Original Article

Awareness of hemodialysis patients regarding symptoms of cancer at king Abdul-Aziz specialized hospital, Taif city

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Abstract

Background: Increased incidence of cancer at various sites is observed in patients with end-stage renal disease (ESRD). Certain malignant diseases, such as lymphomas and carcinomas of the kidney, prostate, liver, and uterus, show an enhanced prevalence compared with the general population. In particular, renal cell carcinoma (RCC) shows an excess incidence in ESRD patients. The efficacy of antineoplastic drugs is closely tied to the administered dosage and therapeutic blood and tissue levels of the agent. To maintain the balance between treatment efficacy and side effects, clinicians need to adjust the dose of renally cleared anticancer drugs using a surrogate of renal function, the estimated GFR. Although the higher incidence of cancer is in developed countries, 70% of cancer-related deaths occur in developing countries. Economically, cancer prevention and early detection measures would significantly reduce the cost of total medical care provided for cancer patients. **Aim of the study**: To assess the awareness and knowledge among hemodialysis patients regarding the warning signs and symptoms of cancer in king Abdul-Aziz specialized hospital, King Faisal Medical Complex Taif city. **Method:** A cross-sectional study design was used. The current study was conducted at King Abdul-Aziz specialized hospital, King Faisal Medical Complex Taif City. A simple random technique was used. The total sample size calculation will be 200 patients on hemodialysis. **Results**: the majority of participants were weak knowledge proportions (65.5%) while average knowledge about signs and symptoms were (27.0%) but the high knowledge proportions (7.5%) While the Range (0–9) Mean±SD (3.455±2.594). **Conclusion**: Although it is tempting to apply cancer-screening protocols that are recommended for the general population to dialysis patients, approach to cancer screening in dialysis patients is required and should be based on the patient's cancer risk factors, expected survival, and transplant status. Surveys that address the effectiveness of cancer screening by dialysis units do a disservice to the nephrology community.

Keywords: Awareness, hemodialysis, symptoms, patients, cancer, Taif City

INTRODUCTION

Hemodialysis A medical procedure to remove fluid and waste products from the blood and to correct electrolyte imbalances. [1] This is accomplished using a machine and a dialyzer also referred to as an "artificial kidney". "Hemodialysis is used to treat both acute (temporary) and chronic (permanent) kidney failure. Hemodialysis is the most common method used to treat advanced and permanent kidney failure.[2, 3]

A multitude of factors, directly or indirectly associated with the renal disease and the treatment regimens, may contribute to the increased tumor formation in these patients.[4] Patients undergoing renal replacement therapy (RRT) are prone to develop acquired cystic kidney disease (ACKD), which may subsequently lead to the development of RCC [5]

Chronic kidney disease (CKD) is a condition associated with an increased risk of hospital admission, morbidity, and mortality due to cardiovascular disease. [6] The number of patients with end-stage renal disease (ESRD) worldwide has increased rapidly over the past few decades. By 2010, the estimated ESRD population was over 2 million, and the survival of these patients depends on expensive dialysis treatments and transplantation [7].

End-stage renal disease (ESRD) is an important public

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health problem worldwide. In the United States, it is estimated that more than 2 million people will require renal replacement therapy by the year 2030 [8] in 2012, in the USA, Medicare spending is seen approaching $90,000 per patient per year of care. [9] There are 243 dialysis centers in the Kingdom of Saudi Arabia having 7,235 machines catering to 16,315 patients. The Ministry of Health (MOH) offers the largest percentage of these facilities with contributions made by the NON-MOH government sector as well as private and charitable sectors. The age distribution of the dialysis population showed that the majority of patients are in the age groups (26-65) years (69%). About 8% of the dialysis patients are older than 75 years while only 1% of them are under 15 years. [10]

Recently, ESRD has become an increasing public health problem for both high- and middle-income countries. Even in developed countries, ESRD is a major cost driver for health-care systems. End-stage renal disease (ESRD) is an important public health problem worldwide. In the United States, it is estimated that more than 2 million people will require renal replacement therapy by the year 2030.[11]

Indeed, many early cancer symptoms may not be painful or interfere with functioning and may not be recognized as warning signs of cancer or trigger help-seeking behavior. Thus, it has been found that raising public awareness of the warning symptoms of cancer and encouraging prompt presentation could reduce patient attributable delay in cancer diagnosis and decrease cancer mortality. [12] The magnitude and pattern of increased risks substantially vary according to individual and clinical characteristics and the modality of RRT [13]

The relative risk of cancer is increased when the glomerular filtration rate (GFR) is <60 ml/min, with men having a 29% increase in cancer risk for every 10 ml reduction in GFR. Also, mortality from cancers was higher in dialysis patients than in the general population [14]

Cancer is a leading cause of mortality worldwide. In 2008, it accounted for about 13% of all deaths. Patients with chronic kidney disease (CKD), both those who were on long-term dialysis and those who were not, have a higher-than-normal cancer risk [15]

Impaired function of the immune system, impaired DNA repair, reduced antioxidant defense, accumulation of carcinogenic compounds and chronic infections and inflammation are related to cancer development. Therefore, patients on chronic dialysis potentially have a higher incidence of cancer, particularly those of the genitourinary tract. Several studies have surveyed the incidences and various types of cancers in dialysis patients. The largest international collaborative study enrolled 831 804-dialysis patients from the USA, Europe, Australia and New Zealand between 1980 and 1994. In that study, kidney, urinary bladder, thyroid, and other endocrine cancers were observed to have a higher standardized incidence ratio (SIR) than other cancers in dialysis patients [16]

Rationale

In Saudi Arabia, there is virtually no information on early detection and prevention knowledge of cancer among Hemodialysis patients. Chronic renal failure is one of the most important problems in the world. Although renal transplantation is the definitive treatment for ESRD, Dialysis is the commonest treatment modality used. Early diagnosis and treatment of cancer will increase the survival rate.

