ISSN NO. 2320-5407

Journal homepage: http://www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH

RESEARCH ARTICLE

Incidence of cancer and physiotherapeutic role in its controlling in Sakaka ́s hospitals, Al Jouf, Saudi Arabia

Amany Eid Abdeltawab , Hadeel Saad ALSerhany, Malak Fayez Aruwaili and Marwah Nasser Aldirbas
Department of Physical Therapy and Rehabilitation, College of Applied Medical Science, Al Jouf University, Al Jouf, Kingdom of Saudi Arabia.

Manuscript Info

Manuscript History:

Received: 06 January 2016
Final Accepted: 01 February 2016
Published Online: February 2016

Key words:

Corresponding Author

Amany Eid Abdeltawab.

Abstract

To study the effect of age, sex and type of cancer diagnosed on the survival cancer rate in Sakaka city in the Kingdom of Saudi Arabia and to determine the effect of physiotherapy role in cancer treatment.

Subjects and Methods: Data about age and sex of cancer patients and type of cancer diagnosed are collected from Prince Mutaib Bin Abd ALAziz and King Abd ALAziz special hospitals. In addition, adapted questionnaire form were distributed to 55 of physiotherapists in ALJouf city, 17 of participants were male while female were 38.

Results: The current study stated that, cancer incidence increased gradually in ALJouf city. Moreover, the highest percentage of cancer incidence was for age group between 40-45 years for females more than males. The most common type diagnosed for males was Polythemia followed by lymphoma while the most common type for females was breast cancer followed by colon cancer. As well, the current study reported that, it is important to create specific cancer physiotherapy department in Sakaka to give the patient appropriate course of physiotherapy at all stages particularly at early postoperative stage. The program should be included moderate intensity exercises, 5 days per a week , 10 minutes\\ three times a day.

Conclusion: it is necessary to create specific physiotherapy department for cancer patients especially with current rising in cancer statistics in Sakaka city in the Kingdom of Saudi Arabia.

Introduction:-

Cancer is a major public health problem in the Saudi Arabia and many other parts of the world. In this article we provide the expected numbers of new cancer cases from 2011 up to 2015 in Sakaka city. In addition to a comprehensive overview of cancer incidence according to age, sex and type of cancer diagnosed using the most current population-based data.

Statement of the problem

- Is there any effect of age, sex on the type of cancer diagnosed?
- Is there any effect of physiotherapy role in cancer controlling?

Purposes of the study

The purposes of this study are

- To explore the effect of age, sex and type of cancer diagnosed on the survival rate.
- To determine the effect of physiotherapy role in cancer controlling.

Significance of the study

It is hoped that this study will help oncologists in clinical field to be aware of the physiotherapy role in controlling cancer disease in Sakaka ́s hospitals . In addition to the physiotherapists should be aware of the type of physical therapy exercises that can be done either pre or post operative for those patients who suffers from cancer disease.

Thus aims of this study were to increase the level of their awareness and to determine the incidence of cancer by sex in Sakaka hospitals from 2011 and up to 2015.

Delimitation

The study is delimited to

- Cancer diseased patients in the hospitals of Sakaka city.
- Oncologists and physiotherapists who are working in the hospitals of Sakaka city.

Limitation

The study is limited by

- Variation in the percentage of awareness between Oncologists and physiotherapists.
- Variation in the incidence of cancer disease between hospitals.

Materials and Methods:-

1- Data for cancer:

Data for cancer was collected from Prince Mutaib Bin Abd Al Aziz and King Abd Al Aziz special hospitals. The data included reports of all cancer patients regarding to type of cancer according to age and sex. Moreover, the incidence of cancer between 2011 and 2015 was reported. In addition to, National Center for Sakaka Statistics supplied us with total number of population who lived in Sakaka City. The process of data collection took two months from November to December 1437 H to complete.

2- Questionnaire form for the physiotherapists (it was adapted from Donnelly (2010) and Hanlon (2014). It was including to the following sections:

1- The priority role of physiotherapy in cancer treatment.
2- The appropriate stage for starting physiotherapy programs with cancer patients.
3- The type of physical therapy exercise which are most effective in cancer treatment.
4- The most appropriate duration, frequency and intensity of exercise for cancer patients. These items of questionnaire were introduced to both male and female physiotherapists to be answered accurately.

This form of questionnaire had to be a developed tool after extensive review of literature. The tool was revised by group of expertise in the field of the study for content validity.

Results:-

A- Data for cancer:

This study was conducted on the hospitals of Sakaka city which are Prince Mutaib Bin Abd Al Aziz and King Abd Al Aziz special hospitals. Data collected were coded, analyzed using (SPSS) and tabulated, number of patient, percentage of each cancer case, incidence of cancer and chi square analysis were utilized in the study in order to accurately determine the real percentage of each cancer case related to age, sex and type of cancer diagnosed

The data that was related to cancer collected regarding to the following : 1- Diagnosis of cancers cases registered in Sakaka′s hospitals in relation to age (table 1), 2- Diagnosis of cancers cases registered in Sakaka′s hospitals in relation to sex (table 2) and the incidence of selected cancers by sex in Sakaka′s hospitals from 2011 up to 2015. (Table 3 and figure 1).

B- Questionnaire form for the physiotherapists:

The results of the present study were also included Questionnaire form for the physiotherapists. They were Seventeen male and Thirty eight female (Table 4 & Fig. 2). We test each item of the Questionnaire form statistically to differentiate between the roles of the physiotherapy in the controlling of cancer. It is worth mentioned that there was another Questionnaire form for oncologist but their number doesn't increase than five. This sample was not available to be tested statistically.

Table 1: Diagnosis of cancers cases registered in Sakaka city in relation to age

diagnosis	age									
	(1-15) year		(15-30) year		(30-45) year		(45-60) year		>60 year	
	NO	%	NO	%	NO	%	NO	%	NO	%
1. Axillary Swelling	1	20	0	0	0	0	0	0	0	0
2. Breast abscess	0	0	0	0	1	3.13	0	0	0	0
3. Breast Enlargement	0	0	0	0	1	3.13	0	0	0	0
4. Breast Mass	0	0	0	0	1	3.13	0	0	0	0
5. Breast Swelling	0	0	0	0	0	0	2	8	0	0
6. Cancer of Bladder	0	0	0	0	1	3.13	0	0	0	0
7. Cancer of Gallblader	0	0	0	0	0	0	1	4	0	0
8. Cancer of Larynx	0	0	1	4.35	0	0	0	0	0	0
9. Cancer of Breast	0	0	0	0	4	12.5	6	24	4	13.79
10. Cancer of Colon	0	0	2	8.70	1	3.13	1	4	2	6.90
11. Cancer of Gallbladder	0	0	0	0	0	0	0	0	1	3.45
12. Cancer of Lung	0	0	0	0	0	0	1	4	0	0
13. Cancer of prostrate	0	0	1	4.35	1	3.13	0	0	0	0
14. Ca. prostrate	0	0	0	0	0		0	0	1	3.45
15. Ca. Uterus	0	0	0	0	1	3.13	0	0	0	0
16. Cervical Lump	0	0	1	4.35	0	0	0	0	0	0
17. Cll	0	0	0	0	0	0	1	4	2	6.90
18. Cold Agglutinin	0	0	0	0	0	0	0	0	1	3.45
19. Cricoids Malignancy	0	0	0	0	0	0	0	0	1	3.45
20. Duct Actasia	0	0	0	0	0	0	1	4	0	0
21. Dvt Right Leg	0	0	0	0	0	0	0	0	1	0
22. Endompullary Cyst	0	0	0	0	0	0	0	0	1	0
23. Erythrocytopenia	0	0	0	0	0	0	1	4	0	0
24. Erythrocytosis	0	0	0	0	2	6.25	0	0	0	0
25. Gynaecomastia	1	20	0	0	0	0	0	0	0	0
26. H/0Malignant Melanoma	0	0	0	0	0	0	1	4	0	0
27. Hemangionma	0	0	0	0	0	0	1	4	0	0
28. Hepatic focal lesion	0	0	0	0	1	3.13	0	0	0	0
29. Hepato Cellular Carcinoma	0	0	0	0	0	0	0	0	2	6.90
30. Hyper Leukocytosis	0	0	0	0	1	3.13	0	0	0	0
31. Hyperviscocity Syndrome	0	0	0	0	1	3.13	0	0	0	0
32. Ich	0	0	0	0	0	0	0	0	1	3.45
33. Ida	0	0	1	4.35	0	0	0	0	0	0
34. ITP	0	0	2	8.70	0	0	0	0	0	0
35. Iymphoma	0	0	2	8.70	1	3.13	1	4	1	3.45
36. Left Abdominal Wall Mass	0	0	0	0	0	0	1	4	0	0
37. Left Breast Lump	0	0	0	0	1	0	0	0	0	0
38. Leucopenia	0	0	1	4.35	0	0	0	0	0	0
39. Leukemia	1	20	0		0	0	0	0	0	0
40. Leukocytosis	1	20	1	4.35	0	0	0	0	1	3.45
41. Lipoma	0	0	1	4.35	1	3.13	1	4	0	0
42. Liver Hemangioma	0	0	0	0	0		1	4	0	0
43. Liver Lesion	0	0	0	0	1	3.13	0	0	0	0
44. Liver mass	0	0	0	0	1	3.13	0	0	0	0
45. LT. Breast Mass	0	0	0	0	1	3.13	0	0	0	0

