

Effect of Thyroid Hormones on Biochemical Parameters of Liver Function in Shivamogga District

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Abstract

Normal level of thyroid hormones is important for normal hepatic function and thyroid abnormality may affect the metabolic functions of the liver. The aim of the study was to determine the biochemical markers (especially enzymes and proteins) of Liver Function Test (LFT) in patients with hypothyroidism and their possible correlation with thyroid profile. *Materials and Methods:* Thyroid profile and liver function tests (LFT) were evaluated in 60 primary hypothyroid cases and compared it with age matched normal euthyroid controls after applying exclusion criteria. Fasting venous sample was used for analyzing the parameters. Statistical analysis was done using Students 't' test. Pearson's correlation coefficient test was done to establish the relationships between the parameters. *Results and Observations:* Subjects with primary hypothyroidism had significantly raised serum AST, ALT, ALP and total protein levels when compared to controls. *Conclusion:* Primary hypothyroidism is associated with significant derangement in biochemical parameters of liver function. Hence, liver function tests should be regularly monitored in primary hypothyroid patients.

Keywords: Hypothyroidism; Liver Enzymes; Total Proteins.

Introduction

Hypothyroidism is a disease caused by insufficient production of thyroid hormones by the thyroid gland. Thyroid hormones are essential for normal organ growth, development and function of nearly all tissues with major effects on oxygen consumption and metabolic rate [1,2]. It is a common metabolic disorder in general population. The thyroid dysfunction increases with age, especially in women [3]. The prevalence of primary hypothyroidism is 1:100, but it may be 5: 100 if patients with subclinical hypothyroidism (normal T₄, raised TSH) are included [4]. According to a study done by Sawin et al [5] hypothyroidism is a common disorder with a

prevalence rate up to 20%. The major secretory product of thyroid is a pro hormone T₄, which is activated in peripheral tissues by outer ring deiodination to T₃. There are three homologous iodothyronine deiodinases which catalyses these reactions [6,7]. Type I deiodinase is located in liver, kidney and thyroid. In addition to this, the liver has an important role in thyroid hormone transport and metabolism [8]. Thyroid hormones regulate the basal metabolic rate of all cells including hepatocytes. The liver in turn metabolizes the thyroid hormones and regulates their systemic endocrine effects [9]. Thyroid hormones are glucuronidated and sulphated within the liver and subsequently excreted into bile [10]. The liver extracts 5-10% of plasma T₄ during a single passage, as shown by studies using I¹³¹. This value is much higher than can be accounted for by the amount of free T₄ delivered to the liver, indicating that a substantial amount of protein-bound T₄ is available for uptake [11]. An active stereo specific transport mechanism has been identified for transporting T₄ and T₃ across the hepatocyte membrane. The intracellular concentrations of the free hormone are

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higher than the plasma levels, and the process is energy dependent [12]. The liver synthesizes a number of plasma proteins that bind the lipophilic thyroid hormones and thereby provide a large, rapidly exchangeable pool of circulating hormone. The thyroid hormones are >99% bound to thyroxine-binding globulin, thyroxine-binding pre albumin and albumin in plasma [13]. The free hormone component within the plasma is in equilibrium with the protein-bound hormone, and it is this free fraction, which accounts for the hormones biological activities. The plasma concentrations of free T_4 and T_3 are at a steady concentration, so that the tissues are exposed to the same concentrations of the free hormone. However, the free hormone concentrations in different tissues vary according to the transport and deiodinase activity within specific tissues [14]. Normal thyroid function is essential for normal growth, development and regulation of energy metabolism within cells and depends on a normally functioning thyroid and liver axis. Thyroid dysfunction may affect liver function and liver disease modulates thyroid hormone metabolism, and a variety of systemic diseases affect both organs. So, we designed this study in our population to evaluate the changes in liver function produced by thyroid hormone deficiency.

Materials and Methods

With the approval of the Institutional ethics committee and the informed consent of the participants, 60 newly diagnosed primary hypothyroid patients of both sexes of 20-60 years of age were chosen and were compared with euthyroid normal controls. Out of 300 cases recorded in last 6 months with hypothyroidism and LFT, 100 were normal subjects & the rest had variations in LFT values. Of these 200 subjects, only 60 had variations in protein & serum enzyme values of liver function. To match the cases, we had taken only 60 out of 100 controls. Individuals with oral contraceptive pills (OCP), pregnancy, alcoholics, drug abusers and any confirmed renal, hepatic, cardiovascular, pancreatic, hepatobiliary disease, diabetes mellitus, hypertension and malignancy, are excluded from the study.