Aim of the study

To assess the awareness and knowledge among hemodialysis patients regarding the warning signs and symptoms of cancer in king Abdulaziz specialized hospital, King Faisal Medical Complex Taif city.

Objectives

Primary Objectives:

The objective of this study is to assess, analyze and discuss the awareness of the risk of Poor knowledge among hemodialysis patients regarding the warning signs and symptoms of cancer in king Abdulaziz specialized hospital, King Faisal Medical Complex Taif city

Secondary Objectives:

- To determine the prevalence of hemodialysis patients population attending king Abdulaziz specialized hospital, King Faisal Medical Complex Taifcity 2018-2019.
- To evaluate the awareness and knowledge among hemodialysis patients regarding the warning signs and symptoms of cancer in king Abdulaziz specialized hospital, King Faisal Medical Complex Taif city.

Materials and Methods:

Study design:

This is a cross-sectional study. A simple random technique was used. Information was gathered on socio-demographic characteristics of the patient's medical history hemodialysis. The Chi-square test and multivariate logistic regression were used to measure the association between the various socio-determinants to the hemodialysis.

Study setting:

This study was conducted at King Abdul-Aziz specialized hospital and King Faisal Medical Complex Taifcity. Extensive medical and nursing services are offered including open heart surgery and kidney transplantation

Study Population

Hemodialysis patients In King Abdulaziz Specialized Hospital, King Faisal Medical Complex Taif city 2019

Inclusion criteria:

1. Willing and able to participate in the study
2. Aged 18 years and over

Exclusion criteria

No specific exclusion criteria.

Sample size: 200 patients on hemodialysis
Sampling technique:

Simple random generator used to select from king Abdul-Aziz specialized hospital, King Faisal Medical Complex Taif city. During the period of data collection, 2019, the researcher has been distributing to hemodialysis patients. Who fits into the inclusion criteria by non-probability convenience sampling technique till she obtains the required sample size for three months

Data collection tool (Instrument)

Data collection methods and procedure:

A validated self-administered questionnaire has been used. The data collection sheet constructed by the main investigator was used to review the data of the medical records. The data collection sheet included three sections

1. Socio-demographic information section (such as gender, age, nationality, marital status, occupation, level of education, monthly income and residence.
2. Medical history section: (such as a reason for referral and the main diagnosis, history of other diseases, medication in use, family history of chronic diseases)
3. Patient's medical history hemodialysis section: (such as the number of sessions, date of each session, or alternative therapy using, and expectation of improvement.

   The questionnaire has been constructed in the Arabic language to be validated by two consultants, and then it has been distributed and filled by the researcher

Data Collection technique

During the period of data collection, the researcher has been going to the selected hemodialysis patients in the clinic of dialysis. By distributing the questionnaire to hemodialysis patients. Each questionnaire was filled out then the researcher collected the questionnaires immediately after filling. The researcher has been seeking the help of by nursing, physician. He has been collecting the data by the same technique followed in the hemodialysis female centers. In the clinic at king Abdul-Aziz specialized hospital, King Faisal Medical Complex Taif city in the period from 2019. Every medical record in the clinic has five sections: The first part is a self-reported assessment form filled by the patients which contain questions about socio-demographic data, past medical history, family medical history, medication in use, history of kidney disease and expectation of improvement with hemodialysis. The second part included essential laboratory investigations and medical progress notes including reasons for the referral and medical history. The third part is the consent form and session notes including the date of each session of hemodialysis.

Statistical analysis:

The data was statistically analyzed by using SPSS software version 23. Descriptive analysis was presented in means and standard deviations for continuous variables whereas a categorical variable was presented in frequency and proportion. P-value will be considered significant if $p<0.05$. The Chi-square test and multivariate logistic regression were used to measure the association between the various socio-determinants.

Pilot study/pretesting

An exploratory sample was drawn and the stability of each was calculated reliability target value was 0.8 pilot study conducted on 10% of sample size, and modification made according to the pilot results.

Ethical Consideration.

- Research committee approval.
- Written permission from the Ethical Review Committee
- Individual verbal consent from all participants before data collection.
- Acknowledgments of all supervisors, advisors, helpers, facilitators, and participants. Relevance & expectations
- All collected data have to be kept confidential.

Suspected Outcomes & Utilization

Poor knowledge and awareness between hemodialysis patients regarding the warning signs and symptoms of cancer.