46. Malignant Neoplasm Of Breast	0	0	0	0	1	3.13	0	0	0	0
47. Medi. Lymphoma	0	0	1	4.35	0	0	0	0	0	0
48. Mideasrenal Mass	0	0	0		0	0	0	0	1	3.45
49. Module In Rt. Thight	0	0	0	0	1	3.13	0	0	0	
50. Multiple Myeloma	0	0	0	0	0		0	0	1	3.45
51. Myxoid Liposarcoma	0	0	0	0	1	3.13	0	0	0	
52. Neck Swelling	0	0	0	0	0	0	0	0	1	3.45
53. Neuroendocrine Tumor	0	0	1	4.35	0	0	0	0	0	0
54. Pancytopenia	0	0	0	0	0	0	1	4	0	0
55. Polycysted Breast	0	0	1	4.35	0	0	0		0	0
56. Polycythemia	0	0	2	8.70	2	6.25	1	4	0	0
57. Polythemia	0	0	1	4.35	1	3.13	0	0	1	3.45
58. Preampullary Ca	0	0	0	0	0	0	0	0	1	3.45
59. PRV	0	0	0		0	0	1	4	0	0
60. Rt Axillary Node	0	0	1	4.35	0	0	0	0	0	0
61. Rt Thigh Lipoma	0	0	0	0	1	3.13	0	0	0	0
62. Rt. Breast Lump	0	0	0	0	2		1	4	0	0
63. Sarcoma	0	0	0	0	0	0	0	0	2	0
64. Seconday Pancytopenia	0	0	0	0	0	0	0	0	1	3.45
65. Spleenomegaly	0	0	1	4.35	0	0	0	0	0	0
66. Submandibullar Swelling	0	0	0	0	1	3.13	0	0	0	0
67. Thrombocytosis	1	20	2	8.70	0	0	0	0	1	3.45
68. Thyroid	0	0	0	0	0	0	0	0	1	3.45
69. Uterine mass	0	0	0	0	0	0	1	4	0	0
Total	5	100	23	100	32	100	25	100	29	100

According to the previous table it was observed that there were about Sixty- Nine type of cancer were recorded in Sakaka Hospitals'. These types were divided according to five categories of age which are; (1-15 years), (15 – 30 years), (30-45 years), (45-60 years) and (> 60 years). We recorded the number of patient that had a cancer and their percentage according to each type of cancer and each category of age group. It was observed that the greater numbers of diagnosed cancer was recorded at the middle age between (30 and 45 years).

Moreover, the most common types of diagnosed cancer are arranged according to their percentage as follows: Axillary swelling and Gynaecomastia (20%), Cancer of breast (13.79%), Cancer of colon and Lymphoma (8.7%), Hepato Cellular Carcinoma (6.9) and Erythrocytosis (6.2%). It was also observed that the percentage of breast cancer increased with advanced age (> 60 years).

Table 2: Diagnosis of cancers cases registered in Sakaka city in relation to sex

diagnosis	Sex			
	Male		Female	
	NO	%	NO	%
1. Axillary Swelling	0	0	1	1.67
2. Breast astbscess	0	0	1	1.67
3. Breast Enlargement	0	0	1	1.67
4. Breast Mass	0	0	1	1.67
5. Breast Swelling	0	0	2	3.33
6. Ca Bladder	1	1.85	0	0
7. Ca Gallblader	1	1.85	0	0
8. Ca Larynx	0	0	1	1.67
9. Ca. Breast	2	3.70	12	20
10. Ca. Colon	2	3.70	4	6.67
11. Ca. Gallbladder	0	0	1	1.67
12. Ca. Lung	1	1.85	0	0
13. Ca. prostrate	0		2	0
14. Ca. prostrate	1	1.85	0	0
15. Ca. Uterus	1	1.85	0	0
16. Cervical Lump	0	0	1	1.67
17. Cll	2	0	1	1.67
18. Cold Agglutinin	0	0	1	1.67
19. Cricoids Malignancy	0	0	1	1.67
20. Duct Actasia	0	0	1	1.67
21. Dvt Right Leg	1	1.85	0	0
22. Endompullary Cyst	0	0	1	0
23. Erythrocytopenia	1	1.85	0	0
24. Erythrocytosis	2	3.70	0	0
25. Gynaecomastia	1	1.85	0	0
26. H/0Malignant Melanoma	1	1.85	0	0
27. Hemangionma	0	0	1	1.67
28. Hepatic focal lesion	1	1.85	0	0
29. Hepato Cellular Carcinoma	1	1.85	1	0
30. Hyper Leukocytosis	0	0	1	0
31. Hyperviscocity Syndrome	0	0	1	1.67
32. Ich	1	1.85	0	0
33. Ida	1	1.85	0	0
34. ITP	0	0	2	3.33
35. Iymphoma	4	7.4	1	1.67
36. Left Abdominal Wall Mass	1	0	0	0
37. Left Breast Lump	0	0	1	0
38. Leucopenia	0	0	1	0
39. Leukemia	1	1.85	0	0
40. Leukocytosis	2	3.70	1	0
41. Lipoma	2	3.70	1	0
42. Liver Hemangioma	1	1.85	0	0
43. Liver Lesion	0	0	1	0
44. Liver mass	1	0	0	0
45. LT. Breast Mass	0	0	1	1.67
46. Malignant Neoplasm Of Breast	0	0	1	1.67
47. Medi. Lymphoma	1	1.85	0	0
48. Mideasrenal Mass	1	1.85	0	0
49. Module In Rt. Thight	1	1.85	0	0

50. Multiple Myeloma	0	0	1	1.67
51. Myxoid Liposarcoma	1	0	0	0
52. Neck Swelling	1	0	0	0
53. Neuroendocrine Tumor	1	1.85	0	0
54. Pancytopenia	1	1.85	0	0
55. Polycysted Breast	1	1.85	0	0
56. Polycythemia	5	9.26	0	0
57. Polythemia	3	5.56	0	0
58. Preampullary Ca	0	0	1	1.67
59. PRV	1	0	0	0
60. Rt Axillary Node	0	0	1	0
61. Rt Thigh Lipoma	0	0	1	0
62. Rt. Breast Lump	0	0	3	5
63. Sarcoma	2	3.70	0	0
64. Seconday Pancytopenia	0	0	1	0
65. Spleenomegaly	1	0	0	0
66. Submandibullar Swelling	1	0	0	0
67. Thrombocytosis	0	0	4	6.67
68. Thyroid	0	0	1	1.67
69. Uterine mass	0	0	1	1.67
Total	54	100	60	100

As it was shown from table (2) that the Sixty-Nine types of cancer were differentiated either male or female who had the higher percentage than the other. In addition to, the number of cancer type and its percentage were higher in female in relation to male. Polycythemia (9.26%) and Lymphoma (7.4%) are the most common diagnosed type of cancer for male. Meanwhile, Thrombocytosis and Colon cancer (6.67%) and Rt. Breast Lump (5%) are the most common diagnosed type of cancer for female.