Sample Collection

Taking aseptic precautions, after an overnight fast of 10-12 hours, 5 ml of venous blood was collected in plain Vacutainer [BD Biosciences] from antecubital vein from each patient. Serum obtained

after centrifugation was separated into two aliquots – one for estimation of enzymes and proteins of Liver Functions and other for estimation of thyroid function test and were analysed immediately after separation.

Serum aspartate transaminase (AST), alanine transaminase (ALT) and alkaline phosphatase (ALP) were estimated using IFCC recommended methods [15-17], total protein (TP) by biuret method [18], and albumin by modified bromocresol green (BCG) method [19] by using Erba Mannheim reagent kits obtained from Transasia Bio-Medicals and all the parameters were estimated by using fully automated analyser – Erba Mannheim (EM 100).

Estimation of thyroid profile was done by Lilac kit by using a Chemiluminescence method. The following three parameters were estimated under thyroid profile. Tri-iodo-L-thyronine (T_3), Tetra-iodo-L-thyronine (T_4), Thyroid stimulating hormone (TSH).

Diagnosis of Hypothyroidism was established based on clinical signs and symptoms and the T_3 , T_4 and TSH estimations.

Statistical Analysis

Data obtained was entered into Microsoft Excel sheet and statistical analysis was performed using SPSS software. Data was expressed as mean \pm SD. Independent t test was used to analyze differences in base line characteristics and biochemical parameters between the control and the test groups. Correlations were observed by using Pearson's correlation coefficient.

Results

The mean ages of euthyroid and hypothyroid patients were 50.56 and 51.15 respectively. More of females were there in hypothyroid group when compared to euthyroid group.

Table 1 shows the serum TSH and thyroid hormone levels in euthyroid and hypothyroid groups. As compared to the controls, the mean TSH level was significantly higher with lower T_3 and T_4 values in the hypothyroid group.

Table 2 illustrates significant alteration in the liver functions in the hypothyroid pool with increased AST, ALT, ALP and total protein which was statistically significant (p value <0.001). The change in albumin levels in euthyroid and hypothyroid cases were not statistically significant.

Table 1: Comparison of T₃, T₄ and TSH values obtained in euthyroid and Primary hypothyroid subjects

Variables	Group				P-value
	Euthyroid		Hypothyroid		
	N	Mean±SD	N	Mean±SD	
T ₃	60	0.989±0.186	60	0.293±0.0913	0.000
T ₄	60	8.998±1.966	60	2.411±0.700	0.000
TSH	60	3.238±1.377	60	55.001±7.534	0.000

Table 2: Comparison of enzymes and proteins of LFT in euthyroid and Primary hypothyroid subjects.

Variables	Group				P-value
	Euthyroid		Hypothyroid		
	N	Mean±SD	N	Mean±SD	
AST	60	30.739±3.970	60	70.313±5.0596	0.000
ALT	60	32.884±4.234	60	69.563±12.557	0.000
ALP	60	78.265±18.484	60	147.685±9.165	0.000
TP	60	7.0313±0.486	60	8.237±0.332	0.000
ALBUMIN	60	4.243±0.460	60	4.144±0.439	0.229, NS

Discussion

Thyroid hormone influences the function of all body organs and cells. The data presented here clearly indicates how biochemical markers of liver may be affected by alteration in the thyroid hormone levels in the body. In the present study, significant difference was seen in liver function tests when subjects in hypothyroid groups were compared with euthyroid subjects. In this study; mean serum ALT levels in cases were found significantly higher than in the control subjects. This finding is consistent with the previous studies done by other investigators [20-23] which suggests that metabolic derangement causes increased ALT activity. It can be postulated that because of abnormal thyroid hormone levels there may be derangement of biochemical reactions within the hepatic cells leading to either increased synthesis of hepatic enzymes or increased permeability of hepatic cell membranes or both.

Hypothyroidism may have features that mimic liver disease (pseudo-liver disease): examples include myalgias, fatigue and muscle cramps in the presence of an elevated aspartate amino transferase from a myopathy [24]. In this study, the liver enzymes (AST) showed a significant positive correlation of serum TSH levels in hypothyroid subjects which may be because of myopathy associated with hypothyroidism.

