Research Article

Lifestyle Behaviour After Diagnosis of Cancer in Turkish Population

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Abstract

Objectives: Healthy lifestyle factors have been reported to affect cancer survival.American Cancer Society(ACS) recommended healthy diet, physical active life-style and healthy weight for cancer survivors. We provide an overview of the cancer survivors in respect to dietary pattern, body weight, physical activities of Turkish patients.

Methods: Totally 107 patients, were treated for breast or colon cancer were included. The dietary patern of patients were evaluated by self-reported food questionnaire. The relationship between diet pattern, BMI(body mass index), physical activities and sugar consumption and other socioeconomical characteristics were analyzed.

Results: Half of our groups were physically active. Although the average BMI was 26.4kg/m². 16.8% of cancer survivors had no risk factor like physical inactivity, consumption of sugar or overweight. BMI was related with physical activities and stage of disease. Overweight was linked to sedentary lifestyles and physical inactivities were also more associated with the chronic disease.The results further showed that female gender, non-smokers and survivors with high education levels consumed more sugar in their diet.

Conclusion: Our study indicate the dietary habit, weight and physical activities of our cancer survivors may reflect the Turkish population. Healthy policy can be improved and new strategises for follow-up or education for survivors in regarding healthy lifestyle can be developed.

Keywords: Breast cancer, colon cancer, diet, physical activities, Turkish population

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Cancer is the one of the leading cause of mortality worldwide.[1] Breast cancer is the most common cancer of women with 89% of overall mortality rate.[2] Especially in a few years, mortality is related with disease and treatment characteristics, however during the follow-up period, mortality is also associated with lifestyle changes.[2] Cancer survivors has been focused on completion of treatment and regular clinical follow-up to diagnose early recurrence with the aim of cure. But there is also a risk of having a risk of other chronical diseases like diabetes or ischemic heart disease.[3,4] Lifestyle factors like eating healthy diet, maintaining healthy weight and engaging recommended physical exercise have an important role for cancer prevention and reducing incidence of chronic disease.[1,5] In fact, after the diagnosis, patients are more interested with learning dietary recommendations, physical exercise, nuritional supports.[6] It was reported that 50-80% of the cancer survivors tend to be positive lifestyle modification after diagnosis.[7] In the guideline published by American Cancer Society (ACS), healthy diet, physically active life-style and healthy weight for cancer survivors are mentioned.[8] A diet which includes high in fruit, vegetables, whole grain and low sugar, red and processed meat consumption has be recommended.[9] Although healthy life style has been found with better

outcome for cancer survivors, previous study showed that obesity, physical inactivity, poor-quality diets are common among cancer survivors.[10] Improvement of fruit and vegetables intake and reduction of dietary fat intake have been reported as 25-55% and 13-31% respectively.[11] Cancer survivors also advised to mantain heaalthy body weight as BMI in the range of 18.5-25 kg/m^2.[12] Obesity that means Body mass index (BMI) over 30 kg/m^2 is related with prognosis of breast cancer and colon cancer and increased risk of recurrence.[5,13] In addition, physical activity has been associated with improvement of cancer related mortality, via balanced body mass index and cardiorespiratory well-being.[11] Current recommendations for physical activity for cancer survivors are ≥30 min of moderate exercise on ≥5 days per week.[11] Sedentary life-style is an crucial not only for breast cancer but also for cardiovascular disease, Diabetes mellitus.[11] Regular physical exercise, defined as 30 minutes of walking for 6 days a week, is correlated with 30% lower risk of breast cancer and increases chance for survival of breast cancer.[14] Among survivors who adopted the recommendation, all causes of mortality decreased in the rate of 15-43% with 29% decreased of cancer recurrence.[11]

There are a lot of study related with engagement of dietary recommendation and healthy weight status among patients with differerent ethnicity, different cancer type and different time period from the diagnosis to treatment.[15] Such overview leads to gain more insight into lifestyle related factors that need to be improved. The purpose of this study was the evaluation of lifestyle habits of Turkish colon or breast cancer survivors and the adherence of them to healthy lifestyle so new strategies for intervention can be planned.