Table 3: The incidence of cancers according to sex in sakaka city from 2011 up to 2015.

Years	Sex			
	Male		Female	
	NO	NO	NO	NO
2011	8	6.78	3	3.09
2012	18	15.25	9	9.28
2013	25	21.19	16	16.49
2014	45	38.14	40	41.24
2015	45	38.14	40	41.24
Total	118	100.00	97	100.00

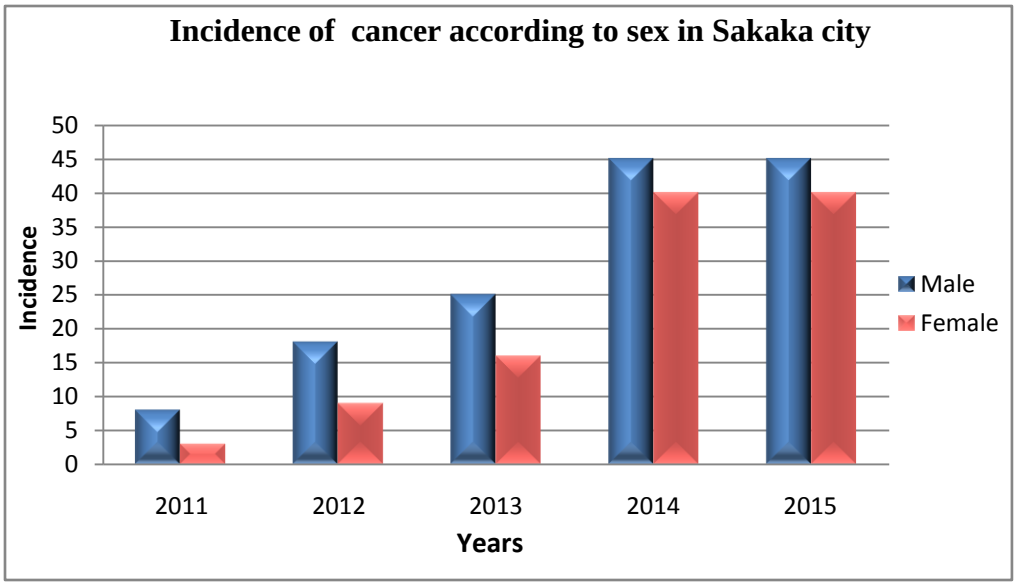

Figure 1: The incidence of cancers according to sex in sakaka city.

As it was shown in table (3) and figure (1) that there was an increase in the incidence of cancer in sakaka City from 2011 and up to 2015. It was also observed that the number of male who had a cancer is greater than the number of female at each year of the four years from 2011 and up to 2015.

Table 4: Distribution of Demographic Characteristics of the Studied Sample

Sex	NO	NO
Male	17	30.91
Female	38	69.09
Total	55	100.0

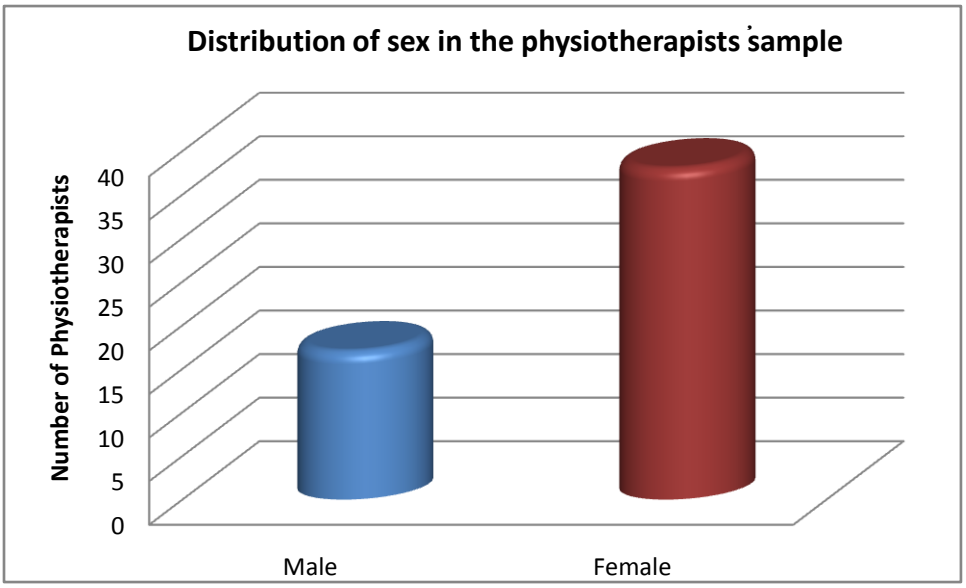

Figure 2: Distribution of sex of the physiotherapists' sample.

The Questionnaire form includes several items that were statistically tested:

1- Distribution of role for physiotherapy in cancer treatment regarding sex

This item includes the three questions as illustrated in table (5) and figures (4 & 5) which are:

a- Do you think that there is a significant role for physiotherapy in cancer treatment?

b- Is the physiotherapy is very spreading among cancer patients in ALJouf city?

c- What is the main reason?

Table 5: Distribution of role for physiotherapy in cancer treatment regarding sex.

Items	Sex				x- value
	Male (n-= 17)		Female(n-= 38)		
	NO	%	NO	%	
1- Do you think that there is a significant role for physiotherapy in cancer treatment?					
a- Yes	17	100.0	38	100.0	
b- No	0	0	0	0	
Total	17	100.0	38	100.0	
2- Is the physiotherapy is very spreading among cancer patients in ALJouf city ?					
a-Yes	4	23.5	1	2.6	6.207*
b-No	13	76.5	37	97.4	
Total	17	100.0	38	100.0	
3- What is the main reason? (for those which answer with no in the second question)					
a- Lack of staff	0	0	1	2.6	4.060
b- Lack of rehabilitation referrals	0	0	4	10.5	
c- lack of motivation such as patients family and patients friends advising the patient to rest and avoid exercises	5	29.4	11	28.9	
d- lack of awareness of rehabilitation services	10	58.8	21	55.3	
e- limited exercises resources.	2	11.8	1	2.6	
Total	17	100.0	38	100.0	

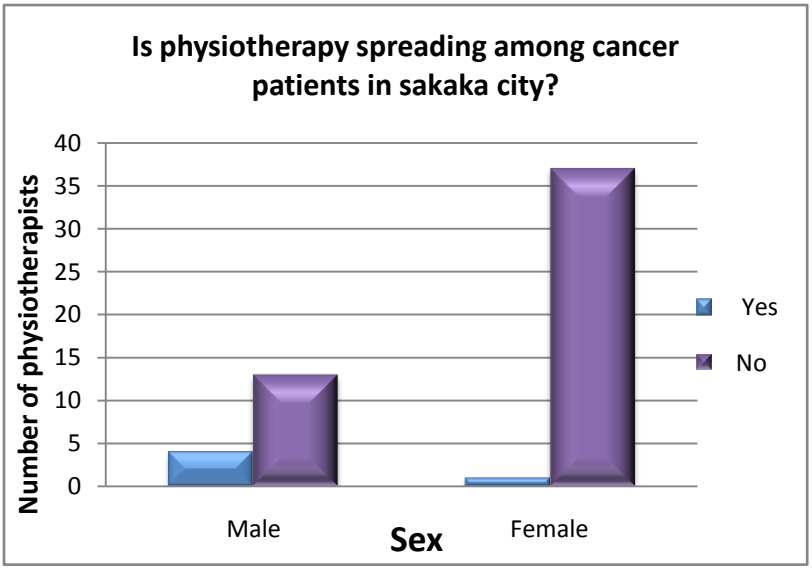

Fig. 3: The distribution between female and male regarding to the 2nd question.