Budget

It was self- funded

RESULT

Table 1:1st part: Distribution of Demographic data:

	N	%
Age		
18-40.	63	31.5
40-60.	82	41.0
60-80	50	25.0
More than 80	5	2.5
Sex		
Male	103	51.5
Female	97	48.5
Marital status		
Single	52	26.0
Married	148	74.0
Level of education		

Illiterate	51	25.5
Elementary	57	28.5
High school	49	24.5
Bachelor or higher	43	21.5
Family History		
Yes	50	25.0
No	150	75.0
Smoking		
No	137	68.5
Yes	63	31.5
If you are/were smoker, How many years do/did you smoke?		
Less than 5	7	11.1
From 5 to 10year	13	20.6
More than 5	43	68.3
Range	0-45	
Mean±SD	18.15±10.709	
Cause of the kidney disease		
DM	15	7.5
HTN	52	26.0
DM+HTN	29	14.5
Others	104	52.0
Initial dialysis date		
1 time/week	1	0.5
2 times/week	8	4.0
3 times/week	191	95.5
Previous kidney transplantation :		
Yes	15	7.5
No	185	92.5
Did you do a screen test for Cancer?		
Yes	9	4.5
No	171	85.5
Do not know	20	10.0
Did you use immunosuppressant like cyclophosphamide		
Yes	32	16.0
No	156	78.0
Do not know	12	6.0

In our study the total participant 200 patients in hemodialysis during the year 2019 in the study group. Regarding age, the majority of study participants were in the age group (40-60) years were represents (41.0%) while the age period of (18-40) years represented (31.5 %), while the age period 60-80 years represented (25.0%) while more than 80 years represents was (2.5%). Regarding gender the majority of our study was male were represents (51.5%) while females were represented (48.5%) of cases. Regarding marital status, the majority of the participant was married (74.0%) while the single was (26.0%). Regarding the level of education, the majority of our participants were at Elementary were constitutes (28.5%), followed by Illiterate were constituted (25.5 %) while High school was (24.5%), the Bachelor or higher degree were constituted (21.5%). Regarding the family history of hemodialysis the majority of the participants were not hemodialysis (75.0%) while the participants were doing the hemodialysis were (25.5). Regarding smoking, the majority of our participants were non-smoker constitutes (68.5%). The following are smokers were constitutes (31.5%). Regarding how many years you smoke, the majority of our participants were smoking more than 5 years constitutes (68.5%). while smoking between (5 to 10) years constitutes was (20.6%) but less than 5 years constitutes were (11.1%). The Range was (0-45) and Mean±SD were (18.15±10.709). Regarding the Cause of the kidney disease, the majority of participants cause other DM or HTN were constituted (52.0%) followed by HTN was constituted (26.0%) while the DM+HTN were constitutes (14.5 %) while DM constitutes were (7.5 %). Regarding the Initial dialysis date, the majority of participants 3 times/week were constituted (92.5%) followed by 2 times/week constitutes (4.0%) while the 1 times/week were constituted (0.5 %). Regarding the previous kidney transplantation kidney transplant is considered an established therapeutic option for patients who have lost a previous graft. the majority of participants that did not do previous transplantation of kidney were constituted (92.5%) followed by has been transplantation of kidney constitutes were (7.3%). A debate exists about the benefit of submitting the patient to a previous renal transplant, The complications included , Cause . Regarding screen tests for Cancer, the majority of participants did not screen tests for Cancer were constituted (85.5%) followed by not know to do screen tests for Cancer were constitutes (10.0%) while Yes I do a screen tests for Cancer were constitutes (4.5%). Regarding the use of immunosuppressant's like cyclophosphamide, the majority of participants that did not use immunosuppressant were constitutes (78.0%) followed by yes I used immunosuppressant were constitutes (16.0%) while do not know I used immunosuppressant were constitutes (6.0%).

Regarding that, changes in bowel or bladder habits have a relation to cancer the majority of participant answer wrong. Not the changes in bowel or bladder habits have a relation to cancer were constitutes (49.0%) while followed by do not know were constitutes (33.0%) while the correct answer was answer yes constituted (18.0%). Regarding the do you think that a sore that does not heal is related to cancer the majority of participant answer no I don't think (58.0%) while the answer do not know (29.0%) but the answer yes you think that a sore that does not heal is related to cancer.

Table 2:2nd part: Distribution Knowledge about Signs and symptoms:

	Yes		No		Do not know	
	N	%	N	%	N	%
Do you think that changes in bowel or bladder habits have a relation to cancer?	36	18.0	98	49.0	66	33.0
Do you think that a sore that does not heal is related to cancer?	26	13.0	116	58.0	58	29.0
Do you think that unusual bleeding or discharge is related to cancer?	59	29.5	77	38.5	64	32.0
Do you think that a thickening or lump in the breast and other organs is related to cancer?	124	62.0	36	18.0	40	20.0
Do you think that a difficulty swallowing is related to cancer?	73	36.5	81	40.5	46	23.0
Do you think that indigestion is related to cancer?	54	27.0	88	44.0	58	29.0
Do you think that refractory cough or hoarseness is related to cancer?	65	32.5	82	41.0	53	26.5
Do you think that unexplained weight loss is related to cancer?	89	44.5	65	32.5	46	23.0
Do you think that pain is a sign of cancer?	52	26.0	89	44.5	59	29.5
Do you think that leg s and feet swelling is a sign of cancer?	28	14.0	113	56.5	59	29.5

