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PROBLEMS AND EDUCATIONAL NEEDS RELATED TO PORT CATHETER IN CANCER PATIENTS

Kanser Hastalarında Port Katetere Bağlı Sorunlar ve Eğitim Gereksinimleri

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ABSTRACT

This research was carried out to determine the problems and educational needs of cancer patients about port catheter. This descriptive research was conducted between January-March 2018, at the Doctor Burhan Nalbantoğlu State Hospital Oncology Center in TRNC, with 100 cancer patients over 18 years of age with port catheters. The data was collected through a data collection form consisting of 29 items, examining the sociodemographic characteristics and problems related to port catheter. 88% of the participants reported that they were informed before insertion of a port catheter, and 76.5% of them were informed by nurses. 14% of patients had troubles such as; infections (64.3%), catheter getting out of the skin (21.4%), and displacement of catheter (14.3%). Primary school graduates stated that they had more problems during catheter use and care (p=0.037). Male patients were found to have more problems than female patients (p=0.039). In this research, it was observed that cancer patients were inadequate to maintain home care of port catheter and therefore experienced complications that could threaten their health, especially infection. It is recommended that practical training should be given to patients about port catheter care by specially trained nurses, considering the educational status and gender of patients.

Keywords: Central venous catheter, Education of patients, Port catheters, Port catheter complications,

ÖZ

Bu araştırma, kanser hastalarının port kateter ile ilgili sorunları ve eğitim gereksinimlerini belirlemek amacıyla yapılmıştır. Tanımlayıcı türdeki bu araştırma Ocak-Mart 2018 tarihleri arasında, KKTC'de bulunan Doktor Burhan Nalbantoğlu Devlet Hastanesi Onkoloji Merkezinde, port kateterli ve 18 yaş üstü 100 kanser hastası ile yapılmıştır. Veriler, sosyodemografik özellikleri ve port kateter ile ilgili sorunları inceleyen 29 maddeden oluşan veri toplama formu aracılığıyla toplanmıştır. Katılımcıların %88'i, kateter takılmadan önce bilgilendirildiklerini bildirmiştir, bunların %76.5'i hemşireler tarafından bilgilendirilmiştir. Hastaların %14' ü; enfeksiyon (%64.3), kateterin cilt dışına çıkması (%21.4) ve kateterin yer değiştirmesi (%14.3) gibi sorunlar yaşamıştır. İlköğretim mezunu hastalar, kateter kullanımı ve bakımı sırasında daha fazla sorun yaşadıklarını belirtmiştir (p=0.037). Erkek hastaların kadın hastalara göre daha fazla sorun yaşadığı saptanmıştır (p=0.039). Bu araştırmada kanserli hastaların port kateterin evde bakımını sürdürmede yetersiz oldukları, bu nedenle başta enfeksiyon olmak üzere sağlıklarını tehdit edebilecek komplikasyonlar yaşadıkları tespit edilmiştir. Hastalara, özel eğitimli hemşireler tarafından, hastaların eğitim durumları ve cinsiyetleri göz önünde tutularak, port kateterin bakımı hakkında uygulamalı eğitimler verilmesi önerilmektedir

Anahtar kelimeler: Hasta eğitimi, Port kateter, Port kateter komplikasyonları, Santral venöz kateter.

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INTRODUCTION

Totally implantable venous port catheter (TIVPC) is used as a safe method for cancer patients' treatments. The use of port catheters has increased in recent years due to the long-term treatment, frequent venous access, use of sclerosing agents and excessive amounts of dense fluid in cancer patients (Carlo, Lamont, McCarty, Living-Ston, Kuhn, 2004; Yeşil et al., 2014). Applying the port catheter to the patient is determined entirely by the patient's needs and condition, and for the application of a port catheter, no features are specified (McCallum & Higgins, 2012; Samancı, Mandel, Bozkurt, Kutlu, Uras, 2004).

A venous path is vital for individuals with cancer. The application of central venous port catheters is a positive treatment method; discomforting minimal levels to the patient with local anesthesia, giving the possibility to discharge after the procedure, ensuring that treatment can be sustained at home, and having few unwanted side effects (Di Carlo et al., 2001; Vescia et al., 2008). The reasons for the frequent use of port catheters in the treatment of cancer patients can be listed as; the patient provides his own hygiene, the catheter is under the skin and not visible, it does not cause discomfort in the patient, it is a closed system, the risk of infection and thrombosis is low, it does not restrict the daily life activities of the individual, the care is once a month (Madabhavi et al., 2017; Tabatabaie et al., 2017; Wang, Lin, Chou, Lin, Huang, 2017).