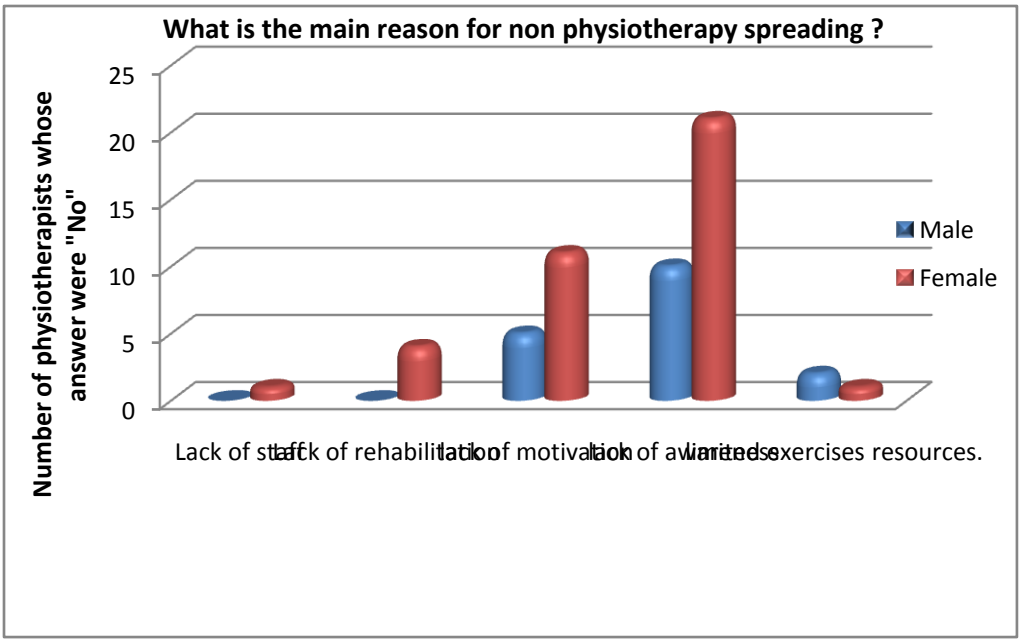

Fig. 4: The distribution between female and male regarding to the 3rd question.

As shown in table (5) and figures (4 & 4) that there was a significant difference regarding the second question between male and female group of physiotherapists. Meanwhile there was no significant difference regarding to the first and the last question between them.

2- Distribution of advising to create a specific cancer physiotherapy department in AL Jouf city regarding sex:

This item includes one question as illustrated in table and figure (6) which is:

a- Are you advising to create a specific cancer physiotherapy department in AL Jouf city?

Table 6: Distribution of advising to create a specific cancer physiotherapy department in AL Jouf city regarding sex

Items	Sex				x- value
	Male (n-= 17)		Female(n-= 38)		
	NO	%	NO	%	
Are you advising to create a specific cancer physiotherapy department in AL Jouf city?					
a- Yes, I agree	15	88.2	36	94.7	2.297
b-No, I disagree.	2	11.8	2	5.3	
Total	17	100.0	38	100.0	

The previous table showed that there was about 88.2 % of physiotherapists' male group were agreeing to create a specific cancer physiotherapy department in Sakak city compared to 94.7% of physiotherapists' female group. Meanwhile, 11.8% of physiotherapists' male group were disagreeing compared to 5.3% of physiotherapists' female group. Using the Chi-Square test, a non significant difference was found between physiotherapists' male and females group in regarding to creating a specific cancer physiotherapy department in AL Jouf city ($p > 0.05$).

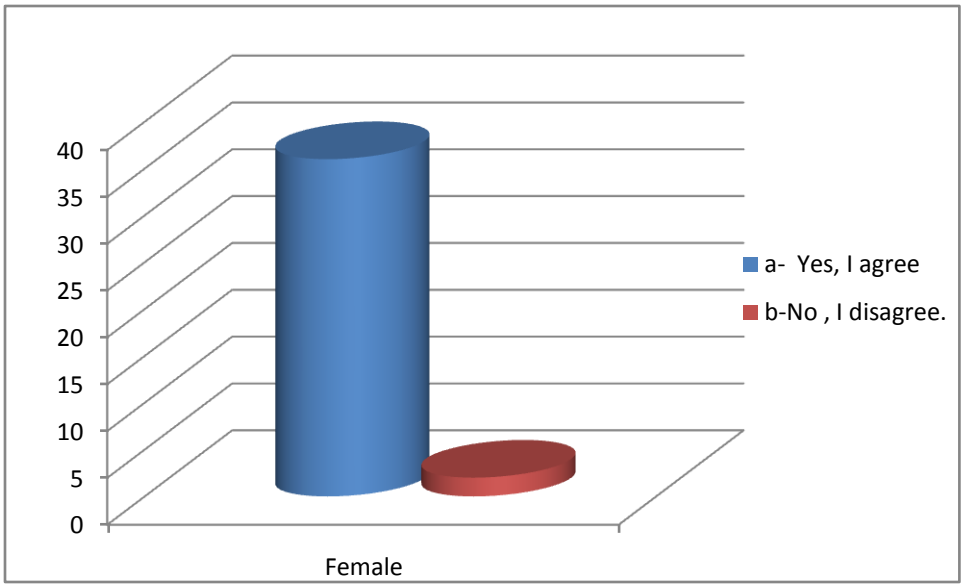

Fig. 5: Distribution of advising to create a specific cancer physiotherapy department in AL Jouf city regarding sex.

3- Distribution of appropriate stage for starting physiotherapy programs with cancer patients regarding sex:

The previous title contains two questions as demonstrated in table (7) and figures (7&8) as follows:

a- In your opinion, what is the appropriate stage for starting physiotherapy programs with cancer patients?

1- Pre operation stage.
2- Early post operation stage
3- Late post-operative stage

b- If you have a cancer patient in early post-operative stage , Do you recommend the patient to:

1- Rest and inactivity (Relaxation)
2- Start mobilization as soon as possible

Table 7: Distribution of appropriate stage for starting physiotherapy programs with cancer patients regarding sex

Items	Sex				x- value
	Male (n-= 17)		Female(n-= 38)		
	NO	%	NO	%	
a- In your opinion, what is the appropriate stage for starting physiotherapy programs with cancer patients?					
1- Pre operation stage	8	47.1	10	26.3	2.568
2- Early post operation stage	7	41.2	24	63.2	
3- Late post-operative stage	2	11.8	4	10.5	
Total	17	100.0	38	100.0	
b- If you have a cancer patient in early post-operative stage , Do you recommend the patient to:					
1- Rest and inactivity	2	11.8	3	7.9	.213
2- Start mobilization as soon as possible	15	88.2	35	92.1	
Total	17	100.0	38	100.0	

Table 8: Differences in the percentage within male and female physiotherapists regarding to the recommended program for cancer patient in early post-operative stage.