Not a sore that does not heal is related to cancer were constitutes (58.0%) while followed by do not know were constitutes (29.0%) while the correct answer was constituted (13.0%). Regarding unusual bleeding or discharge is related to cancer the majority of participant answer wrong not unusual bleeding or discharge is related to cancer were constituted (38.5%) while followed by do not know were constituted (32.0%) while the correct answer was constituted (29.5%). Regarding a thickening or lump in the breast and other organs is related to cancer the majority of participant correct answer yes thickening or lump in the breast and other organs is related to cancer constitutes were (62.0%) while followed by do not know were constitutes (20.0%) while the answer wrong not mean the presence of thickness or lump in the breast and other organs is related to cancer were constitutes (18.0%). Regarding difficulty swallowing is related to cancer the majority of participant answer wrong, not difficulty swallow related to cancer were constituted (40.5%) while followed by the correct answer were constituted (36.5%) while the do not know were constitutes (23.0%). Regarding Do you think that indigestion which is related to cancer, the majority of participants answered no indigestion is related to cancer were constitutes (44.0%) while followed by the do not know were constitutes (29.0%)

while the answer yes was constitutes (27.0%). Regarding Do you think that refractory cough or hoarseness is related to cancer the most participants answer no not refractory cough or hoarseness is related to cancer were constitutes (41.0%) while followed by the yes answer were constitutes (32.5%) while the do not know were constitutes (26.5%). Regarding Do you think that unexplained weight loss is related to cancer the most of participant yes answer unexplained weight loss is related to cancer were constitutes (44.5%) while followed by the answer no not were constitutes (32.5%) while the do not know were constitutes (23.0%). Regarding pain is a Regarding Do you think that pain is a sign of cancer the most participant the answer no pain is a sign of cancer were constitutes (44.5%) while followed by the do not know were constitutes (29.5%) while the yes answer was constitutes (26.0%). Regarding Do you think that legs and feet, swelling is a sign of cancer the most of participant the answer correct not leg s and feet swelling is a sign of cancer no constitutes (56.5%) while followed by the do not know were constitutes (29.5%) while answer wrong yes were constitutes (14.0%). Regarding Do you think that smoking is related to cancer the majority of participants answer "yes" smoking is related to cancer were constitutes (95.0 %) while followed by the do not know were constitutes (3.0%) while answering "no" were constitutes (2.0%). Regarding Do you think that alcohol is related to cancer the majority of participants answer" yes" alcohol is related to cancer were constitutes (79.5%) while followed by the do not know were constitutes (13.0%) while answering "no" were constitutes (7.5%). Regarding Do you think that being exposed to pesticides is related to cancer the majority of participant the answer " yes" being exposed to pesticides is related to cancer were constitutes (53.5 %) while answering "no" were constitutes (26.0%) while followed by the do not know were constitutes (20.5%). Regarding Do you think that radiation is related to cancer the majority of participants the " yes" radiation is related to cancer were constitutes (58.5%) while answering "no" were constitutes (21.0%) while followed by the do not know were constitutes (20.5%). Regarding Do you think that obesity is related to cancer the majority of participants the answer "no" obesity is related to cancer were constitutes (51.0%) while the do not know were constitutes (26.5%) while followed by the answer correct" yes" were constitutes (22.5%). Regarding Do you think that genetic factors increase the chance of cancer the majority of participant the answer " yes" genetic factors increase the chance of cancer were constitutes (46.0%) while the answer "no" were constitutes (31.5%), while followed by the do not know, were constitutes (22.5 %).

Table 3: 3rdpart: Distribution Knowledge about Risk

	Yes		No		Do not know	
	N	%	N	%	N	%
Do you think that smoking is related to cancer?	190	95.0	4	2.0	6	3.0
Do you think that alcohol is related to cancer?	159	79.5	15	7.5	26	13.0
Do you think that being exposed to pesticides is related to cancer?	107	53.5	52	26.0	41	20.5
Do you think that radiation is related to cancer?	117	58.5	42	21.0	41	20.5
Do you think that obesity is related to cancer?	45	22.5	102	51.0	53	26.5
Do you think that genetic factors increase the chance of cancer?	92	46.0	63	31.5	45	22.5
Do you think that immunosuppressive drugs given to patients undergoing kidney transplantation have anything to do with cancer	61	30.5	71	35.5	68	34.0
Do you think that hemodialysis is related to cancer?	22	11.0	125	62.5	53	26.5
Do you think that peritoneal dialysis is related to cancer?	25	12.5	113	56.5	62	31.0
Do you think that bacteria have a role in cancer?	53	26.5	102	51.0	45	22.5
Do you think that type of food plays a role in the development of cancer?	125	62.5	47	23.5	28	14.0
If Yes, What type of food may decrease the risk of cancer development?						
Fruit and vegetables	187	93.5				
Smoked and grilled food	8	4.0				
Foods that contain a high amount of calories (Sweet, High lipid-containing food).	5	2.5				

Regarding immunosuppressive, drugs given to patients undergoing kidney transplantation have anything to do with cancer the majority of participant the answer wrong "no" immunosuppressive drugs given to patients undergoing kidney transplantation have everything to do with cancer were constitutes (35.5%) while the answer does not know were constitutes (34.0 %) while followed by the answer correct" yes" were constitutes (30.0%). Regarding hemodialysis is related to cancer the majority of participant answer wrong "no" hemodialysis is related to cancer were constitutes (62.5 %) while the answer does not know were constitutes (26.5%) while followed by the answer correct" yes" were constitutes (11.0%). Regarding peritoneal dialysis is related to cancer the majority of participant correct answer peritoneal dialysis has "No" to do with cancer were constitutes (56.5 %) while the answer does not know were constitutes (31.0 %) while followed by the answer wrong "yes" were constitutes (12.5%). Regarding bacteria have a role in cancer the majority of participant the answer wrong "no" bacteria have a role in cancer were constitutes (51.0 %)