A highly significant change was observed in serum ALP levels which showed a positive correlation with serum TSH levels in overt hypothyroid subjects. These observations may be explained on the basis that in hypothyroidism there is an increase in membrane cholesterol phospholipid ratio and diminished membrane fluidity, which affect a number of canalicular membrane transporters and enzymes, including the Na⁺, K⁺-ATPase resulting in the change

of ALP enzymes [25].

Serum total protein demonstrated a statistically significant increase in hypothyroid subjects as compared to euthyroid subjects. The difference in serum albumin was not found to be statistically significant. This indicates that probably in hypothyroidism proteins other than albumin may be synthesized by the liver. The liver is known to synthesize a number of plasma proteins that bind the lipophilic thyroid hormones. Added to this, low-grade inflammation associated with even mild degrees of hypothyroidism may lead to a resultant increase in inflammatory proteins and immunoglobulins [26].

Limitations

Our study included only serum proteins and enzymes of liver function. Complete liver function tests could have been done and serum bilirubin values also could have been studied in hypothyroid patients. GGT could also be included to differentiate whether liver dysfunction is due to alcoholism or primary hypothyroidism.

Conclusion

Present study indicates that thyroid disorder might cause significant effect on metabolism of various cells including hepatocytes reflected by increase in biochemical parameters of liver function test and its significant correlation with components of thyroid profile test. Knowledge of the association between hypothyroidism and deranged biochemical markers of liver function is important for the clinician to consider an evaluation of thyroid function in the workup of the patients with altered liver function tests. This emphasizes the need for monitoring liver

enzymes in hypothyroid patients as declining liver function may be missed by single assessment. However, future studies are needed to determine the potential adverse effects of hypothyroidism on liver function.

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A Study of Sociodemographic Features of Mobile Usage among Medical Students

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Abstract

Introduction: Mobile phone growth in India has been fast and it has reached all segments of society, especially the young. The cell phone is ever-present on college campuses and is frequently used in settings where learning occurs [5]. College students find the mobile phone to be an important window through which they can communicate and interact with the world. College students as a group appear more vulnerable to developing dependence on the mobile phone than any other segment of society. *Materials & Methods:* Type of study: Cross-sectional study. Study area: Ashwini Rural Medical College, Hospital and Research Centre, Kumbhari, Solapur. Study population: MBBS students of the Ashwini Rural Medical College, Hospital and Research Centre, Study duration: 2 months, Study instruments: pre- designed Questionnaire and clearance from the college Ethics committee. *Results:* students ranging from an age group between 18-23 yrs took part in the study, of which, 144(48%) were females and 156(52%) were males. The parental income-majority (65.3%) falls under the group 5lakhs-10lakhs. More than three fourth (89%) of students had android operated phones. In the present study on an average at least 3 mobile phones were replaced by each student since the start. The average cost of mobile used by the students was 16117 Rupees . The average age at which mobile phone was first used was found to be 16.8yrs and the average monthly expenditure made was found to be 219 rupees. Every student who participated in the study had internet enabled on their phone. *Conclusions:* The mobile phone use had an adverse impact on the students in terms of psychological effects, cutting sleep and hampering studies. The data is indicative of nomophobia to be an emerging problem of the modern era. Multicentric studies are required to assess the real problem and thereby take appropriate steps to tackle the growing problem. make the students aware of the fact that mobile phone indeed serves as an educative tool. Our study paves way for further research regarding which specific educative tools are likely to help the medical students quench their thirst for knowledge.

Keywords: Sociodemographic Factors; Mobile Usage; Nomophobia; Cross Sectional Study.

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Introduction

One of the important technological advancements in the last three decades or so has been the advent of the mobile phone also known as cell phone. In the

last 20 years, worldwide mobile phone Subscriptions has grown from 12.4 million to over 5.6 billion, penetrating about 70% of the global population. Its use has also become an important public health problem as there have been reports of plenty of health hazards, both mental and physical, in people of all age groups [1].

Research suggests that college students frequently use the cell phone during class time despite rules and regulations [2].