Sex	*Rest and inactivity (Relaxation)*	*Start mobilization as soon as possible*	*P-value*
Male	*11.8 %*	*88.2%*	*5.3**
Female	*7.9%*	*92.1%*	*6.4**

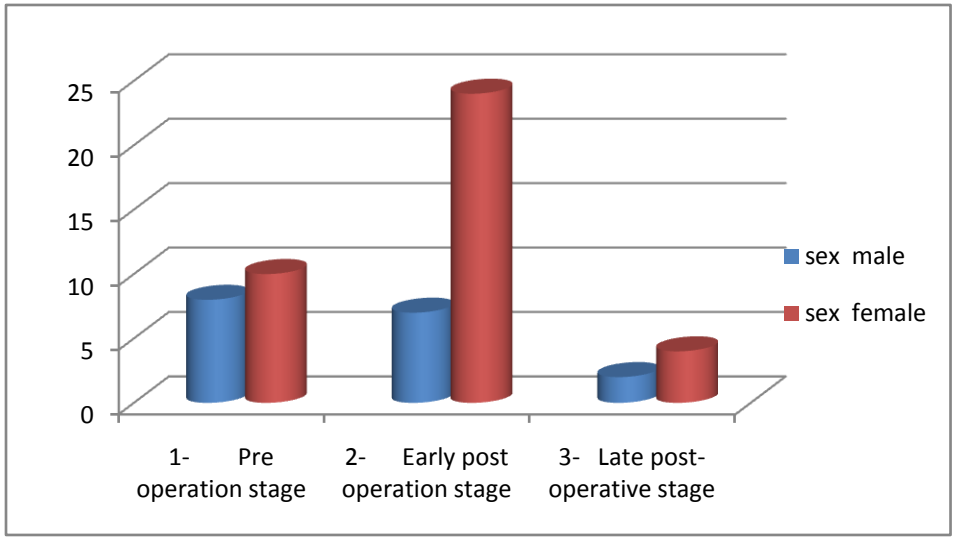

Fig. 6: The opinion of male and female physiotherapists regarding to the appropriate stage for starting physiotherapy programs with cancer patients

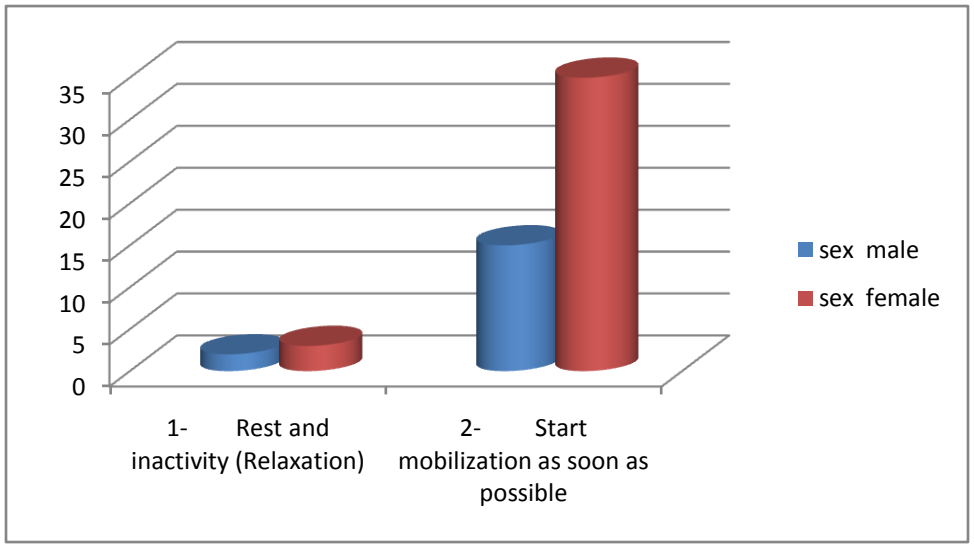

Fig. 7: The recommended program for cancer patient in early post-operative stage regarding opinion of both male and female physiotherapists.

As shown in table (7) and figure (7) that there were 47.1%, 41.2% and 11.8% for preoperative, early post operation stage and late post-operative stage respectively regarding to the opinion of male physiotherapists. On the other hand, there were 26.3%, 63.2% and 10.5% regarding to the opinion of female physiotherapists.

Moreover, table (7) and figure (8) showed that there were 11.8% and 88.2% for either rest (relaxation) or start mobilization as soon as possible respectively regarding to the recommended program for cancer patient in early post-operative stage of male physiotherapists. Meanwhile, 7.9% and 92.1% were found regarding to female physiotherapists.

Statistical analysis using Chi-Square test revealed no significant differences (P > 0.05) between male and female physiotherapists regarding the distribution of appropriate stage for starting physiotherapy programs with cancer patients. However, a significant difference was found within the physiotherapists' male and female who select rest (relaxation) and others who select mobilization. (Table 8).

4-The priority of physiotherapy role in cancer treatment regarding sex

The previous item as shown in figure and table (9) includes the following section:

a- Return the function to prior level.
b- Maintenance of functional independence and quality of life.
c- Improve circulation and reduce swelling.
d- Keep the muscle healthy with normal tone and strength.
e- Prevent deformities and health complications.

Table 9: The Priority of Physiotherapy role in Cancer Treatment regarding to sex.

Items	Sex			
	Male (n-= 17)		Female (n-= 38)	
	NO	%	NO	%
a- Return the function to prior level.	6	35.29	2	5.26
b- Maintenance of functional independence and quality of life.	2	11.76	4	10.53
c- Improve circulation and reduce swelling.	1	5.88	14	36.84
d- Keep the muscle healthy with normal tone and strength.	3	17.65	7	18.42
e- Prevent deformities and health complications.	5	29.41	11	28.95
Total	17	100.0	38	100.0

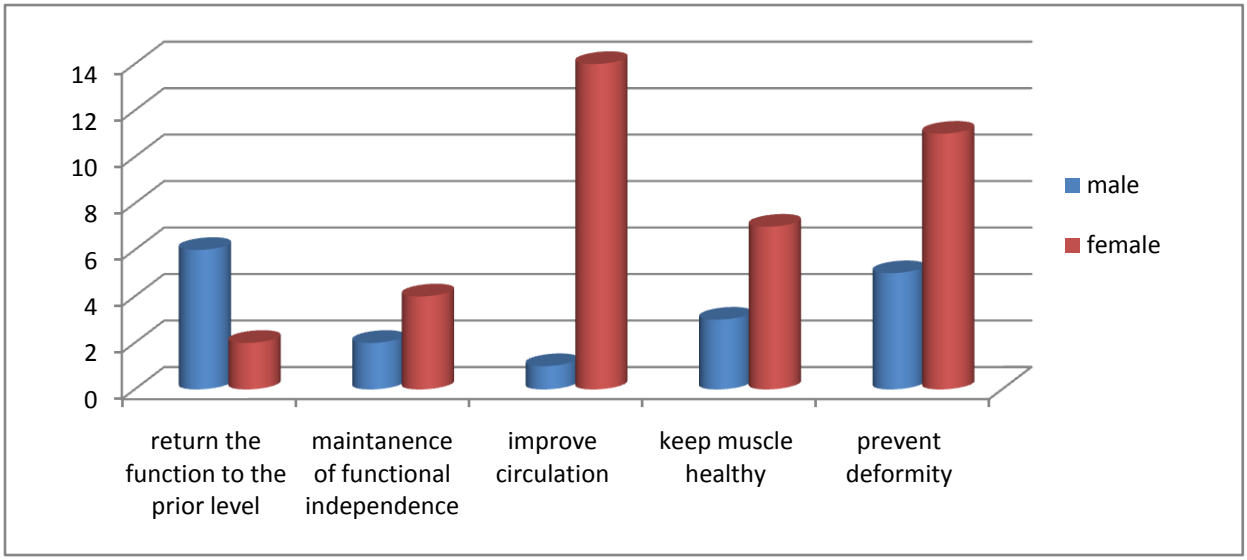

Fig. 8: The Priority of Physiotherapy Role in Cancer Treatment regarding to sex

As shown in figure and table (9) that there were 35.29%, 11.76%, 5.88%, 17.65% and 29.41% for return the function to prior level, maintenance of functional independence and quality of life, improve circulation and reduce swelling, keep the muscle healthy with normal tone and strength and prevent deformities and health complications respectively regarding to the priority of physiotherapy role in cancer treatment for male physiotherapist. Meanwhile, there were 5.26%, 10.53%, 36.84%, 18.42% and 28.95% regarding to female physiotherapists.

5- The type of physical therapy exercise regarding sex.

This title includes eight items as illustrated in table and figure (10) which are:

a- Passive range of motion exercises
b- Active range of motion exercises
c- Low impact exercises (aerobic exercises) such as walking and cycling
d- Stretching exercises
e- Resistance strengthening exercises
f- Reduce fatigue related to cancer and anti-cancer treatment
g- Patient education
h- Home instructions and home exercise program

Table 10: The Type of Physical Therapy Exercise regarding sex.