While the answer "yes" was constitutes (26.5%) while followed by answer do not know were constitutes (22.5%). Regarding Do you think that the type of food play a role in the development of cancer the majority of participant answer "yes" type of food play a role in the development of cancer constitutes (62.5 %) while the answer "No" was constitutes (23.5 %) while followed by answer do not know were constitutes (14.0%). Regarding Do you think that the type of food that may decrease the risk of cancer the majority of participant wrong answer fruit and vegetable type of food that may decrease the risk of cancer constitutes (93.5 %) while correct answer smoked and grilled food was constitutes (4.0 %) also the wrong answer that foods contain a high amount of calories (Sweet, High lipid-containing food) were constitutes (2.5%).

Table 4: Description of the knowledge about Signs, symptoms and risk factors.

	Knowledge about Signs and symptoms		Knowledge about Risk factors	
	N	%	N	%
Weak	131	65.5	83	41.5
Average	54	27.0	103	51.5
High	15	7.5	14	7.0
Total	200	100.0	200	100.0
Range	0-9.		0-11.	
Mean± SD	3.455±2.594		5.485±2.32	

Regarding Knowledge about Signs and symptoms, these study results showed that the majority of participants were weak knowledge proportions (65.5%) while average knowledge about signs and symptoms were (27.0%) but the high knowledge proportions (7.5%) While The Range (0–9) Mean±SD (3.455±2.594). Regarding Knowledge about Risk factors, the majority of participants were average in knowledge proportions (51.5%) while weak knowledge proportions (41.5%) but the high knowledge proportions (7.0%) While The Range (0–11) Mean±SD (5.485±2.32).

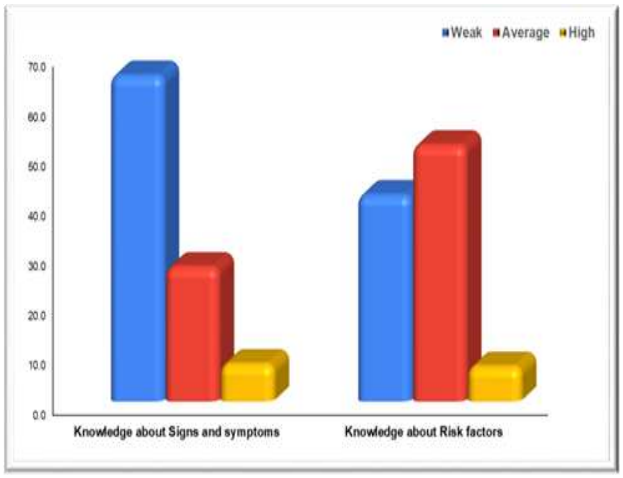

Figure 1: Description of the knowledge about Signs, symptoms and risk factors.

Description of the knowledge about Signs, symptoms an risk factors.

Table (5) Distribute of the relation between the knowledge about Signs and symptoms and demographic data (**age, gender, Marital status, Level of education, Family History and Smoking, Cause of the kidney disease**, **Initial dialysis date, Previous kidney transplantation, Did you do a screen test for Cancer, Did you use immunosuppressant like cyclophosphamide**

Demographic data		N	Knowledge about Signs and symptoms			F or T	ANOVA or T-test	
			Mean	±	SD		test value	P-value
Age	**18-40.**	63	3.254	±	2.177	F	5.321	0.002*
	40-60.	82	4.220	±	2.771			
	60-80	50	2.640	±	2.513			
	More than 80	5	1.600	±	1.817			
Sex	**Male**	103	3.505	±	2.589	T	0.279	0.780
	Female	97	3.402	±	2.613			
Marital status	**Single**	52	3.673	±	2.431	T	0.704	0.482
	Married	148	3.378	±	2.653			
Level of education	**Illiterate**	51	2.471	±	2.626	F	4.310	0.006*
	Elementary	57	3.667	±	2.655			
	High school	49	3.490	±	2.373			
	Bachelor or higher	43	4.302	±	2.425			
Family History	**Yes**	50	4.560	±	2.549	T	3.579	0.000*
	No	150	3.087	±	2.512			
Smoking	**Yes**	63	3.968	±	2.776	T	1.910	0.05*
	No	137	3.219	±	2.481			
Cause of the kidney disease	**DM**	15	3.000	±	2.000	F	0.848	0.469
	HTN	52	3.654	±	2.765			
	DM+HTN	29	2.862	±	2.682			
	Others	104	3.587	±	2.560			
Initial dialysis date	**1 time/week**	1	0.000	±		F	2.036	0.133
	2 times/week	8	2.125	±	1.808			
	3 times/week	191	3.529	±	2.605			
Previous kidney transplantation :	**Yes**	15	3.733	±	2.404	T	0.431	0.667
	No	185	3.432	±	2.614			
Did you do a screen test for Cancer?	**Yes**	9	2.889	±	3.060	F	5.120	0.007*
	No	171	3.678	±	2.561			
	Do not know	20	1.800	±	2.093			
Did you use immunosuppressant like : cyclophosphamide	**Yes**	32	4.094	±	2.248	F	1.980	0.141
	No	156	3.404	±	2.605			
	Do not know	12	2.417	±	3.088			