Mobile phones are low-powered radiofrequency transmitters, operating at frequencies between 450 and 2700 MHz with peak powers in the range of 0.1 to 2 watts through an antenna used close to the user's head. Mobile phones communicate by transmitting radio waves through a network of fixed antennas called base stations. Radiofrequency waves are electromagnetic fields (EMF) and there is increasing concern among the general population that these waves might induce or promote cancer. Changes in the permeability of the blood-brain barrier, of electroencephalographic activity, and blood pressure have also been reported [3,4].

Mobile phone growth in India has been fast and it has reached all segments of society, especially the young. The cell phone is ever-present on college campuses and is frequently used in settings where learning occurs [5]. College students find the mobile phone to be an important window through which they can communicate and interact with the world. College students as a group appear more vulnerable to developing dependence on the mobile phone than any other segment of society, probably because college students have strong drives to develop firm senses of identity, and to develop meaningful and intimate relationships [6].

In recent years, a psychological problem which results from the excessive use of mobile phones which is called "Ringxiety, has been reported. It is a condition where individuals hear the phone ringing when it actually hasn't, which is also called "phantom ringing" [5].

In the medical field itself, there has been a revolution. Smartphone applications, such as those available in the Apple and Android application stores, are quickly becoming integrated into clinical practice by physicians. These features have helped the doctors and medical practitioners to tackle various medical emergencies, and have helped them to treat patients in the best possible way. From helping in medical education to displaying of information for patients, Smart phones have truly digitized the medical world.⁷ However, the mobile phone also gives

room to blending students' roles with other roles thus distracting and disrupting the students' academic work. Thus, the mobile phone has the power to undermine the authority and weaken their control over students as well as affects their level of concentration which might land them in psychological issues too [8]. Nomophobia an upcoming problem- is an unreasonable level of fear when out of mobile phone contact. As the smart phone penetration spreads across the globe so does Nomophobia. Younger are more prone to Nomophobia, of which with 18-24yrs tops the list at 77%, which is 11% more than the next group- 25-34yrs [9].

There is dearth of studies in this regard despite the rampant usage of mobile phones. Hence, this study was planned to find out the pattern of the use and the perceived effects of the mobile phone usage among students in Ashwini Rural medical college, Hospital, Research Center, Kumbhari.

Materials and Methods

Type of Study: Cross-sectional study.

Study area: Ashwini Rural Medical College, Hospital and Research Centre, Kumbhari, Solapur. *Study population:* MBBS students of the Ashwini Rural Medical College, Hospital and Research Centre, *Study duration:* 2 months, *Study instruments:* pre-designed Questionnaire and clearance from the college Ethics committee *Essential pre requests from the study:* consent form

Inclusion Criteria

1. MBBS students from the Ashwini Rural Medical College, Hospital Research Centre, Kumbhari, Solapur.
2. Students who gave consent to participate in the study.

Exclusion Criteria

Students who did not give consent to participate in the study.

Date Collection Procedure

A cross sectional study among 300 MBBS students of Ashwini Rural Medical College was conducted. Every year the college admits 100 students and since 3years had passed since the establishments of the

college, all 100 students from each batch were included for the study.

Observations and Results

A total of 300 students gave consent to participate in our study.

Sociodemographic profile: The students ranging from an age group between 18-23yrs took part in the study, of which, 144(48%) were females and 156(52%) were males. 285 (95%) resided in hostels and 15 (5%)

were day scholars. The parental income was categorized as < 5 lakhs, 5 lakhs-10 lakhs and > 10 lakhs, of which a majority (65.3%) falls under the group 5 lakhs-10 lakhs. More than three fourth (89%) of students had android operated phones. In the present study on an average at least 3 mobile phones were replaced by each student since the start. The average cost of mobile used by the students was 16117 Rupees (SD=6928Rupees). Majority (46%) of them used a mobile phone costing more than 20000 rupees. The average age at which mobile phone was first used was found to be 16.8yrs (SD=1.7yrs). The

Table 1: Parent annual income (Rs)

Parent Annual Income	Frequency	Percent
< 500000	62	20.7
500000 - 1000000	196	65.3
> 1000000	42	14.0
Total	300	100.0

Table 2: Age at which mobile was first used

Age	Frequency	Percent
10-12	11	3.7
12-15	36	12.0
15-20	253	84.3
Total	300	100.0

Fig. 3: Cost of mobile phone (Rs)

Cost of Mobile	Frequency	Percent
< 10000	64	21.3
10000-15000	61	20.3
15000-20000	37	12.3
> 20000	138	46.0
Total	300	100.0