In addition to the use of central venous port catheters as a safe and long-term treatment method, unintended consequences can sometimes be seen due to catheter (Atalay et al., 2016; Dillon & Foglia, 2006). Infection and thrombosis are the most common unintended consequences due to the venous catheter (Cicolini et al., 2014; Pérez Fidalgo et al., 2012). Although the use of central venous port catheters has advantages for patients and health care professionals, it is observed that the increased risk of infection and thrombosis due to the use of the catheter increases hospitalization time, cost and mortality rate (Cicolini et al., 2014; O'Grady et al., 2011; Yeşil et al., 2014). While physicians are responsible for the installation of the port catheter, nurses are responsible for the care of the port catheter. Planned and systematic management of care is important for patients. Nurses are primarily responsible for the care of the port catheter. A 3-month intervention study by Piredda et al. (2016) constituted a well-designed booklet which is helpful in improving patients' knowledge of TIVPC and in reducing anxiety. Patients should be informed about; what port catheter is used for, how port catheter is implanted, points to be considered in its' use, possible early and late complications, possible changes in the catheter area, how often the catheter care and controls should be (Kutlu,

2015; Piredda et al., 2016; Salman et al., 2016). Frequent application of chemotherapy and other treatments given in cancer treatment through port catheters may cause some complications in the patient. In the study conducted with 2179 cancer patients with TIVPC, acute complications developed in 0.6% and chronic complications in 3.55% (Salman et al., 2016). Nurses should prepare an individual training plan according to patient needs before training, in order to prevent these complications and to carry out requested training (Çetinkaya & Aşiret, 2017). This study was carried out to determine the problems and educational needs of cancer patients with port catheters.

MATERIAL AND METHOD

This descriptive study was conducted to determine the problems and educational needs of cancer patients with port catheters regarding the port catheter. The sample of the study consisted of cancer patients who; applied to the Hematology-Oncology Inpatient and outpatient clinic of the Oncology Center of the Turkish Republic of Northern Cyprus Dr. Burhan Nalbantoğlu State Hospital between January 2018 and March 2018, had a port catheter, were over the age of 18, and accepted to participate. Since there is no database of patients with total implantable venous port catheters (TIVPC) implanted, the exact number is unknown. Among the cancer patients with port catheters, 112 cancer patients were reached. A pretest was applied to test whether the questionnaire was understandable and clear. Ten patients who participated in the pretest and two patients who did not agree to participate were excluded from the study. The study was completed with 100 cancer patients with TIVPC catheters in three months time.

The data were collected with a data collection form consisting of 29 questions which was constituted as a result of the literature review (Alur, Depboylu, Demir, Toysa, Alten, 2012; Atalay et al., 2016; Carlo, Lamont, McCarty, Living-Ston, Kuhn; Cicolini et al., 2014; Kelsaka & Güldoğuş, 2005; McCallum & Higgins, 2012; Piredda et al., 2016; Tabatabaie et al., 2017; Yeşil et al., 2014). The first part includes questions which define the socio-demographic characteristics of the individuals, and the second part includes questions about the disease and port catheter. Forms were filled out by using a face-to-face interview technique. It took an average of 15 minutes to fill out the test.

Statistical Analyzes

Statistical analyses were performed by using the IBM SPSS 24 software for Windows (SPSS Inc., Chicago, Illinois). Frequency analysis was used in the evaluation of the data, and the findings were shown through frequency distribution tables. A Chi-square test was used to

determine differences. For all the analyses, a p-value of less than 0.05 was considered to be statistically significant.

Ethics Committee Approval

Before the study, permission was obtained from the Girne American University Health Ethics Committee (number; 5.11/17) and the hospital management.

Informed Consent

Verbal information about the research was given to the patients who constituted the sample of the study, and their verbal and written consent were obtained.

RESULT

Data analysis indicated that among the 100 participants, 47% were female, 28% were 50 years and younger, 30% were 66 years old and over. When categorized by education levels; 69% of the patients were primary school graduates, 11% were high school graduates, and 20% had university-level education. The occupational status of the participant were also examined and findings revealed that 16% of the patients who participated in the study were employees and 45% were retired. The patients included in the study had mostly bowel cancer 34%, and 41% of patients had chronic diseases other than cancer (Table 1).

Table 1. Distribution of Patients According to the Characteristics of the Disease (N=100)

	n	%
Type of cancer		
Bowel	34	34.0
Breast	21	21.0
Stomach	9	9.0
Leukemia	6	6.0
Esophagus / Larenks	5	5.0
Pancreatic	5	5.0
Lung	3	3.0
Other*	17	11.0
Chronic disease other than cancer		
No	59	59.0
Have	41	41.0
Disease		
Hypertension	20	48.8
Diabetes	15	36.6
Other**	6	14.6

**Uterus, Testicle, Lymphoma, Sarcoma, Skin, Rectum, Bile, Liver, Submandibula, Tongue, Grenem malignant*
***Asthma, Thyroid, Kidney Failure, Heart*

Most of the patients (98%) stated that they received training about the care of the port catheter, mostly from nurses (76.5%). While the majority of the patients (62%) stated that the purpose of inserting the catheter was to prevent the damage to the vessels, 26% of those stated

that the maximum usage period of the port catheter was 4-5 years. Most of the patients (93%) stated that the port catheter was used during treatment and assay, 92% stated that catheter care was done in the Oncology center, 97% stated that the catheter was important as it provided convenience in procedures, the frequency of catheter care varied according to the status of receiving chemotherapy treatment, the majority of which had been infrequently maintained for more than 1 month (Table 2).