Regarding age Show that is a significant relation between Knowledge about Signs and symptoms and age were F=5.321 and p-value=0.002 and Mean±SD (4.220±2.771) in age between (40 -60) years followed by Mean ± SD (3.254 ± 2.177) in age between (18-40) years while Mean±SD (2.640 ±2.513) in age between (60 -80) years but show in the age more than 80 Mean±SD (1.600± 1.817).Regarding gender Show that is no significant relation between Knowledge about Signs and symptoms and sex were T=0.279and p-value =0.780 and Mean±SD (3.505±2.589) in male but female (3.402±2.613). Regarding Marital status show that is no significant relation between Knowledge about Signs and symptoms and marital status were T=0.704 and p-value=0.482 and Mean±SD (3.673±2.431) in Single status but married status the Mean±SD (3.378±2.653). Regarding Level of education show that is a significant relation between Knowledge about Signs and symptoms and level of education were F=4.310 and p-value=0.006 and Mean±SD (4.302±2.425) in Bachelor or higher but Elementary the Mean±SD (3.667±2.655) and High school the Mean±SD (3.490±2.373) while Illiterate the Mean±SD (2.471± 2.626). Regarding Family History Show that is a significant relation between Knowledge about Signs and symptoms and family history in the hemodialysis were T =3.579 and p-value <0.001 and Mean±SD (4.560±2.549) the family history hemodialysis. While Mean±SD (3.08±2.512) family did not have a history in hemodialysis. Regarding Smoking Show that is a significant relation between Knowledge about Signs and symptoms and smoking were T=1.910 and p-value =0.05 and Mean±SD (3.968±2.776) smokers were but the Mean±SD (3.219±2.481) nonsmokers. Regarding Cause of the kidney disease show that is no significant relation between Knowledge about Signs and symptoms and Cause of the kidney disease were F=0.848 and p-value =0.469 and Mean±SD (3.654±2.765) in HTN but other diseases the Mean±SD (3.587±2.560) while DM Mean±SD (3.000±2.000) flowed by DM+HTN the Mean±SD (2.862± 2.682). Regarding Initial dialysis, the date shows that is no significant relation between Knowledge about Signs and symptoms and Initial dialysis date were F=2.036 and p-value=0.133 and Mean±SD (3.529±2.605) in dialysis 2 times/week but 3 times /week the Mean±SD (3.529±2.605). Regarding Previous kidney transplantation show that is no significant relation between Knowledge about Signs and symptoms and Previous kidney transplantation were T=0.431 and p-value =0.667 and Mean±SD (3.733±2.404) in the yes kidney transplantation but the Mean±SD (3.432±2.614) in no kidney transplantation. Regarding do a screen tests for Cancer show that is a significant relation between Knowledge about Signs and symptoms and do a screen tests for Cancer were F=5.120 and p-value=0.007 and Mean±SD (3.678±2.561) in the not do screen tests for Cancer but the Mean±SD (2.88±3.060) in yes do screen tests of cancer while the Mean±SD (1.800±2.093) in the do not know do screen tests of cancer. Regarding did you use immunosuppressant like cyclophosphamides how that is no significant relation between Knowledge about Signs and symptoms and did you use immunosuppressant like cyclophosphamide were F=1.980 and p-value=0.141 and Mean±SD (4.094±2.248) in the yes use immunosuppressant but the Mean±SD (3.404±2.605) in not use immunosuppressant while the Mean±SD (2.417±3.088) in the do not know use immunosuppressant.

Table 6: distribute of the relation between the knowledge about Risk factors and demographic data (age, gender, Marital status, Level of education, Family History and Smoking, Cause of the kidney disease, Initial dialysis date, Previous kidney transplantation, Did you do a screen test for Cancer, Did you use immunosuppressant like cyclophosphamide).

Demographic data		N	Knowledge about Risk factors			F or T	ANOVA or T-test	
			Mean	±	SD		test value	P-value
Age	**18-40.**	63	6.000	±	1.787	F	8.798	0.000*
	40-60.	82	5.915	±	2.394			
	60-80	50	4.400	±	2.250			
	More than 80	5	2.800	±	2.775			
Sex	**Male**	103	5.534	±	2.146	T	0.307	0.759
	Female	97	5.433	±	2.495			
Marital status	**Single**	52	5.885	±	1.789	T	1.450	0.149
	Married	148	5.345	±	2.465			
Level of education	**Illiterate**	51	4.314	±	2.311	F	7.458	0.000*
	Elementary	57	5.842	±	2.419			
	High school	49	5.531	±	2.032			
	Bachelor or higher	43	6.349	±	1.987			
Family History	**Yes**	50	6.080	±	2.117	T	2.115	0.036*
	No	150	5.287	±	2.353			
Smoking	**Yes**	63	5.746	±	1.984	T	1.081	0.281
	No	137	5.365	±	2.452			
Cause of the kidney disease	**DM**	15	5.800	±	1.859	F	0.266	0.850
	HTN	52	5.269	±	2.466			
	DM+HTN	29	5.483	±	1.902			

