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Klinik Çalışma / *Original Article*

Knowledge and attitudes of Turkish cancer patients regarding the implantable port catheter

Onkoloji hastalarının implante port kateter hakkındaki bilgileri ve davranışları

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OBJECTIVES

The purpose of the present study was to evaluate the knowledge and attitudes of cancer patients regarding the implantable port catheter.

METHODS

This descriptive study was carried out at a large university hospital in İzmir. The convenience sample consisted of 96 cancer patients who were administered chemotherapy via a port catheter. Data were collected using a researcher-developed questionnaire and analyzed using descriptive statistics and Pearson correlation test.

RESULTS

Of the 96 cancer patients who participated in the study, 56.3% were female, 57.3% were 39-59 years of age, 29.2% had completed primary school education, 83.3% were unemployed, and 43.7% had a gastrointestinal system cancer. In this study, the port catheter was implanted due to long-term continuous intravenous therapy. The correct response rate for the port questionnaire, on average, was 54.1% (±34.42). When the knowledge scores were analyzed according to patients' background characteristics, the only significant relationship determined was between knowledge scores and the time of catheter placement.

CONCLUSION

This study revealed that cancer patients have insufficient knowledge about the port catheter. We suggest that a protocol for use of the port system should be developed, and written material, such as in brochure form, should be prepared according to the patient's treatment plan. The brochure should be provided to patients in addition to verbal information regarding the port catheter.

Key words: Cancer patients; implantable port catheter; knowledge; attitude.

AMAÇ

Bu çalışmada, kanserli hastaların implante port katetere ilişkin bilgi ve davranışları değerlendirildi.

GEREÇ VE YÖNTEM

Bu tanımlayıcı çalışma İzmir'de büyük bir üniversite hastanesinde yapıldı. Örneklem grubunu port kateter yoluyla tedavi gören 96 kanser hastası oluşturdu. Veriler, araştırmacılar tarafından geliştirilen soru formu ile toplandı ve tanımlayıcı istatistikler ve Pearson korelasyon katsayısı kullanılarak analiz edildi.

BULGULAR

Araştırmaya katılan 96 kanserli hastanın %56.3'ü kadın, %57.3'ü 39 ve 49 yaş grupları arasında, %29.2'si ilk öğretim mezunu, %83.3'ü çalışmayan ve gastrointestinal sistem kanserliydi. Bu çalışmada, port kateter hastalara uzun süreli intravenöz tedavi amacıyla takıldı. Port anketine ilişkin doğru cevap oranı ortalaması %54.1'di (±34.42). Hastaların bilgileri geçmiş özellikleriyle analiz edildiğinde, hastaların port katetere ilişkin bilgileri sadece kateterin yerleştirilme zamanı ile pozitif olarak ilişkiliydi.

SONUÇ

Bu çalışma kanserli hastaların port kateter hakkındaki bilgilerinin yetersiz olduğunu gösterdi. Biz port sistemin kullanımına ilişkin protokollerin geliştirilmesini, broşür gibi yazılı materyallerin hastaların gereksinimlerine ve tadavi planına göre hazırlanmasını ve hastalara verilmesini öneriyoruz. Hastalara sözel bilgilendirmenin yanı sıra broşür verilmelidir.

Anahtar sözcükler: Kanser hastaları; implante port kateter; bilgi; davranış.

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Implantable vascular access (port) devices are being used in oncology patients. These devices provide infusion access in patients with cancer requiring chemotherapy, intravenous fluids, total parenteral nutrition, antibiotics, and other medications.[1-4] These catheters are relatively easy to place, easy to access, and offer a means for completion of therapies. In addition, totally implantable devices decrease the risk of infection when compared with other forms of long- and short-term venous access.[5]

Nursing management begins preoperatively by providing the patient and significant others with information on the port catheter oncology-performed care and maintenance of the implantable ports.[1] Many studies have been conducted regarding the port catheter. These studies have analyzed catheter-related complications,[3,6-10] catheter care,[1,5] and patients' perceptions,[11] attitude,[12] and experiences with implantable port catheter.[13,14] There have been no studies in Turkey to determine patients' knowledge and attitudes regarding the port catheter. Thus, we aimed to evaluate the knowledge and attitudes of Turkish cancer patients regarding the implantable port catheter.

MATERIALS AND METHODS

Sample, Setting and Ethical Considerations

This descriptive study was carried out from October 2006 to February 2007 in the outpatient chemotherapy unit of the oncology unit at a large university hospital in Izmir, West Turkey. A total of 96 patients participated in the study. The study was approved by the ethics committees of the university's School of Nursing. Written permission to conduct this study was obtained from the oncology institute review board.