Table 2. Characteristics of the Patients Regarding the Use of Port Catheters

	n	**%**
Information source (n=98)		
Doctor	16	16.3
Doctor and nurse	7	7.2
Nurse	75	76.5
Reasons for using a port catheter		
Because my veins are not found	17	17.0
To keep my veins from fraying	62	62.0
My veins were damaged and not found.	21	21.0
Knowing the maximum usage time of the port catheter		
No	74	74.0
Yes	26	26.0
Use of port catheter during treatment and assay		
Yes	93	93.0
No	7	7.0
Frequency of maintaining port catheter		
Once a week	11	11.0
Every two weeks	41	41.0
Every three weeks	14	14.0
Once a month	5	5.0
Every two months	5	5.0
Every three months	20	20.0
Rare	4	4.0
Where the care is performed		
Other public hospitals	2	2.0
LBNDH/Oncology center	92	92.0
Turkey	2	2.0
Private Hospital	4	4.0
The importance of the port catheter method		
Reduces pain	2	2.0
I am not satisfied because I have a lot of pain	1	1.0
Provides convenience in operations	97	97.0
Port catheter usage time		
0-12 months	45	45.0
13-24 months	24	24.0
25-36 months	16	16.0
37 months and more	15	15.0

When patients were asked whether they had any problems regarding the port catheter, 14% of the patients reported that they experienced problems related to the use and maintenance of the port catheter. Among the stated problems, 64.3% were about infection, 21.4% were about catheter exposure, and 14.3% were about catheter relocation. In the problems associated with a port catheter, 64.3% of patients were treated, 21.4% had corrected the catheter and the port

catheter was removed in 14.3%. On the other hand, 85% of the patients reported that they did not have any problems related to the catheter, 51% of them did not have knowledgeable staff in their district, and 49% of them had transportation problems for care. When patients were asked about their recommendations, 3% of the patients reported suggestions for knowledgeable staff in the health center, 3% reported suggestions for the insertion of the port in a place that was not seen as aesthetically pleasing, and 2% reported suggestions about the use of skin-compatible plaster (Table 3).

Table 3. Problems Experienced by Patients Regarding Port Catheter Use and Care

	n	%
Having problems with port catheter use and maintenance		
No	86	86.0
Yes	14	14.0
Problems with port catheter maintenance and use (n=14)		
Infection	9	64.3
Catheter exposure	3	21.4
Catheter relocation	2	14.3
Procedure for the problem related to the port catheter		
Treated	9	64.3
Catheter fixed	3	21.4
Port catheter removed	2	14.3
Port catheter's effect on daily life		
I am having trouble sleeping due to catheter	8	8.0
It makes me feel bad psychologically	5	5.0
I am having a limitation of movement due to catheter	2	2.0
I'm not having any problems.	85	85.0
Problems experienced in port catheter treatment and care of the catheter		
Lack of knowledgeable personnel in the district I am in	25	51.0
Transportation is difficult	24	49.0
Recommendation for the maintenance of the port catheter		
Installing the port in another hidden location	3	3.0
There should be knowledgeable staff in health centers	3	3.0
It would be good to use a skin-compatible plaster.	2	2.0

When the problems related to the use and maintenance of the port catheter were compared according to the education level of the patients, the difference was found to be statistically significant ($p = 0.037$). Primary school graduate patients stated that they experienced more problems during catheter use and care than high school and university graduates. Gender was significant in terms of problems they experienced regarding port catheter use and care. Male patients were found to have more problems than female patients ($p = 0.039$) (Table 4).