	Others	104	5.548	±	2.421			
Initial dialysis date	**1 time/week**	1	0.000	±		F	2.885	0.05*
	2 times/week	8	5.375	±	1.506			
	3 times/week	191	5.518	±	2.319			
Previous kidney transplantation :	**Yes**	15	6.067	±	1.792	T	1.011	0.313
	No	185	5.438	±	2.352			
Did you do a screen test for Cancer?	**Yes**	9	5.000	±	2.062	F	4.483	0.012*
	No	171	5.673	±	2.251			
	Do not know	20	4.100	±	2.573			
Did you use immunosuppressant like : cyclophosphamide	**Yes**	32	6.250	±	1.685	F	3.170	0.044*
	No	156	5.410	±	2.347			
	Do not know	12	4.417	±	2.906			

Regarding age Show that is a significant relationship between the knowledge about Risk factors and age were F =8.798and p-value=0.000 and Mean±SD (6±1.787) in age between (18-40) years followed by Mean±SD (5.915±2.394) in age between (40-60) years while Mean±SD (4.400±2.250) in age between (60-80) years but show in the age more than 80 Mean±SD (2.800±2.77).Regarding gender Show that is no significant relationship between the knowledge about Risk factors and sex were T=0.307and p-value=0.759 and Mean±SD (5.534 ± 2.146) in male but female (5.433±2.495). Regarding Marital status show that is no significant relation between Knowledge about Risk factors and marital status were T=1.450 and p-value=0.149 and Mean±SD (5.885±1.789) in Single status but married status the Mean±SD (5.345±2.465). Regarding Level of education show that is a significant relation between Knowledge about Risk factors and level of education were F=7.458and p-value=0.000 and Mean±SD (6.349±1.987) in Bachelor or higher but elementary the Mean±SD (5.842± 2.419) and High school the Mean ± SD (5.531±2.032) while Illiterate the Mean ± SD (4.314±2.311). Regarding Family History Show that is a significant relation between Knowledge about Risk factors and family history in the hemodialysis were T =2.115and p-value=0.036 and Mean±SD (6.08±2.117) the family history hemodialysis. While Mean±SD (5.287±2.353) family does not have a history in hemodialysis. Regarding Smoking Show that is no significant relation between Knowledge about Risk factors and smoking were T=1. 081 and p-value =0.281 and Mean±SD (5.746±1.984) smokers were but the Mean±SD (5.365±2.452) nonsmokers. Regarding Cause of the kidney disease show that is no significant relation between Knowledge about risk factors and cause of the kidney disease were F=0.266 and p-value=0.850 and Mean±SD (5.800±1.859) in DM but other diseases the Mean±SD (5.548±2.421) while DM+HTN Mean±SD (5.483±1.902) flowed by HTN the Mean±SD (5.269±2.466). Regarding Initial dialysis, the date shows that is a significant relation between Knowledge about risk factors and initial dialysis date were F=2.885 and p-value <0.05 and Mean±SD (5.518±2.319) in dialysis 3 times/week but 2 times /week the Mean SD (5.375±1.506). Regarding Previous kidney transplantation show that is no significant relation between Knowledge about risk factors and Previous kidney transplantation were T =1.011 and p-value=0.313 and Mean±SD (6.067±1.792) in the yes kidney transplantation but the Mean ± SD (5.438 ± 2.352) in no kidney transplantation. Regarding do a screen tests for Cancer show that is a significant relation between Knowledge about risk factors and do a screen tests for Cancer were F=4.483and p-value =0.012 and Mean±SD (5.67±2.251) in the not do screen tests for Cancer but the Mean±SD (5.000± 2.062) in yes do screen tests of cancer while the Mean±SD (4.100±2.573) in the do not know do screen tests of cancer. Regarding did you use immunosuppressant like cyclophosphamides how that is a significant relation between Knowledge about risk factors and did you use immunosuppressant like cyclophosphamide were F=3.170 and p-value=0.044 and Mean±SD (6.250±1.685) in the yes use immunosuppressant but the Mean±SD (5.410±2.347) in not use immunosuppressant while the Mean±SD (4.417±2.906) in the do not know use immunosuppressant.

Discussion

In King Abdul-Aziz Specialized Hospital Taif City, extensive medical and nursing services are offered including open-heart surgery and kidney transplantation. In Saudi Arabia, there is virtually no information on early detection and prevention knowledge of cancer among Hemodialysis patients. So, We decided to assess the level of knowledge about warning signs and symptoms of cancer among those patients, aged 18 years and over, in Taif, Saudi Arabia. The most age of patients in our study was 40-60 years. This finding shows that our patients were younger than those encountered in Northern Cyprus [17] but older than encountered in Yemen [18]

The majority of our patients (41.0%) were in the age group of 40–60 years, followed by the age group of 18-40 years and older (31.5%). see table (1) This result is consistent with the latest data from the Saudi Center for Organ Transplantation (SCOT 2015), which reported that 45.3% of people receiving dialysis treatment were in the age group of 26–55 years. [19] In Palestine, 45.1% of ESRD patients were in the age group of 45–64 years.[20] This concurs with international reports where the changes in the age to older age groups are associated with increased prevalence and incidence of the disease.[21]

Regarding the knowledge about hemodialysis signs patients and symptoms of cancer, the majority of participants answer wrong or do not know. See Table (2)