Fig. 4: Number of mobiles changed since the start

Number of Mobiles Changed	Frequency	Percent
2	125	41.7
3	116	38.7
4	30	10.0
> 4	29	9.7
Total	300	100.0

Table 6: Association between Parent's annual income and Monthly expenditure

Monthly expenditure	Parent's annual income			Total
	< 500000	500000 - 1000000	> 1000000	
< 100	10(16.1%)	13(6.6%)	2(4.8%)	25
100-200	20(32.3%)	47(24%)	16(38.1%)	83
200-300	26(41.9%)	110(56.1%)	16(38.1%)	152
> 300	6(9.7%)	26(13.3%)	8(19%)	40
Total	62	196	42	300

average monthly expenditure made was found to be 219 rupees (S.D=81rupees) with 200-300 rupees in a majority (50.7%). Every student who participated in the study had internet enabled on their phone.

Discussion

This study was exploratory in nature. The study's aim was to assess the positive as well as the negative

aspects of the mobile phone use. A casual observation reveals mobile phone use by every student nowadays. In our study every student (100%) owned a mobile and had internet enabled on their devices which was in consistence with the study conducted by Bobby Paul et al [3] (99.3%) used mobile phones, which was higher than usage prevalence among medical students as reported by Mahmoodabad et al [10] (73.5%) and similar (99.7%) to that of Subba et al [5]. This increasing trend may be because of the realization that having mobile as a necessity among the young individuals.

Study by Sevil Sahin et al [11] showed that the age at which mobile phone was first used was found to be <13yrs in a majority which was contradictory in the present study which is between 15-20yrs. This trend may be due increasing awareness among parents.

With increasing use of smart phones in the coming era, in the present study it was observed that 89% students use android system which was consistent in the study by Dhara Prajapati et al¹ (80.61%). The popularity of mobile phones has caused mobile phone manufacturers produce several different models of phones. Young people are the main target of markets producers. The desire to modernistic enthusiasm, being different, attracting attention, and some of these reasons has caused young people change their phones. Thus in the present study every student has changed mobile phone atleast twice which is in accordance to a studies of Maryamm et al [12], Baghyany Moghadam et al [13].

The observation in present study about monthly expenses incurred by students on mobile phone for recharging the prepaid services, internet usage, were comparable to study done in Jodhpur medical students [14] in which 50% students spent Rs. 200-300 per month. For their mobile recharge, only 6% spent <100 rupee, 22.6% spent 100- 200 rupee per month while 27.4% student spent more than 500 rupee per month for mobile recharge. The amount of money which was spent by the majority (50.7%) on mobiles per month was Rs.200-300/- on an average, which was much lower (56 RM) than that which was spent by Malaysian college goers [15], which amounted to about Rs. 800. However, this difference could be due to the difference in purchasing power parity. Although the factors affecting the results of various studies are not well known, cultural and social backgrounds might influence the mobile phone use in females.

Results point out students from high socioeconomic families had a costlier mobile than students from lower socio-economic families. High socioeconomic families

not only have the economic resources for mobile expenditure, but also create a particular cultural environment (use at an earlier age) for their use. These findings in the present study were similar with studies of Maryam Amidi Mazaheri et al [12] but not similar with studies of Koivusilta et al [16] which reported a higher expenditure among lower socio economic group.

Conclusion

The mobile phone use had an adverse impact on the students in terms of psychological effects, cutting sleep and hampering studies. The data is indicative of Nomophobia to be an emerging problem of the modern era. Multicentric studies are required to assess the real problem and thereby take appropriate steps to tackle the growing problem. make the students aware of the fact that mobile phone indeed serves as an educative tool. Our study paves way for further research regarding which specific educative tools are likely to help the medical students quench their thirst for knowledge.

