EVALUATION OF INSOMNIA AND PSYCHIATRIC INFIRMITIES WITH ANTICANCER TREATMENT IN PATIENTS DIAGNOSED AT DIFFERENT STAGES OF CANCERS

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ABSTRACT

Background: Cancer is the second most leading cause of death all over the world. Cancer leads to grief and pain. The objective of the present investigation was to evaluate Insomnia and Psychiatric infirmities with anticancer treatments in cancer patients**. Methods:** The data was gathered by administration of the evaluated questionnaires [DASS-21]21 characteristics of Depression Anxiety Stress, [ISI] Insomnia Severity Index and [PHQ-15] Physical Symptoms Questionnaire.**Results:**150 patients satisfying inclusion and exclusion criteria were included in the study. The most common age group (49-58) years with female preponderance (77%).There is a significant correlation found between Insomnia and Psychiatric infirmities (p<0.001).Depression and Anxiety (r=0.94),Depression and Stress (r=0.18) and Anxiety and Stress (r=0.04). **Conclusion:** This study reveals that female cancer patients are more prone to cancer than male cancer patients and there is a significant relationship found between Insomnia, Physical symptoms and Psychiatric infirmities.

Keywords: Cancer, Insomnia, Depression, Anxiety, Stress, DASS-21, ISI, PHQ15.

INTRODUCTION

Cancer is the second most leading cause of death all over the world [1]. Incidence and mortality of cancer are rapidly growing worldwide [2]. Non – Hispanic blacks are at highest incidence and mortality rate for cancer than in Asian or pacific islanders [1]. Lung, prostate, colorectal, stomach and liver cancer are the most common types of cancer in men, while breast, colorectal, lung, cervical and thyroid cancer are the most common among women (WHO). Men are at 20% higher incidence than women for all cancers. Almost 90% of cancer related deaths are due to secondary tumor metastasis [3].Emotional disturbances are the frequent outcomes of such painful illness like cancer. In order to cure the condition systematically, it is necessary to acquire

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Perception into the prevalence, severity, direction of the psychological abnormality and the factors affecting them [4]. Among all cancer patients, insomnia is a common heterogeneous complaint [5]. Inspite of suggesting that sleep difficulties are one of the frequent consequences of cancer, Insomnia has received very little attention. Cancer stage, time elapsed since diagnosis, cancer recurrence, medical comorbidities and cancer treatment are the factors which has great influence on sleep. Some of the studies also suggested that women who had received radiotherapy experienced more sleep difficulties than who did not [6]. 31% and 54% of newly diagnosed and recently treated cancer patients respectively reported sleep difficulties [7-9]. Anxiety and Depression are also exaggerated due to insomnia either as a clinical feature or a psychiatric diagnosis [10]. Depression, anxiety and stress are common among patients diagnosed with cancer and these conditions may also interfere with cancer treatment [11]. It is also taken for granted that cancer patients experience psychological distress by the medical

staff and even their family which tend to over or under diagnosis [12-14]. Patient's experience emotional reactions such as shock, disbelief, grief, anger, depression when such a life-threatening illness like cancer diagnosis is revealed to them. Depression and anxiety are often triggered by stress. Psychological and Psycho physiological disturbances play an important role in the development of Insomnia and Psychiatric Infirmities [Depression, Anxiety, and Stress] in patients receiving anti-cancer treatment. Hence, Insomnia and psychiatric infirmities should be evaluated in cancer patients and there is an increasing need to reproduce the evidences in such area and improve treatment outcomes with minimal side effects.

MATERIALS AND METHODS

This study is a "prospective observational study" conducted on patients diagnosed with cancer in Oncology department, Mahatma Gandhi Memorial Hospital, Warangal, India. A total of 150 patients diagnosed with cancer were evaluated for Insomnia and psychiatric infirmities who have met the following criteria such as inclusion criteria which include a) patients aged 18 to 80 years diagnosed with cancer receiving any modality of anticancer treatment. b) patients diagnosed with cancer within 0-2 years [as disease progresses longer than 2 years or so Insomnia symptoms gets subsided].c) patients receiving any modality of anticancer treatment and exclusion criteria include a) patients with severe cognitive impairments or severe Psychiatric disorder. b) Patients with sleep disorders other than Insomnia. c) Patients diagnosed with Insomnia prior to cancer. d) Patients with severe visual, hearing or language deficits. An Institutional Review Board approval was obtained (approval no: IHEC/VCOP/PHARM.D/2019-20/NCT12) prior to the conduction of the study and informed consent was also obtained from all the patients before their participation in to the study. The standardized tools used for evaluating Insomnia and Psychiatric infirmities are Insomnia Severity Index(ISI), Physical symptom questionnaire (PHQ-15), Depression Anxiety Stress scale (DASS).