Methods

We included totally 107 patients, who were treated for breast or colon cancer and followed in Medicalpark Goztepe Hospital, Oncology Department between january 2018 and january 2019. Patients diagnosed with breast or colon cancer histopathologically were included to the study. They must be completed the primary treatment of cancer with the median 3 years of follow-up time. The patients who are currently under treatment were excluded from the study. Patients' age and chronic diseases; tumor characteristics like diagnosis, stage, treatment modalities and socioeconomical status including education, job were also extracted from the patient' file after informed consent were taken. The median age of paitents was 59 (29-83). Patients were completed self administered the food consumption frequency questionnaire is based on The Ministry of Health's book titled the determination of nutritional status.[16] Physical activities were defined as >30 minutes of walking at least 3 times a week. After completion of questionnaire, weght and height of patients were recorded. Body mass index (BMI) of each patient was calculated by dividing weight in kilograms by the square of patients' height in meters (kg/m^2). BMI was classified as <20, 20-25, 25-30, 30-40 and >40. The median BMI was 26.7 (16.3-40.8).

Healthy diet, engagement to recommended physical activities and healthy weight are important for cancer survivors to improve survival. Unhealthy lifestle behaviours were defined as sedantary life (lower than 90 minutes of physical activities per week), low fruit and vegetables intake (≤5 serving fruit and vegetables day, ≥1 sugar drink/day) and to be owerweight or obese. So, survivors were classified into presence of risk factors like sedentary life style, BMI over 25 and consumption of refined sugar. We classified survivors as presence of these risk factors. Then we assesed the relation between presence of all risk factors and socio-economical and disease status.

Statistical Analysis

Statistical analyses were performed using SPSS 17.0 (SPSS Inc., Chicago, IL, USA) software. Descriptive analysis examined the distribution of study-level variables. The relationship between presence of risk factors and other socioeconomical characteristics were analyzed using the Chi-square test. All p values were two-sided in tests and p values less than or equal to 0.05 were considered significant.

Results

The most of our patients were breast cancer (75.7%) and 26 of them were colon cancer so over 85% were women. Over 97% of the patients were stage I, II or III. Only 3 of them were metastatic but treated curative intent. Totally 61 patients received adjuvant chemotherapy and 57% were also given adjuvant radiotherapy. None of our patients drank alcohol regularly before or after the diagnosis. While 64.5% had no no smoking history, 19.6% were ex-smoker in addition 15.9% were active smokers. Half of our groups were physically active and did exercise regularly. While 78.5% were married, over 64% educated at least university. Out of 39 patients had chronical illness like hypertension, Diabetes, chronic obstructive lung disease, rhematoid arthritis and ischemic heart disease in order of frequency. Totally 23 survivors (21.5%) were also received supplementation including multivitamin, vitamin D or omega 3. The main characteristics of the patients are summarizied in table 1. Median BMI 26.4kg/m^2 but only 24 patient (22.4%) were in the normal range (20-25 kg/m^2). Other 49.5% (number 53) was BMI of 25-30kg/m^2 2.5 % (number 22) over 30kg/m^2 and 7.5% (number 8) were BMI of <20kg/m^2.

Table 1. The main characteristics of the patients

	Number	%
Educational status		
Illiterate	1	0.9
Literate	6	5.6
Primary education	31	29
High school	36	33.6
University	33	30.8
Marrital status		
Married	84	78.5
Single	23	21.5
Physically active		
Sedentary	54	50.5
Active	53	49.5
Job		
Employee	1	0.9
Officer	8	7.5
Self employment	5	4.7
Housewife	67	62.6
Retired	26	24.3
Smoke		
Yes	17	15.9
No	69	64.5
Ex- smoker	21	19.6
No alcohol	107	100
Chronic disease		
Yes	39	
No	68	
Supplement use		
Yes	23	21.5
No	84	78.5
Cancer		
Breast	81	75.7
Colon	26	24.3
Stage		
1	32	29.9
2	50	46.7
3	22	20.6
4	3	2.8
Chemotherapy		
Yes	61	57
No	46	43
Radiotherapy		
Yes	61	57.5
No	45	42.5