Procedures

The patients included in the study were informed about the aim of the study. If they expressed interest in the study, the researcher met with them in an outpatient setting. A convenience sample of patients was obtained from among all patients who were receiving chemotherapy via implantable port catheter in the outpatient chemotherapy unit. Patients were included if they met the following criteria: a) 18 years of age or older, b) presence of implantable port catheter, c) ability to speak, read, and write in Turkish, d) no auditory or visual impairment, and d) willingness to participate in the study. All participants signed a written consent form prior to participation.

Instruments

The data were collected by demographic questionnaire and knowledge form regarding the implantable port catheter. The demographic questionnaire was developed by the authors to obtain data related to the patients' sociodemographic and illness-related variables such as age, gender, education level, employment status, presence or not of other individuals in the home, disease diagnosis, disease duration, and number of chemotherapy cures. The knowledge form was also developed by the researcher according to the port-related literature,[15-18] and consists of 20 items. Responses are assessed as true or false. This form was pretested on 10 patients in order to check the clarity of the items, and no changes were recommended. Therefore, all patients were requested to complete the questionnaire independently. The researcher read the questionnaire items to illiterate patients and recorded their responses.

Data Analysis

Statistical analysis was performed by the Statistical Program for Social Sciences (SPSS) version 11.0 for Windows. Variables were expressed as mean, standard deviation, range and percentage. Pearson correlations analysis was used to compare the differences in patients' knowledge according to various demographic characteristics, including gender, age, educational status, disease duration, number of cures, the time of catheter placement, and catheter-related problems.

RESULTS

The sociodemographic and disease/treatment variables for the 96 patients who responded to the questionnaire are presented in Table 1. The mean age of patients was 51 years (SD=12.76) and 56.3% of the participants were female. Twenty-eight of the patients had completed their primary school education (29.2%) and most (83.3%) were

Table 1

Personal characteristics at baseline

	n	%
Sex		
Female	54	56.3
Male	42	43.8
Age (X: 50.67±12.76)		
39- 59 years	55	57.3
60 years or more	23	24.0
18-38 years	18	18.8
Education level		
Primary school	28	29.2
University	27	28.1
High school	19	19.8
Secondary school	16	16.7
No formal education	6	6.3
Employment status		
Unemployed	80	83.3
Employed	16	16.7
Living together with people in their home		
Spouse and children	32	33.3
Lonely	30	31.3
Spouse only	18	18.8
Other	10	10.4
Children only	6	6.3
Diagnosis of disease		
Gastrointestinal cancer	42	43.7
Breast cancer	23	24.0
Cancer	6	6.2
Lymphoma	5	5.2
Haematological malignancy	4	4.1
Osteosarcoma	4	4.1
Gynecologic cancer	3	3.1
Unknown	9	9.4
Time of disease		
12 months and more	70	72.9
11 months and below	26	27.1
Number of cure		
7-11 cure	28	29.2
2-6 cure	26	27.1
12 cure and more	22	22.9
Not receive	20	20.8
Total	96	100

unemployed at the time of the study, though it was not clear whether or not this was a consequence of their cancer. 31.3% of the patients lived alone. Gastrointestinal cancer (43.7%, 42/96) was the most common diagnosis followed by breast cancer (24.0%, 23/96) and lymphoma (5.2%, 5/96). Seventy-three percent of patients had been ill for 12 months or more. 29.2% of patients were receiving their 7th and 11th chemotherapy cure.

Table 2

Patients' answers regarding implantable port catheter

	n	%
Causes of placement implantable port catheter		
Long term continous intravenous therapy	47	49.0
Poor venous access	38	39.6
Poor venous access and long term continous intravenous therapy	4	4.2
To use comfortable	1	1.0
Unknown	6	6.3
Time of placement implantable port catheter (X=335.63±301.83)		
360 days and below	61	63.5
361-720 days	27	28.1
721 days and more	8	8.3
Having a complication regarding implante port catheter		
No	88	91.7
Yes	8	8.3
Complications (n=8)		
Occlusion	3	3.1
Extravasation	2	2.1
Infection and occlusion	2	2.1
Infection	1	1.0
Flushing catheter with heparinized saline		
Yes	79	82.3
No	15	15.6
No answer	2	2.1
Total	96	100

As shown in Table 2, the primary reason for placement of a port was the requirement of long-term continuous intravenous therapy (49%) followed by poor venous access (39.6%). Average port duration was 336 days (range: 30-1560 days). Among the 96 patients, 8 (8.3%) experienced catheter-related problems, which included occlusion followed by extravasation and occlusion with or without infection. Most of the catheters (82.3%) were flushed with heparinized saline.