The Insomnia Severity Index (ISI) is used and verified for diagnosis and assessment of Insomnia. It is recognized as useful to tool with favorable reliability and validity. The questionnaire included 7 questions that measures Insomnia and this scale is rated on 4-point scale. The score ranges from 0-28 i.e. 0-7 means No clinically significant Insomnia, 0-8 means Sub threshold Insomnia, 15-21 means Moderate severity Insomnia, 22-28 means Severe Insomnia [15]. The Physical Symptom questionnaire (PHQ-15) adapted from Patient Health questionnaire (PHQ) is used and verified for assessment of physical symptoms associated with anti-cancer treatment. It is valid and easy to use instrument for symptom assessment. The questionnaire includes 15 questions: each item on PHQ-15 is rated on 3-point scale i.e.0= not bothered at all, 1= bothered a little, 2= bothered a lot. The score ranges from 0 – 30 i.e. 0-4 means minimal, 5-9 means low, 10-14 means medium, 15-30 means high [16]. The Depression Anxiety Stress scale (DASS) is quantitative, self-report instrument designed to measure the three related negative emotional states of depression, anxiety and tension/stress. It is validated and reliable measure consists of 21 items and this scale is rated on 3-point scale. The score for depression ranges from 0-28+ i.e. 0-9 means normal, 10-13 means mild depression, 14-20 means moderate depression, 22-27 means severe depression and 28+ means extremely severe depression. The score for anxiety ranges from 0-20+ i.e. 0-7 means normal, 10-14 means moderate anxiety, 15-19 means severe anxiety and 20+ means extremely severe anxiety. The score for stress ranges from 0-34+ i.e. 0-14 means normal, 15-18 means mild stress, 19-25 means moderate stress, 26-33 means severe anxiety, 34+ means extremely severe stress. 15-19 means severe anxiety and 20+ means extremely severe anxiety. The score for stress ranges from 0-34+ i.e. 0-14 means normal, 15-18 means mild stress, 19-25 means moderate stress, 26-33 means severe anxiety, 34+ means extremely severe stress [17]. Statistical analysis was conducted using software (Microsoft excel 2019 and Graph pad prism 7). Unpaired t test was applied to determine the significance of variables such as Insomnia and Psychiatric infirmities.

RESULTS &DISCUSSION

All the subjects eligible participated in the study. The mean age of the subjects diagnosed with different types of cancer was 18-80 years. Among them, 77% were females and 33% were males. The percentage of participants in each of 7 age bands [18-28,29-38,39-48,49-58,59-68,69-78,79-88] was 1%,8%,21%,33%,25%,11%,and 1% and the most common age group was (49-58)years and 2 least

common age groups (18-28) (79-88) years. . Based on geographical region, subjects who belong to urban population and rural population was 61% and 39% respectively. Subjects recruited in to the study were treated with chemotherapy; radiotherapy and combination of both treatments were 50%, 25% and 25% respectively. Correlation between Insomnia and Psychiatric infirmities was observed with R squared value of 0.2313 ($p<0.001$), for physical symptoms and Psychiatric infirmities with R squared value of 0.5443 ($p<0.001$), for Depression and Anxiety with R squared value of 0.9454, for Depression and Stress with R squared value of 0.1872, for Anxiety and Stress with R squared value of 0.4326. Table 3, 4 depicts the significance between Insomnia, physical symptoms and Psychiatric infirmities.