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Profile of Cancer Cases: A Hospital Based Retrospective Study

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Abstract

Background: Cancer, which is defined as abnormal growth of cell, can affect any tissue or organ of body. Cancer is one of the major public health problems worldwide. Prevalence and pattern of cancer is known to vary from region to region. Epidemiological information on cancer including the pattern is an important basis for determining the priorities for cancer control in any population group. These days the world is heading towards various types of non-communicable diseases, which are also known as modern epidemics. Among these modern epidemics cancer is the second commonest cause of mortality in developed countries. In the developing countries cancer is one among the ten commonest cause of mortality. *Objective:* Present work is an attempt to study magnitude, profile and some epidemiological aspects in relation to cancer cases at a tertiary care level teaching hospital. *Material and Methods:* The present hospital based retrospective study was conducted for the period 1st May 2016 to 31st May 2016. Cancer cases diagnosed by all methods or treated during this period were identified from the inpatient registers maintained by the Medical Records Department. All records were studied and analyzed. A total of 422 patients were treated during the period of study. A semi structured Performa was used to collect data such as age, sex, place of residence, type of cancers and treatment given. The data collected were entered in to MS-Excel sheets and analysis was carried out using software spss 20. The information obtained was tabulated and presented in percentages, and numbers. Significance was calculated using chisquare test. *Results:* A total of 422 cancer patients were treated during the May 1st 2016 to May 31st 2016. Among them, 237(56.2%) were females and 185(43.8%) were males. The study revealed that Breast cancer (74 cases, 17.5%), Lung cancer (17 cases, 4%), Cervical cancer (18 cases, 4.3%), Oral cancer (38 cases, 9%) and 208 cases (49.3%) constitute remaining other cancers. Age and sex distribution revealed maximum number of cancer patients were present between 61 to 70 years (22.3%). In males, majority of cases were present in 61-70 Year's age group (30.81%) and females majority of cases were seen in 41-50 year age group (23.6%). Study sample revealed 46.9% cancer cases (198 patients) residing in urban areas and 53.1% cases (224 patients) were from rural areas. The main methods of cancer treatment were surgery, chemotherapy and radiotherapy, used alone or in combination. *Conclusion:* Tobacco and alcohol related cancers predominated in males. In females, breast cancer predominated over breast cancer. Human behavior is a major determinant in the successful control of cancer. Understanding cancer magnitude, risk and trends will be of help in cancer control.

Keywords: Cancer Profile; Tertiary Care Centre; Breast Cancer; Lung Cancer.

Introduction

One of the most dreaded non-communicable

diseases is cancer, which has become an important contributor to the global burden of diseases [1].

Cancer is a disease, in which cells of abnormal in nature can proliferate rapidly without control and are able to occupy other tissues. There are many routes through which abnormal Cancer cells can spread to other parts of the body [2].

According to the World Cancer Report (WCR 2003), given by the International Agency for Research

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on Cancers (IARC), the burden of cancer doubled globally between 1975 and 2000, and 10 million people are diagnosed with cancer annually worldwide. Whereas 2008 report estimates that there were 12 million new cancers diagnosed worldwide in 2009 and more than seven million people will die of this disease. The projected numbers for the year 2030 are 20-30 million new diagnoses and 13-17 million deaths [1,2].

The burden of cancer is growing globally and is one of the most leading causes of death. In developed countries cancer is the second leading cause of death accounting for 21% of mortality by other causes and in developing countries it ranks third, accounting for 9.5% of all deaths [3].

The global community can expect an increase of incidence of about 1% each year, with larger increase in China, Russia and India [4]. However, there is a clear message of hope: Although cancer is a devastating disease but it is largely preventable. If we have the adequate data about cancer patients, then by applying appropriate measures, a great impact on reducing the global cancer burden can be achieved. And one of the instruments for data collection of cancer patients is their registration [5].

Effective planning for cancer control intervention depends mostly on information on cancer patterns. Limited published information is available on pattern of cancer for the state of Karnataka, India. The present study was an attempt to explore the pattern and trend of cancer in one district of Karnataka. Epidemiological observations indicate that environment and lifestyle are the major determinants of the geographical patterns of cancer. To study the profile of different cancers in a particular cancer belt helps to know the exact incidence of different cancers in that region and their likely etiology and can have a baseline to plan and access control measures.

With this background in mind present work

carried out to study magnitude, pattern and some epidemiological aspects in relation to cancer cases at a tertiary care level teaching hospital in Ballari, Karnataka.

Materials and Methods

The present hospital based retrospective study was conducted for the period 1st to 31st May 2016, after approval from institutional ethical committee board. Cancer cases diagnosed by all methods or treated during this period were identified from the inpatient registers maintained by the Medical Records Department.

All records were studied and analyzed. A total of 422 patients were treated during the period of study. A semi structured Performa was used to collect data such as age, sex, place of residence, type of cancers and treatment given. We also assessed all the patients basic personal, family & socioeconomic data which including data regarding smoking, alcohol consumption and tobacco chewing. For women, gynecological and obstetric data was also collected.