When evaluating patient awareness of the port catheter, 76.0% of the subjects reported having no knowledge of it. As seen in Table 3, 63.5% of the subjects stated they had received information from

health professionals regarding the port catheter prior to its placement. The information provided to the patients by the health professionals included its necessity for long-term therapy and that it provided easy venous access. However, patients also stated specifically that they wanted information on the following issues: a) What were the advantages and disadvantages of the port, b) how was it used and c) how often was it flushed?

Table 3

Knowledge regarding implantable port catheter

	n	%
Be aware of port catheter		
No	73	76.0
Yes	23	24.0
Sources of information (n=23)		
Health professionals (doctor or nurse)	16	16.7
Another patients having a port catheter	6	6.3
Internet	1	1.0
Before placement of port information regarding from health professionals		
Yes	61	63.5
No	35	36.5
Issues of given information (n=61)		
It was used as venous access	19	31.1
Administration was easily via port catheter	19	31.1
Long term infusion therapy	14	23.0
How and where was placement?	6	10.0
End tecnology	2	3.2
It was need	1	1.6
Total	96	100

Table 4 shows the results regarding the percentages of correctly answered questionnaire items. The average correct response rate was 54.1%, ranging from 2.1% to 97.4%. An exceedingly low percentage of correct responses was identified for half of questionnaire items.

The highest percentages of incorrect answers were noted in relation to the following items: a) related areas in which the port is placed (items 2, 3), b) when the port will be used (item 4), c) not showering during port use (item 5), d) what type of needle is used (items 6,7), e) how often the needle is changed (items 8,9), f) how often the dressing is changed (item 17), and g) how the needle is deaccessed (item 19).

The highest percentages of correct answers were identified regarding the following items: a)

Table 4

Correctly answered items in the questionnaire

No	Item content (correct answer)	n	%
1	Port catheter is placed in operating room (true)	92	95.8
2	Port catheter is placed only on chest area (false)	6	6.3
3	Port catheter is also placed on abdomen, inguinal and upper arm area (true)	10	10.4
4	Port catheter can be used after it has placed (false)	32	33.3
5	During the catheter is placed, not to be take a shower (false)	70	72.9
6	Small needles can be used on port (false)	19	19.8
7	Only the huber needless should be used on port (true)	28	29.2
8	Port needle is not needed to change long time if there aren't any problems (false)	25	26.0
9	Port needle is changed every 7 days (true)	24	25.0
10	After the needle is inserted to the port, port area is covered with dry dressing (true)	68	70.8
11	Port needle is inserted at the sterile conditions (true)	85	88.5
12	Seat belt can be fixed not to touch on incision area (true)	72	75.0
13	If there are any problems such as swelling, erythema on port area, doctor and nurse are informed (true)	92	95.8
14	Port catheter is flushed with saline heparize solution to prevent coagulation into the catheter (true)	80	83.3
15	Port catheter is flushed monthly with saline and heparine when not accessed (true)	43	44.8
16	Port catheter should be flushed in the hospital (true)	84	87.5
17	Dressing is changed everyday during the needle inserting to the catheter (true)	27	28.1
18	When the distinct institute is went, it should be said to be have a port catheter (true)	94	97.4
19	The port needle is deaccessed as sterile (false)	2	2.1
20	Incision area is closed with the dry dressing after needle is deaccesed (true)	88	91.7

Table 5

Correlation between some sociaodemographic variables and knowledge scores

Factors	Correlation coefficient	
	r	p
Gender	r=.021	p=.84
Age	r=-.033	p=.75
Education status	r=.183	p=.07
The time of disease	r=.106	p=.30
The time of placing catheter	r=.201*	p=.04
To be have a problem regarding the cather	r=-.020	p=.84

*p<0.05.

placement of the catheter (item 1), b) covering of the port with dry dressing after the needle is accessed (item 10), c) access of the needle under sterile conditions (item 11), d) appropriate fixation of a seat belt (item 12), d) informing health teams of any problems (item 13), e) flushing of the catheter with heparinized solution to prevent coagulation (item 14), f) monthly flushing of the catheter with saline and heparin when not accessed (item 15), g) performance of catheter flushing at the health institution (item 16), and h) de-access of the needle under sterile conditions (item 19).