Items	Sex			
	Male (n-= 17)		Female(n-= 38)	
	NO	%	NO	%
a- Passive range of motion exercises	3	6.52	11	7.64
b- Active range of motion exercises	5	10.87	27	18.75
c- Low impact exercises (aerobic exercises) such as walking and cycling	4	8.70	24	16.67
d- Stretching exercises	3	6.52	7	4.86
e- Resistance strengthening exercises	2	4.35	6	4.17
f- Reduce fatigue related to cancer and anti-cancer treatment	10	21.74	19	13.19
g- Patient education	8	17.39	27	18.75
h- Home instructions and home exercise program	11	23.91	30	20.83

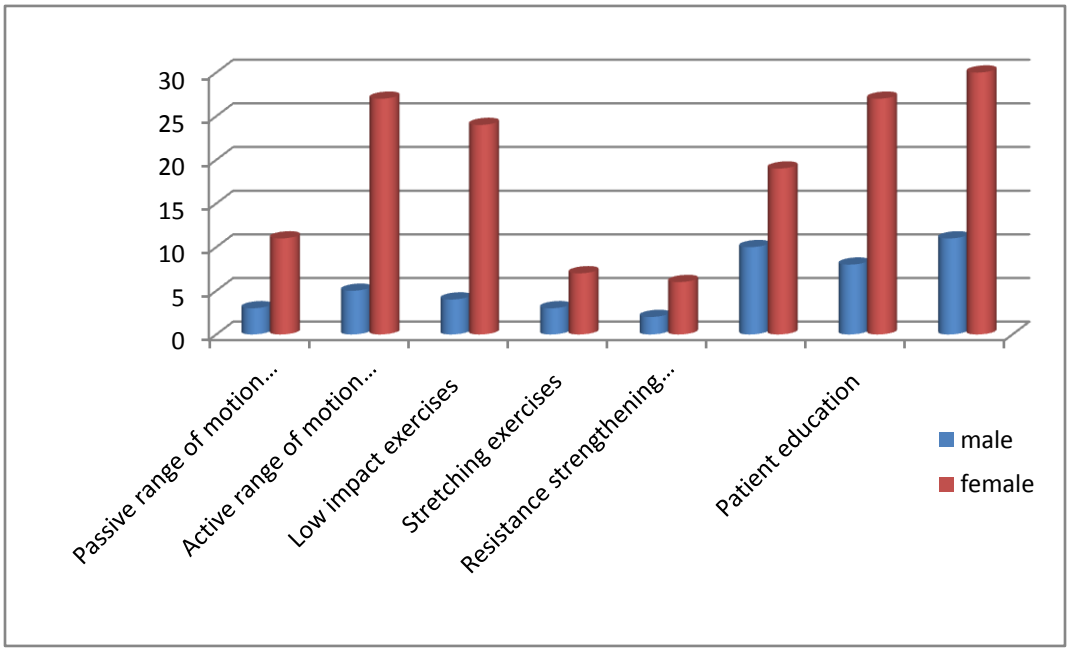

Fig. 9: The Type of Physical Therapy Exercise regarding sex.

As shown in figure and table (10) that 6.52%, 10.87%, 8.70%, 6.52%, 4.35%, 21.74%, 17.39% and 23.91% were found for Passive range of motion exercises, active range of motion exercises , low impact exercises , Stretching exercises, resistance strengthening exercises , reduce fatigue related to cancer and anti -cancer treatment , patient education and home instructions program respectively for physiotherapists' male . Moreover, there were 7.64%, 18.75%, 16.67%, 4.86%, 4.17%, 13.19%, 18.75%, and 20.83% for physiotherapists' female . This was regarding to type of physical therapy exercise for cancer patient.

6- The Most Appropriate Duration, Frequency and Intensity of Exercises for Cancer Patients regarding sex

The previous title as illustrated in table (11) and figure (11, 12 and 13) includes the following section:

a- Duration
b- Frequency
c- Intensity

Table 11: The Most Appropriate Duration, Frequency and Intensity of Exercises for Cancer Patients regarding sex

Items	Sex				F- value
	Male (n-= 17)		Female(n-= 38)		
	NO	%	NO	%	
duration					
c- 10 min\ three times a day	12	70.6	23	60.5	.750
d- 5 min\ three times a day	2	11.8	5	13.2	
e- 15 min \ three times a day	3	17.6	10	26.3	
Total	17	100.0	38	100.0	
frequency					
a- 7 days per week	1	5.9	6	15.8	.700
b- 5 days per week	12	70.6	14	36.8	
c- 3 days per week	4	23.5	18	47.4	
Total	17	100.0	38	100.0	
intensity					
a- Low intensity	4	23.5	22	57.9	2.443*
b- Moderate intensity	13	76.5	16	42.1	
c-High intensity	0	0	0	0	
Total	17	100.0	38	100.0	

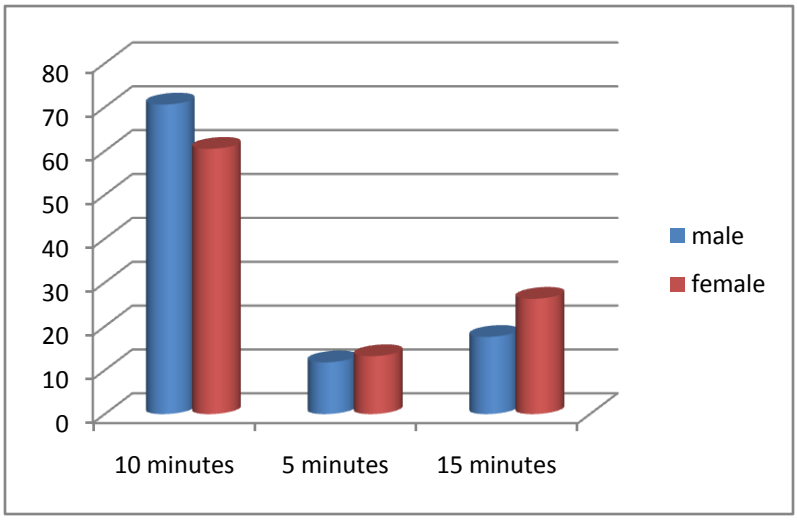

Fig. 10: The Most Appropriate Duration of Exercises for Cancer Patients regarding sex.

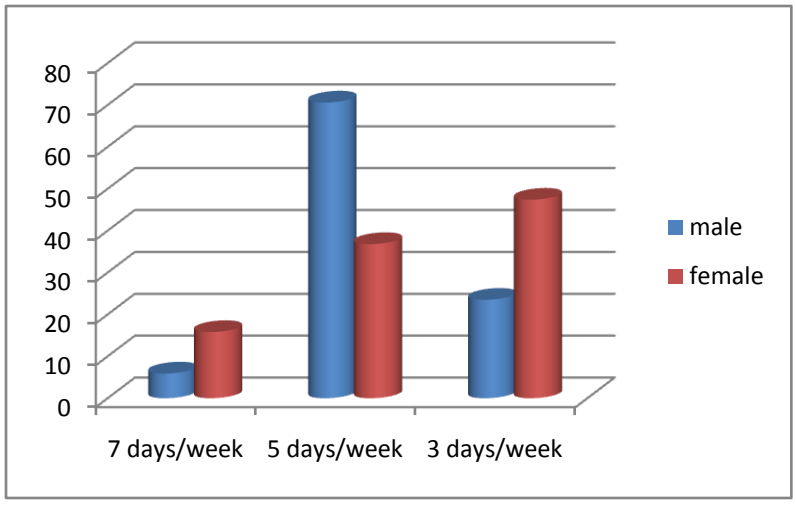

Fig. 11: The Most Appropriate frequency of Exercises for Cancer Patients regarding sex.