Table 1: Baseline assessment

Basic demographic	Group	Frequency	Percentage
Sex	Male	50	33%
	Female	100	67%
Age	18-28	1	1%
	29-38	12	8%
	39-48	32	21%
	49-58	49	33%
	59-68	38	25%
	69-78	16	11%
	79-88	2	1%
Location	Urban	91	61%
	Rural	59	39%
Occupation	Unemployed	3	2%
	Laborer	69	46%
	Housewife	45	30%
	Farmer	16	10.6%
	Professional	17	11.3%
Social history	Alcoholic	6	4%
	Smoking	12	8%
Family history	Both	108	72%
	Present	5	3.33%

	Absent	145	96.6%
Duration of diagnosis	0-6	72	48%
	6-12	40	26.6%
	12-18	10	6.66%
	18-24	12	8%
	24 above	16	4%
Treatment			
	Chemotherapy	122	81.3%
	Radiotherapy	94	62.6%
	Both	60	40%
Type of cancer			
	Breast cancer	67	44.6%
	GIT cancer	34	22.6%
	Genital cancer	34	22.6%
	Head and neck cancer	12	8%
	Lung cancer	3	2%

Table 2: Gender wise categorization with insomnia and psychiatric infirmities

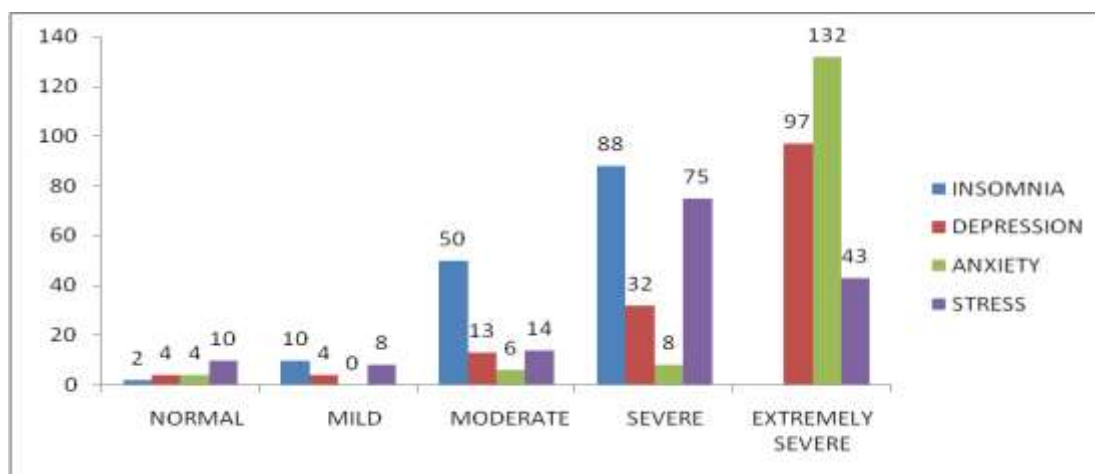| Psychological properties	Male No. (%)	Female No. (%)	Total No. (%)
Insomnia	31(35%)	65(35%)	70%
Depression	43(49%)	90(49%)	98%
Anxiety	14(16%)	30(16%)	32%
Stress	49(32.6%)	98(65.3%)	97.9%

Figure 1: Distribution of insomnia and psychiatric infirmities among total population

Table 3: Correlation between insomnia and psychiatric infirmities

test	unpaired t test
95% confidence interval	6.441 to 9.819
R squared	0.2313
P (two tailed)	<0.0001
P value summary	****
Significant? (alpha=0.05)	**Yes**

Table 4: correlation between physical symptoms and pschiatric infirmities

Test	Unpaired t test
95% confidence interval	14.73 to 18.17
R squared	0.5443
P (two tailed)	<0.0001
P value summary	****
Significant? (alpha=0.05)	**Yes**

CONCLUSION

Insomnia and Psychiatric infirmities are more prevalent in cancer patients. People from urban area are more prone to cancer than people from rural area. Female cancer patients are more prone to insomnia than male cancer patients. There is an equal distribution of Psychiatric infirmities among male and female cancer patients. This research work reveals that there is a significant relationship

between Insomnia, Physical symptoms and Psychiatric infirmities and there is also significant relationship between Depression, Anxiety, and Stress.

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