Four items (items 2,3,6,19) had a correct answer rate lower than 25%, six items (items 4,7,8,9,15,17) had a correct answer rate between 25% to 49%, two items (items 5,10) had a correct answer rate between 50% to 74%, and eight items (items 1,11,12,13,14,16,18,20) had a correct answer rate of more than 75%. Among the 20 items studied, 10 failed to score a correct answer rate of 50%.

When the knowledge scores were further analyzed with respect to background characteristics (gender, age, education status, disease duration, the time of catheter placement, and catheter-related problems), no significant relationship was determined except for a positive correlation between the time of catheter placement and knowledge scores (Table 5).

DISCUSSION

The aim of this study was to evaluate information about the knowledge of Turkish cancer patients regarding the implanted port catheter. It provides important information about the level of cancer patients' knowledge related to the port catheter in Turkey. We determined that Turkish cancer patients have insufficient knowledge and perceptions about the port catheter.

In our studies, most of the patients had been informed about the port systems by their health professionals. Before insertion of the port catheter, discussions with the patients included the following topics, which covered three advantages of the ports: 1) its use in long- term infusion therapy and venous access, 2) administration of medicine easily via the port catheter, and 3) how and where it would be placed on the body. Patients also reported wanting to know the reasons for placing the catheter, its advantages and disadvantages, the surgical procedure, how it was used, how often it was flushed, and when it would be removed. We think that it is crucial to the well-being of the patient that these issues are discussed before insertion of the port catheter.

According to the literature, the anterior upper chest wall is the most commonly used site, but the abdomen, groin, or antecubital area of the arm may also be used if there is disease involvement of the chest wall.[2] In the current study, patients were aware only of port catheter insertion into the anterior upper chest wall. We think that patients should be informed that the port catheter can be inserted in other areas under special circumstances (for example, deep venous thrombosis or tumor involvement of the anterior upper chest wall).

Despite the many advantages of these systems,

they can sometimes present functional problems. The most frequent complications related to port catheters are infections, thrombosis, obstructions, sleeve formation, and extravasation.[15,16] In this study, 8 (8.3%) patients reported complications, which included infection (n=1), occlusion (n=3), extravasation (n=2) and infection and occlusion (n=2).

According to the literature, the port system is accessed using special non-coring Huber needles to preserve the life of the septum.[15] Patients were unaware of what kind of needle would be used and of when it would be accessed on the port. They were also unaware that the Huber coring needle had to be used to insert the port. This likely reflects that the issue is not emphasized during the patient information process. We suggest that patients should be informed that the Huber needle is required, and they should be shown the needle in order to increase their awareness as well as that of their family caregivers.

According to the literature, implanted ports require flushing with a heparinized solution after each use. It is also flushed monthly with saline and heparin when not accessed.[16] Although in our clinic, the catheter flushing process is done carefully and routinely, only 44% of patients knew that the port catheter required flushing each month when not accessed. In this study, the rate of patients' knowledge regarding when the port needle required changing was insufficient. There has been no recommendation from the Centers for Disease Control and Prevention (CDC) regarding the frequency of dressing and needle change on central catheters sites.[19] In our clinic, we suggest that the needle be changed every 7 days when ports are in use, and whenever necessary otherwise, such as in the event of needle contamination or when the site shows signs of irritation, in an effort to lower the incidence of infection. We suggest that the patient should be presented with written material (e.g. brochures) as well as verbal information regarding the port system and its use. The patient should be shown the port catheter, and ideally should be permitted to choose the device desired.

The current study, which is the first research in Turkey of patients' knowledge regarding the port catheter, provides important information about knowledge deficits. When the experience level of nurses and physicians using the port catheter is increased, the risk of port catheter complication and its incorrect usage may decrease. That is, as experience increases, the rate of some complications will decreases while the rate of correct usage will increase. Nurses and physicians are responsible for identifying patients who would benefit from a port catheter, for conducting preoperative teaching and postoperative assessment, accessing the port, administering medications, performing site care, maintaining patency, and teaching self-care. Therefore, continuing education and collaboration among nurses and physicians is essential to provide optimal care to the patient with a port catheter. We also believe that a protocol for port system use should be developed and that the brochure should be individualized according to a patient's specific care requirements. It should be given to the patient together with verbal information regarding the port catheter.

There are some limitations to the present study. First, the sample size was relatively small and may not represent the knowledge level of all oncology patients in Turkey. Additionally, the study sample was taken only from our clinic, so it cannot necessarily be generalized to other cancer patients. Despite these limitations, the findings of this study can serve as a basis for future studies.

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