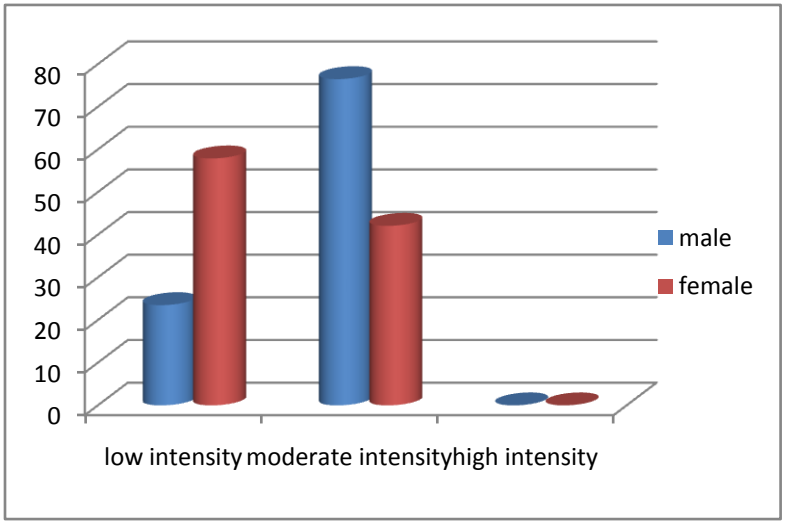

Fig. 12: The Most Appropriate intensity of Exercises for Cancer Patients regarding sex.

According to the previous figures it was concluded that a significant differences (P > 0.05) was found between male and female physiotherapists regarding to the intensity of exercise for cancer patients.

Discussion

A- Data for cancer:

The current study revealed that, the cancer incidence increased gradually in Sakaka City at the period from 2011 and up to 2015 and the highest cancer-rate was at 2015. In addition, the highest percentage of cancer incidence was for age group between 40-45 years. Moreover, the most common types of diagnosed cancer are Axillary swelling and Gynaecomastia, Cancer of breast, Cancer of colon and Lymphoma, Hepato Cellular Carcinoma and Erythrocytosis. It was also observed that the percentage of breast cancer increased with advanced age (> 60 years). (Referred to table 1). The most common type of cancer diagnosed for males was Polythemia followed by lymphoma. However, Thrombocytosis and Colon cancer (6.67%) and Rt. Breast Lump (5%) are the most common diagnosed type of cancer for female. (Referred to table 2).

The results of the current study were supported by (Woods, et al., 2015). They reported that the expected number of new cancer cases in British Columbia by 2030 will increase by 57%. That's meaning the number of new cancer cases is predicted to increase from 23521 cases in 2012 to more than 37000 in 2030 around the world in both sexes

but the higher percentage is expected to be in males (62%) while the lower percentage is expected to be for females (54%).

The results of the present study also supported by the results of El Bcheraoui, et al., (2015), Alghamdi, et al., (2013) and Al-Rikabi, et al., (2012). They stated that there is a significant increase in the rates of breast cancer among Saudi females, and it occurs at an earlier age than in western countries. 6,922 cases of female breast cancer were recorded in the Saudi Cancer Registry from 2001 to 2008. In addition, 1,308 new breast cancer cases were reported in 2009, approximately of 25% of all new cancer cases among Saudi women, and it is expected to increase over the coming decades in KSA due to the rising in population and aging. Breast cancer was the ninth cause that leading to death for females in the Kingdom of Saudi Arabia (KSA) in 2010.

The findings of the results obtained by Brown, et al., (2009) were in accordance with the results of the current study. They reported that, the incidence of breast cancer is increasing in Scotland due to the prevalent round of screening which began in 1987 and extended to 1994 with women aged 50–64 years. This age extend to 70 years in certain areas of Scotland in 2003. There are significant risk factors for breast cancer in Scotland such as post-menopausal, changing reproductive patterns as nulliparity and late age at first pregnancy.

The findings of the present study were further supported by Ammar and Sufia (2012). They examine 1035 breast tissues, 939 specimens (90.7%) were from female patients. There were 690 benign (65.8%) and 345 (34.2%) malignant cases. In women, 603 (64.2%) specimens were benign and 336 (35.8%) were malignant. In men, 87 specimens (90.6%) were benign and 9 (9.4%) were malignant. All malignant cases from male patients belonged to invasive ductal carcinoma and the majority of malignant cases from female patients belonged to invasive/infiltrating ductal carcinoma. The proportion of malignancy was 18% in patients younger than 40 years and 63.2% in patients older than 60 years. The mean age of onset for malignancy was 48.6 years. They concluded that among Saudi patients, there is a significant increase in the incidence of breast cancer, which occurs at an earlier age than in western countries. Thus continued vigilance, mammographic screening, and patient education are needed to establish early diagnosis and perform optimal treatment.

The previous findings were in accordance with the results obtained by (Khalid et al. 2013). They revealed that between 1998 and 2004, a total of 3322 cases of CRC (colorectal cancers) were diagnosed in Saudi Arabia. This accounts for 7.3% of the total number of cancer cases, 7.69% of all male cancers and 6.90% of all female cancers. CRC was ranked as the fourth and third most common cancer in males and females respectively. The reasons why colorectal cancer is greater among males than females are not clear, al-though factors such as diet, body size, physical activity, hormones and family history of CRC could be account-able for the higher incidence amongst males than females. In Saudi Arabia, progressively increasing exposure to risk factors and the lack of a nationwide screening program, along with an aging and growing population, probably explain the rising CRC rates. These findings, in addition to the possible hidden familial risk for colon cancer, highlight the need for a mass screening program for CRC in Saudi Arabia, preferably for individuals aged forty years and above.

From a comparison standing point with the results of the previous study it was reported by Ibrahim et al. (2008) that it was predicted a significant increase of colorectal cancer incidence in both sexes by almost four-fold by 2030 in Saudi Arabia due to our dietary habits and lack of proper screening. The occurrence of cancer is increasing because of the growth and aging of the population, as well as an increasing prevalence of established risk factors such as smoking, overweight, physical inactivity, and changing reproductive patterns associated with urbanization and economic development. It was estimated that about 14.1 million new cancer cases and 8.2 million deaths occurred in 2012 worldwide. They also reported that lung cancer is the leading cause of cancer death among males in both more and less developed countries, and has surpassed breast cancer as the leading cause of cancer death among females in more developed countries; breast cancer remains the leading cause of cancer death among females in less developed countries. Other leading causes of cancer death in more developed countries include colorectal cancer among males and females and prostate cancer among males. In less developed countries, liver and stomach cancer among males and cervical cancer among females are also leading causes of cancer death. Although incidence rates for all cancers combined are nearly twice as high in more developed than in less developed countries in both males and females, mortality rates are only 8% to 15% higher in more developed countries.

However, Siegel et al., (2015) contrast the results of the present study. They reported that the overall cancer incidence and mortality rates in USA are higher in men compared to women in all sub-regions. They also reported that males estimated new cancer cases reaching about 848,200 whereas females estimated cancer cases were 810,170.

The results of the present study were also contrasted by the results obtained by Chirk et al. (2015). They reported that the most common cancers in men are lung, stomach, liver, colorectal and oesophageal cancers while the most common cancers in women are breast, lung, cervical, colorectal and stomach cancers in Asia. This difference in the type of cancer diagnosed between male female patients who lives in Asia and those who lives in Sakaka City might

contribute to the differences in the life style like environmental and occupational factors. As it was reported by Pergola, et al., (2013) that Cancers might be caused by combinations of many genetic alterations. It is also related to the variation in the age, infection, smoking and tobacco addiction, nutrition and diet, environmental and occupational factors, availability and quality of the cancer services and treatment. Moreover, the ratio between smokers and non-smokers cancer rate is 10:1. In addition, obesity is a major cause of about 20% of deaths from cancer in women and around 14% in men over the last 25 years. Physical activities, caloric intake and quality of diet are playing a vital role in causing obesity, so that they have a significant effect as a risk factor of cancer. They also reported that 20% of all cancers are caused by obesity or over weight and the most common cancers in obese people are predominantly endometrial, esophageal adenocarcinomas, colorectal, postmenopausal breast, prostate, and renal while the less common malignancies are malignant melanoma, thyroid cancers, and leukemia, non-Hodgkin's lymphoma, and multiple myeloma.