The dietary patern of patients were evaluated by self-reported food questionnaire. Two third of the survivors didn't consume sugar, in addition 18 (16.8%) didn't consume any refined sugar as dessert. 18 out of 107 patients (16.8%) had no risk factor like physical inactivity, consumption of sugar or overweight. On the other hand 40 survivors (37.4%) had 1, 34 (31.8%) had 2 and 15 (14%) had ≥3 risk factors. There was no relationship between the number of risk factors and educational level, marrital status, job, cigarette smoking, chronical disease, suplement usage, disease type, presence of chemotherapy or radiotherapy. If the relationship was evaluated according to presence or absence of any risk factor, job (p=0.05), educational level (p=0.05), presence of chronical disease (p=0.01) and the follow-up time (p=0.01) were related with the presence any one of the risk factors. Table 2 shown the results. Chi-square test was also performed separately for each risk factors and BMI were related with physical activities (p=0.02) and stage of disease (p=0.03). As expected sedantary life were together with overweight (p=0.02). Physical inactivities were also more related with the chronical disease (p=0.008). In addition female gender (p=0.008), non-smokers (p=0.006) and survivors with high educational level (p=0.01) consumed more sugar in their diet.

Discussion

In the epidemiological studies, the association between dietary habit and cancer risk and recurrence were shown.[7] Especially high fat, low dietary fiber, low fruit and vegetables, high refined sugar and increased BMI were associated with increased cancer risk.[7] The incidence of Diabetes mellitus or heart disease are higher among cancer patients (47%) after treatment compared the healthy controls related with lifestyle factors.[7] Cancer patients had been reported to be incompatible with healthy life style generally. They were associated with low level of physical activity, poor adherence to dietary recommendation, high prevelance of obesity after treatment.[13] We reported the dietary and lifestyle of breast and colon cancer survivors in our center. This may reflect the Turkish population and lead to make programme for modification in health policy.

Among breast cancer survival fruit and vegetable consumption was reported to be increased compared to control group[1] especially among patients who had no children or partner and had high educational level.[10] In our sample, suboptimal fruit and vegetable consumption was present but we couldn't compare the general population without cancer history. Also in the literature younger cancer(<50 years) patients (156 breast and colon cancer survivors) were asssesed in respect to difference of dietary behaviour and physical activities in an ethnically diverse group.[5] Lower income was associated with inadequate fruit and vegetable intake. More than half were obese and only one third followed diet and physical activity recommendations. They were patients that only diagnosed with early stage disease and younger patients who didn't heed recommendation about life style.[5] Similarly 50% of our

Table 2. The results of the Chi-square

	Risk factor present	Risk factor absent	p
Marital status			
Married	74	18	0.06
Single	14	0	
Educational status			
Primary education	36	2	0.05
High school	28	8	
University	25	8	
Marrital status			
Married	70	14	0.9
Single	19	4	
Job			
Employee	1	0	0.05
Officer	4	4	
Self employment	5	0	
Housewife	55	12	
Retired	24	2	
Smoke			
Yes	16	1	0.1
No	54	15	
Ex- smoker	19	2	
Chronic disease			
Yes	43	3	0.01
No	46	15	
Supplement use			
Yes	19	4	0.9
No	70	14	
Cancer			
Breast	65	16	0.1
Colon	24	2	
Stage			
1	5	5	0.4
2	11	6	
3	2	4	
4	0	0	
Chemotherapy			
Yes	49	12	0.3
No	40	6	
Follow-up			
<2 years	47	4	0.01
>2 years	42	14	

