.

REFERENCES

1. Bleyer A, Viny A, Barr R (2006). Cancer in 15 to 29 years olds by Primary site. *Oncol*, 11, 590-601
2. Cancer incidence in young adults. Special topic from Canadian Cancer Statistics 2002. 2003-2005 National Cancer Institute of Canada (Last updated on 09 August 2003).
3. Vickie Williams (2005). Cancer in young adults. *Oncology*, 50. (9/12/2009)
4. Bleyer A, O'Leary M, Barr R, et al. Cancer epidemiology in older adolescents and young adults 15 to 29 years of age, including SEER incidence and survival: 1975 - 2000. Bethesda, MD, National Cancer Institute, 2006. NIH Pub. No. 06-5767
5. Blanke CD, Bot BM, Thomas DM, et al. Impact of young age on treatment efficacy and safety in advanced colorectal cancer: a pooled analysis of patients from nine first-line phase III chemotherapy trials. *J Clin Oncol* 2011; 29:2781.
6. Bleyer A, Barr R, Hayes-Lattin B, et al. The distinctive biology of cancer in adolescents and young adults. *Nat Rev Cancer* 2008; 8:288.
7. Hubbard JM, Grothey A. Adolescent and young adult colorectal cancer. *J Natl Compr Canc Netw* 2013;11:1219.
8. Steele SR, Park GE, Johnson EK, et al. The impact of age on colorectal cancer incidence, treatment, and outcomes in an equal-access health care system. *Dis Colon Rectum* 2014; 57:303.
9. An estimated projection calculated by the Surveillance, Epidemiology and End Results (SEER) Program using SEER 18, 2007-2011.
10. Data from the SEER Program. 1975-2000.
11. Xiaocheng Wu, Frank D Groves, Colleen C McLaughlin, et al (2005). Cancer incidence patterns among adolescents and young adults in the united states. *Cancer Causes Control*, 16, 309-20.
12. Gupta S, Yeh S, Martiniuk A, Lam CG, Chen HY, Liu YL, et al. The magnitude and predictors of abandonment of therapy in paediatric acute leukaemia in middle-income countries: A systematic review and meta-analysis. *Eur J Cancer*. 2013. Epub 2013/04/20. doi: 10.1016/j.ejca.2013.03.024.
13. Arora RS, Eden T, Pizer B. The problem of treatment abandonment in children from developing countries with cancer. *Pediatr Blood Cancer*. 2007;49(7):941-6. Epub 2007/01/26. doi: 10.1002/pbc.21127.