B- Questionnaire form for the physiotherapists:

The role of the physiotherapist is the key to the successful rehabilitation and management of patients with cancer. (Karthikeyan et al. 2013). They have developed three questionnaires for cancer patients, physiotherapists and oncologists to measure the physiotherapy practice pattern, referral pattern and knowledge in cancer rehabilitation. Initial support for content validity was established. In accordance to the pervious authors, we form a questionnaire as a developed tool for physiotherapist that it was contain from four items. In order to design a new physical therapy program this is based on the results obtained from the questionnaire for physiotherapists.

The results of the present study showed that there was about 88.2% of physiotherapists' male group were agreeing to create a specific cancer physiotherapy department in Sakak city compared to 94.7% of physiotherapists' female group. Meanwhile, 11.8% of physiotherapists' male group was disagreeing compared to 5.3% of physiotherapists' female group. According to the appropriate stage for starting physiotherapy programs with cancer patients regarding sex, the results of the current study revealed that there were 47.1%, 41.2% and 11.8% for preoperative, early post operation stage and late post-operative stage respectively regarding to the opinion of male physiotherapists. On the other hand, there were 26.3%, 63.2% and 10.5% regarding to the opinion of female physiotherapists. Regarding to the most appropriate duration, frequency and intensity of exercises for cancer patients, the results revealed that a significant differences ($P > 0.05$) was found only between male and female physiotherapists regarding to the intensity of exercise for cancer patients.

In accordance with the results obtained by Caroline et al. (2009), they established physiotherapy management of cancer-related fatigue (CRF), to determine physiotherapy exercise management of CRF. Their results revealed that therapists had a mean of 6.8 years (+/−5.6) experience in oncology and/or palliative care. Seventy-eight percent of therapists recommend and/or use exercise as part of the management of CRF; 74% teach other strategies, most commonly energy-conservation techniques (79%). Therapists recommend and/or use exercise in similar frequencies with a range of cancer types, before (32%), during (53%) and following treatment (59%) and during advanced stages of the disease (68%). The most common barrier encountered by therapists in recommending and/or using exercise was related to the lack-of-exercise guidelines for patients with CRF (71%). They concluded that physiotherapists' management of CRF includes recommending and using exercise and teaching energy conservation techniques. Therapists recommend and/or use exercise with a variety of cancer populations, across all stages of the disease trajectory, in particular during advanced stages of the disease. Findings show therapists feel their practice is affected by the lack of exercise guidance for the cancer population. CRF management and physiotherapy practice would benefit from further research testing the efficacy of exercise in understudied patient groups, in all stages of the disease trajectory.

These results were further supported by the results obtained by (Cavalheri et al. 2013).They described physiotherapy practice patterns in the preoperative and postoperative management of patients who undergo surgical resection for lung cancer at hospitals across Australia and New Zealand were mailed a purpose-designed questionnaire. their results revealed that the response rate was 91% (43/47). Prior to surgery, 40% (n = 17) of the respondents indicated that patients were not assessed by a physiotherapist. In most hospitals (n = 39; 91%), patients did not participate in supervised exercise training before surgery. Most commonly, physiotherapy was commenced on the day following surgery (n = 39; 91%), with walking-based exercise being the treatment that was most frequently implemented in all patients (n = 40; 93%). Seventy-two per cent of respondents referred less than 25% of patients to pulmonary rehabilitation on discharge from hospital. They concluded that in people who undergo surgical resection for lung cancer, physiotherapy services focused on reducing or preventing postoperative pulmonary complications.

In consistent to the current study, Donnelly et al., (2010) reported that the most frequent goal of physiotherapy program for cancer patients was increased activity levels and physical fitness. Moreover, physiotherapy program which was used for cancer patients included low impact exercises such as walking, bed and chair based exercises, flexibility, stretching and bicycle exercises. The exercise duration was 10 min\three times a day and it was

prescribed for 7 days per a week. In contrast, lack of exercises with cancer patients was because presence of many factors such as lack of motivation by patients and his\her family, followed by poor exercises sources, limited staff and limited time, and lack of referrals for physiotherapy, respectively.

Moreover, Karthikeyan, et al., (2013) illustrated that exercises could play a potential role for cancer patients during and after surgery especially for breathing facilitation and in order to improve circulation, reduce swelling, keep the muscles healthy and prevent deformities and complications.

Conclusion: it is necessary to create specific physiotherapy department for cancer patients especially with current rising in cancer statistics in Sakaka city in the Kingdom of Saudi Arabia.

Recommendation

Based on the results of this study it is recommended to:

1- Create specific cancer physiotherapy department in Sakaka Hospitals.
2- Qualify physiotherapists to be in coordination with cancer patients in pre and post-operative conditions.
3- Establish a basic physiotherapy program for each type of cancer. As it will be designed according to different age groups, sex and stage of the disease.
4- Discover new modalities that it could help in controlling incidence of disease progress.
5- Build up a chemotherapy unit for those cancer patients who lived in Sakaka city.
6- Increase numbers of oncologists stuff in order to cover the needs of cancer patients.

References:-

1- Ammar A and Sufia H: Increasing prevalence of breast cancer among Saudi patients attending a tertiary referral hospital: a retrospective epidemiologic study. Department of Pathology, College of Medicine, King Saud University, Riyadh, Saudi Arabia Journal of Clinical Science. 53: 239-243, 2012.
2- Caroline M., Jane P, Anna C, James M and Jacqueline H:
3- Physiotherapy management of cancer-related fatigue: a survey of UK current practice ORIGINAL ARTICLE 2009.
4- Cavalheri V, Jenkins S, Hill K. Physiotherapy practice patterns
5- for patients undergoing surgery for lung cancer: a survey of hospitals in Australia. Journal of cancer CLIN 2013.
6- Chirk Jenn Ng1*, Chin Hai Teo1, Nurdiana Abdullah1, Wei Phin Tan2 and Hui Meng Tan1,3: Relationships between cancer pattern, country income and geographical region in Asia. Journal BMC Cancer 15 (613): 1186-12885, 2015.
7- Donnelly. C, Lowe-Strong A, Rankin J, Campbell A, Allen J and Gracey: Physiotherapy management of cancer-related fatigue: a survey of UK current practice. Journal of support care cancer 18: 817-825, 2010.
8- Henry J T, Marie L, Fred O and Peter V: Diagnostic interval before and after implementation of cancer patient pathways. 15 (308): 2015.
9- Ibrahim, E.,. Zeeneldin, A. , El-Khodary T. , Al-Gahmi A and
10- Bin Sadiq M: "Past, Present and Future of Colorectal Cancer in the Kingdom of Saudi Arabia," Saudi Journal of Gastroenterology.14(4) 178-182.2008.
11- Johnsey T, Swaminathan N, Rebello S and Vishal K: Awareness of physiotherapy among the anganwadi workers in Dakshina Kannada. 4 (2): 57-63, 2014.
12- Karthikeyan G, Udaya K, Sanjay S: Development and Content
13- validation of Questionnaires to Examine Current Status of Physical Therapy Practice in Cancer Rehabilitation in South India Intern. Med J. Apr; 43(4):394-401. pp. 31-50, 2013**.**
14- Khalid Al-Ahmadi1, Ali Al-Zahrani and Atiq Al-Dossari: A Web-
15- Based Cancer Atlas of Saudi Arabia. Journal of Geographic Information System. 5:471-485,2013.
16- Lindsey A. Torre, M, Freddie Bray, Rebecca L and Siegel, M: eliminate cancer disparities. Journal of cancer CLIN.65:87–108, 2015.
17- Ohanlon E and Kennedy N : Exercise in cancer care in Irland: a
18- survey of oncology nurses and physiotherapists. Europeon Journal of cancer care, original article.
19- Ryan R. Woods, MSc, Max J. Coppes, MD, MBA, and Andrew
20- J.: Cancer incidence in British Columbia expected to grow by 57% from 2012 to 2030. medical journal. 57 (5) June 190-196, 2015.
21- Sylvia B. F. Brown David S. Morrison Timothy G. Cooke:
22- Increasing incidence of breast cancer: distinguishing between the effects of birth cohort and a national breast screening program. Journal of Breast Cancer Res. Treat. 116:603–607, 2008.