survivars were overweight. Younger patients and breast cancer survivors were not only included, elderly patients and also colon cancer survivors with the median age of 59 were added. Female patients, non-smokers and survivors with high educational level consumed more sugar in their diet. It may be correlated with increasing educational level which is related with increasing income so fast-food included more refined carbohydrate has been more prefer-

able among them. Vrieling et al. reported that unhealthy diet including high intake of red and processed meat with low consumption of fruit and vegetables was associated with worse survival among 2533 postmenapousal breast cancer patients.[17] Women, preferred healthy diet were mostly past-smoker, had higher educational level and occupational level compared to ones with unhealthy diatary habits.[17] In here we report only the lifestyle and dietary habit of cancer survivors, this may lead to look for/ conduct a new study of survival of patients who adapt lifestyle recommendations to their daily routine.

Although use of alternative medicine was common especially among breast cancer patients, there has not been any relation with outcome.[17] In the literaure there are numerous studies related with the use of micronutrients to decrease the risk of death.[2] There were both positive and negative results.[18,19] Among 3081 early breast cancer survivors, 85% of supplement including multivitamin and/ or Calcıum usage were reported without improvement of outcome. The supplement users were more educated, older, less likely obese and more physically active.[2] Over one fourth of our patients were used supplementation including multivitamin, vitamin D or omega 3 but we couldn't know the relation the usage with the survival. Similar to our study, Templation at al also conducted cross-sectional study among breast cancer patients to asses physical activities, eating habits and use of alternative medicine.[18] More than two third of 342 patients were phsically active more than once a week, 87% of them adapted healthy diet which included low fat and more organic products, 46% of them used supplements (vitamins, special teas, homeopathy, herbal medicine, mistletoe).[18] Mostly used supplements were vitamins, teas, homeopathy, herbal medicine, mistletoe. Higher educational level, physical activities and younger age were related with supplementation usage. Education, ethnicity and physical activity were positively correlated with change in dietary types.[18] There was no relation between suplement usage and socioeconomical characteristics in our group.

The appropriate diet and physical activities are reported to be critical for management of cancer during follow-up period.[21] Physical activities have also been determined to have positive impact on cancer outcome and life quality of cancer survivors.[21] Cancer survivors are associated with poor adherence to physical activitiy recommendation compared to the adults without cancer history.[5] Physical activity and high education level were related wtih diet.[18] Half of our patients were physically active. Regular walking minumum 30 minutes more than 3 times a week was the most common exercise type for our population and half of the patints engaged in this programme.

While half of them was physically active, 22.4% had ideal body weight (20-25kg/m²). Approximately 50% were overweigt with BMI of 25-30 kg/m². It may be related unhealthy diet habit. Similarly 142 out of 291 African American breast cancer survivors were obese and %54 of them didn't comply with suggestion about physical activities. [22] Another most common type of cancer in worldwide and also in Turkey is colorectal cancer.[20] In several studies healthy dietary modification included decreased red and processed meat and increased consumption of high fiber food has been recommended for colorectal cancer survivor to reduce recurrence.[21] One fourth of our patients were colorectal cancer. Since both colorectal and breast cancers have been reported to be related with weight and dietary modification, both groups were included to our study with the aim of reporting the lifestyle habits of our survivors. In our cancer survivors, only 16.8% had no risk factor like physical inactivity, consumption of sugar or overweight. BMI was related with physical activities. As expected sedantary lives were together with overweight. Patients had chronical disease other than cancer were more physical inactive. Risk factors were more common among patients with high educational level or had chronical disease or working patients.

It is vital for survivors to know the relation between obesity, dietary habit or physical activities not only for preventing recurrence but also to avoid non-cancer comorbidity. If the dietary pattern, physical activies or weigtht of the survivors are reported for each ethnicity, healthy policy can be improved and new strategises for follow-up or education for survivors in regarding healthy lifestyle can be developed.

Disclosures

Ethics Committee Approval: BAU Clinical Research Ethics Committee (2019-01/05).

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Conflict of Interest: None declared.

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