The data collected were entered in to MS-Excel sheets and analysis was carried out using software spss 20. The information obtained was tabulated and presented in percentages, and numbers. Significance was calculated using chi square test and p value of less than 0.05 is considered to be significant.

Results

A total of 422 records were analyzed during the study period of one month. Among them 56.16% (237 patients) were females and 43.84% (185 patients) were males. Majority of the patients were illiterates, married Hindu religion and most of them from rural place (Table 1).

Table 1: Socio demographic profile of the study participants

Variables	Male (%) (n=185)	Female (%) (n=237)	Total (%) (n=422)
Age group			
<30	7(3.78)	14(5.91)	21(4.97)
31-40	17(9.2)	20(8.44)	37(8.77)
41-50	18(9.72)	44(18.57)	62(14.69)
51-60	28(15.13)	56(23.63)	84(19.91)
61-70	42(23.24)	51(21.52)	94(22.27)
71-80	57(30.81)	38(16.03)	95(22.51)
more than80	15(8.11)	14(5.91)	29(6.87)
Education			
Literate	2(1.08)	4(1.68)	6(1.42)
Illiterate	183(98.91)	233(98.31)	416(98.57)

Religion			
Hindu	160(86.49)	211(89.03)	371(87.91)
Muslim	25(13.51)	26(10.97)	51(12.09)
Marital status			
Married	175(95.60)	224(94.52)	399(94.55)
Unmarried	10(5.40)	13(5.48)	23(5.45)
Place of residence			
Urban	79(42.70)	119(50.22)	198(46.92)
Rural	106(57.30)	118(49.78)	224(53.08)

Table 2: Sex wise distribution of cancer cases

Type of cancer	Male		Sex		Female		Total	
	Male	%	Female	%	Total	Total	%	
Cervical cancer	0	0	18	7.6	18	18	4.3	
Breast cancer	0	0	74	31.2	74	74	17.5	
Lung cancer	12	6.5	5	2.1	17	17	4	
Oral cancer	22	11.9	16	6.8	38	38	9	
GIT cancer	29	15.7	21	8.9	50	50	11.8	
Female genital track	0	0	10	4.2	10	10	2.4	
Male genital track	7	3.8	0	0	7	7	1.7	
Others	115	62.2	93	39.2	208	208	49.3	
Total	185	100	237	100	422	422	100	

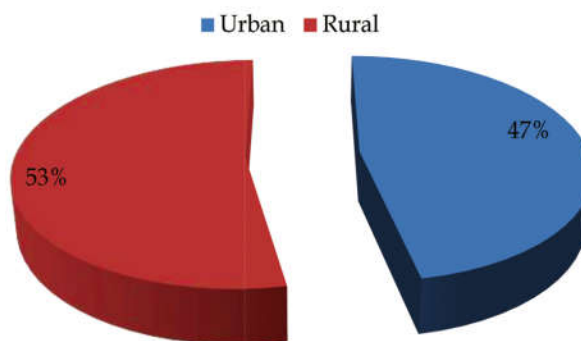
Table 3: Age wise distribution of cancer cases

Type of cancer	Age Group(yrs)												Total	%
	>30	%	31-40	%	41-50	%	51-60	%	61-70	%	>70	%		
Cervical cancer	1	2.7	2	3.2	3	3.6	5	5.3	6	6.3	1	3.4	18	4.3
Breast cancer	9	30.5	19	30.6	17	20.2	15	16	12	12.6	2	6.9	74	18
Lung cancer	0	0	3	4.8	1	1.2	4	4.3	6	6.3	3	10	17	4
Oral cancer	2	5.4	4	6.5	9	10.7	13	13.8	7	7.4	3	10	38	9
GIT cancer	6	16.2	8	12.9	7	8.3	12	12.8	15	15.8	2	6.9	50	12
Female genital track	1	2.7	2	3.2	3	3.6	4	4.3	0	0	0	0	10	2.4
Male genital track	0	0	1	1.6	0	0	2	2.1	3	3.2	1	3.4	7	1.7
Others	39	67.2	23	37.1	44	52.4	39	41.5	46	48.4	17	59	208	49
Total	58	100	62	100	84	100	94	100	95	100	29	100	422	100

Table 2 shows that the most common cancers among females were breast cancer, which constituted 39.2% of the total number of cancer cases followed by other cancers. In males the common cancers were GIT cancers, oral cancers, lung cancer and others. Which constituted 62.2% of the total number of cancer cases followed by other cancers. Others include hypopharynx cancer of left pyriform fossa, hepatocellular carcinoma and cancer of urinary bladder, carcinoma of oesophagus. In both the sexes, the most common site among all gastrointestinal malignancies was the oesophagus followed by gastric cancer.