On the other hand, DM was one of the least encountered causes of ESRD in some countries such as Egypt [22] and Yemen.[23] Diabetic nephropathy DN is an important public health and clinical challenge. Recently, the epidemiology and the concept of Diabetic nephropathy DN have changed, taking into account that histological renal lesions may vary from the nodular or diffuse glomerulosclerosis to tubulointerstitial and/or vascular lesions.[24] Diabetic nephropathy DN is associated with an increased risk of death from cardiovascular disease.[25] Hypertension was responsible for 22.6% of all cases in our ESRD patients, compared with 35.5% in the whole country.[26] Hypertension is highly prevalent in Saudi Arabia. It was reported that hypertension affected more than 25% of the adult population.[27]

Regarding the knowledge about risk factors of hemodialysis that increase the risk of cancer, the majority of participants that answer correctly "yes" smoking and alcohol is related to cancer were constitutes (95.0 %, 79.5) See Table (3)

On the other hand, This high prevalence may be related to the change in diet and lifestyles of the Saudis.[28] In the USA, hypertension and diabetes are the two leading causes of the increasing number of individuals with ESRD.[29] Hypertension is also a major cause of ESRD in other regional countries such as Egypt,[30] and Iran [31]. Also, in another study, patients on dialysis are a good example of how a patient's education and awareness are crucial for his health and, indeed, quality of life. These patients' quality of life and life itself depends on adherence to treatment protocols and strict dietary advice [32]

There were significant deficiencies in the knowledge about Signs and symptoms the majority of the respondents in this study. Only six (65.5) of the respondents had weak knowledge, (27.0) had Average knowledge and (7.5) had High knowledge. See Table (4)

This is also similar to the findings of Agaba et al. [33] who reported that the knowledge of 36.2% of their study population poor.

There were significant deficiencies in the knowledge about Risk factors the majority of participants were average in knowledge proportions (51.5%) while weak knowledge proportions (41.5%) but the high knowledge proportions (7.0%) While The Range (0 –11) Mean +SD (5.485±2.32) .see table (4)

Two studies were In 2014 indicated that an Iranian community had limited knowledge of the main risk factors with only 12.7% aware of unmanaged diabetes, and 14.4% untreated hypertension.[34] Not having the necessary knowledge of the risk factors, signs and symptoms, disease stage and management are among the likely reasons why patients delay seeking care and treatment.[35] Nearly half of the patients also knew that hypertension (43.8%) and diabetes (44.0%) were major risk factors, and frothy urine (52.7%) was a symptom of kidney disease. However, less (17.8%) knew that it could be asymptomatic until a late stage. [36]

The relationship between the knowledge about Signs and symptoms and the demographic data of the significant relationship between Knowledge about Signs and symptoms and age were F =5.321 and p-value=0.002. Also, the significant relationship between Knowledge about Signs and symptoms and level of education were F= 4.310 and p-value=0.006 while the significant relation between Knowledge about Signs and symptoms and family history in the hemodialysis were T =3.579 and p-value =0.000. The significant relationship between Knowledge about Signs and symptoms and smoking were T=1.910 and p-value= 0.05 and the significant relationship between Knowledge about Signs and symptoms and doing a screen test for Cancer were F = 5.120 and p-value = 0.007. See Table (5)

A study reported from Iran revealed no significant relationship between bio-demographic features and level of knowledge about.[37] Interestingly, a study conducted in South Africa revealed that as participants moved from low level to high level in the year of study, there was a decrease in their level of knowledge. Young people are more at risk of premature mortality from cardiovascular disease. [38] A Renal Registry in the United Kingdom indicated that a person aged 25-29 years had an average life expectancy of 18.5 years after beginning dialysis, as opposed to about 33 years at the same age without renal diseases.[21]

Once diagnosed with renal disease, adherence to hemodialysis treatment is necessary.

It is challenging to diagnose, manage, and treat patients who have kidney disease in addition to cancer. Second, to cardiovascular disease, cancer represents a major cause of mortality and morbidity in the kidney disease population. [2] With advances in cancer therapy and the resulting panoply of clinically available chemotherapeutic agents and biologics, an increasing number of cancer patients are at risk for experiencing acute kidney injury (AKI) and surviving with chronic kidney disease.

In table 6 it is important to know the relation between the knowledge of risk factors and demographic data knowledge for patients dialysis sessions or follow-up visits. Interventions focusing on illness perceptions have been described recently for patients with chronic kidney disease and other chronic diseases. Regarding age Show that is a significant relationship between the knowledge about Risk factors and age, level of education , family history in the

hemodialysis , initial dialysis date , do a screen tests for Cancer , did you use immunosuppressant like cyclophosphamide see Table (6)

Conclusion

The knowledge of hemodialysis patients regarding symptoms of cancer and risk factors and preventive practices in the study population was at a low level. Hemodialysis patients and symptoms of cancer are a significant health burden in KSA with communicable and non-communicable disease risk factors. Populations who know the risk factors and awareness of preventive measures would more likely seek earlier treatment. There is a need for enlightenment programs to improve knowledge to the KSA community so they can make lifestyle changes to prevent kidney damage and symptoms of cancer. We recommend the development of a program that raises the awareness of hemodialysis patients and symptoms of cancer among populations. This will have a positive impact on hemodialysis patients regarding symptoms of cancer prevention in the younger age group and more chance of knowledge transferability.

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