Table 3 shows that maximum frequency was observed in 61-70 year age group in both sexes. However, it is worth while to take a note that from 31 years and above age group onwards cervix and breast predominate the leading sites in females. In 31 and above age group oral cavity, GIT and lung were the leading cancer sites in males.

Graph 1 shows that majority of these patients belong to low socioeconomic group with rural



Graph 1: Distribution of study participants according to place of residence

Background. Hence maximum number of cancer patients (53%) were from rural background..

Table 4 shows that majority of the cancer cases present in Hindu religion (87.9%), and it was significant $\chi^2 = 46.104 (P=0.000)$ when compared to other religions. Female patients were more compared to males $\chi^2=111.72 (P=0.000)$.

Table 4: Risk factor associated with occurrence of cancer

Variables	Type of cancer									%
	Cervical	Breast	Lung	Oral	GIT	Female genital track	Male genital track	Others	Total	
	No	No	No	No	No	No	No	No	No	No
Religion										
Hindu	18	68	14	34	43	8	6	180	371	87.9
Muslim	0	6	3	4	7	2	1	28	50	12.1
Total	18	74	17	38	50	10	7	208	422	100
	2 = 46.104	P=0.000								
Sex										
Male	0	0	12	22	29	0	7	115	185	43.8
Female	18	74	5	16	21	10	0	93	237	56.2
Total	18	74	17	38	50	10	7	208	422	100
	2=111.725	P=0.000								
Place of residence										
Urban	5	42	11	17	17	7	5	94	198	46.9
Rural	13	32	6	21	33	3	2	114	224	53.1
Total	18	74	17	38	50	10	7	208	422	100
	2=15.183	P=0.034								
Smoking										
Yes	0	0	5	6	5	1	1	31	49	11.6
NO	18	74	12	32	45	9	6	177	373	88.4
Total	18	74	17	38	50	10	7	208	422	100
	2=20.378	P=0.005								
Tobacco chewing										
Yes	1	0	0	15	1	0	1	11	29	6.9
NO	17	74	17	23	49	10	6	197	393	93.1
Total	18	74	17	38	50	10	7	208	422	100
	2=73.882	P=0.000								

Discussion

The pattern of cancers differs in various part of same country. A general way of assessing the dimension of the cancer problem in a given cancer hospital/centre is the number of cancer diagnoses per year in the concerned Hospital. It is observed that cancers are increasingly seen in both genders and all the age groups due to a complex interaction of various risk factors. Cancer registration helps the public health professionals to understand the dynamics of cancer incidence for the formulation of future strategies.

The present results were in contradiction to that of study done in Aizwal [6] which showed that cancers were more prevalent in males as compared to females and similar to the study done in Chandigarh [5].

The patient's age ranged from 3 to 85 years with the mean age of 50.7±16.06 and almost 2/3rd occurred in the age group of 41-70 years (64.69%) and maximum frequency at 61-70 years. Similar results by Binu VS

et al [1] Puri S et al [3] and Jayant DD et al [7] Increase in the life expectancy is one of the major factors for an increased incidence of cancer.

In the present study, almost all the patients except 6 cases were illiterates, 94.55 % cases were reported as married. More than 85% cases were from Hindu religion as per the records and more than half of them from rural place. Study by Puri S et al [3] showed that 42.6 % were illiterates where as others were literates and 63.6% were from Hindu religion. 15.8% cases reported as unmarried. Jayant DD⁷ reported that in their study 74.59% of the cancer cases in the present study were from rural area.

Yadav S.P, et al [8] studied cancer patients in New Delhi in 2007 in different religion people. 81% of total study population belonged to Hindus, 7.5% belonged to muslims.

Higginbotham, John C et al [9] at Mississippi Cancer Registry, did not find difference, but the rural and urban age adjusted cancer incidence and mortality revealed, for the vast majority of results,