Table 4. Comparison of Some Introductory Features of the Patients with Their Problems Related to the Port Catheter

	Have No Problem		Have Problem			
	n	%	n	%	χ^2	p
Gender						
Female	44	93.62	3	6.38	4.273	0.039*
Male	42	79.25	11	20.75		
Educational status						
Primary/Secondary School	56	81.16	13	18.84	4.332	0.037*
High School/University	30	96.77	1	3.23		
Chronic disease other than cancer						
No	53	89.83	6	10.17	1.754	0.185
Have	33	80.49	8	19.51		
Sufficient information about the port catheter process						
Yes	74	84.09	14	15.91	-	0.208
No	12	100.00	0	0.00		

*-Fischer's definitive test was used. *p<0.05*

DISCUSSION

Intensive and long term chemotherapy treatments or nutritional support require long term venous access in cancer patients. Totally implantable venous port catheters can be used until the end of the treatment of patients and for many more years. A previous study determined that the duration of a port in which 15 interventions were performed per month, remained in the body for an average of 11 years (Dahl, Hengstmann, Bode, Hansen, 1986). Korkmaz et al. (2016) stated that the mean port follow-up time was 386.46 ± 268.713 days, and the average port was attached to 553.29 ± 234.051 days (Korkmaz, Göksel, Yetkin, Öcal, 2016). In their study, where they analyzed 3000 patients in 12 years, Yanık et al.(2018) found that the duration of the port catheter stays in the body as 46.7 months. In their study, the average residence time of the port catheter in the body was determined as 213 days (Yanık, Karamustafaoğlu, Karataş, Yörük, 2018). In our study, determined port catheter usage time is compatible with the literature, and the catheter can be used for long periods of time.

Besides cancer treatment, it may be important to pay attention to the treatment of other chronic diseases in terms of compliance with treatment. In our study, 41% of the patients had chronic diseases other than cancer. 48.8% of patients with chronic diseases had hypertension, and 36.6% had diabetes. Hypertensive patients may have a higher risk of cancer than healthy individuals (Aktoz, 2018). It has been reported that attention should be paid to the treatment of diabetes in individuals with cancer since the inability to control diabetes negatively affects the treatment process of cancer patients due to the complications it causes (Ryu, Park, Scherer, 2014; Sciacca et al., 2013).

Some of the patients who participated in the study had problems with port catheter(14%), of these; 64.3% (n=9) were infection, 21.4 (n=3) were catheter exposure, 14.3% (n=2) were catheter exposure. Yu et al. (2018) in a retrospective study of 500 people, reported that 2.8% of the patients had an obstruction, 0.6% had an infection, 0.2% had drug extravasation, and 0.2% had catheter exposure (Yu, Xu, Li, Jiang, 2018). Complications were observed in 288 patients in a comprehensive study by Yanık et al.(2018), in which 3000 patients were analyzed over 12 years. Early complications were observed in 153 (5.1%) patients and late complications in 135 (4.5%) of the patients. These complications were; infection 32% (n = 94), end of treatment 26% (n = 80), pain 22% (n = 64), thrombosis 8% (n = 24), cosmetic problems 7% (20), other 5% (n = 15) (not to aspirate blood, not to give fluid to the catheter etc.) (Yanık et al., 2018). In the study conducted by Kelsaka & Güldoğuş (2005), 3 out of 70 vascular port cases developed complications, two of them had catheter occlusion, and one port catheter was removed due to suspected infection (Kelsaka & Güldoğuş, 2005). In our study, 64.3% of the patients were treated, 14.3% of the port catheter were removed, and 21.4% of the catheter were corrected in the problems related to the port catheter. Catheter-related complications in our study are similar to the previous studies in the literature. In order to prevent port-related problems, applications should be carried out under sterile conditions. The catheter should be placed by experts. The patients/relatives should be trained about the port system, and port care should be done regularly and well (Vescia et al., 2008). In our study, 98% of the patients stated to receive information about the use and care of the port catheter, and those who gave information about the subject were 76.5% nurses, 16.3% doctors, 7.2% doctors/nurses. Uğur et al. (2016) stated that 90.5% of the patients received information about the use of port catheters, and 77.4% of them received information from nurses (Uğur, Kudubeş, Arslan, Küçükkurt, Özürk, 2016). Studies have shown that education given to patients increases their level of knowledge and reduces their concerns (Piredda et al., 2016). For this reason, nurses should take a more effective role in inpatient training for catheter use and care.

In the present study, 74% of the patients stated that they did not know the duration of use of the port catheter. It is thought that the patients have port catheter care according to the frequency of treatment and they do not have enough information on this subject.

If the port catheter is not used for a long time, it should be flushed with 20 mL of saline every 8 weeks and then flushed with 6 mL (draw up total of 6ml as 1ml left in extension set) of heparinized saline (500 international units Heparin in 5ml 0.9% sodium chloride) and locked This is for shared care of pediatric patients where it remains 4 weeks in line with shared care guidelines (CVAD, 2017; Kuloğlu, 2019). In their study, Alur et al.(2012) determined that the

catheter was washed weekly with 10 ml of heparin solution in port catheter care, and the patients whose treatment was completed were recommended the catheter to be washed with heparin and saline every three months (Alur et al., 2012). The results of this study regarding the patients port catheter care frrequency are consistent with the literature. However, patients who are not in the treatment period do not have the catheter care on time. Half of the patients participating in the study stated that they had problems with the maintenance of the port catheter due to the lack of knowledgeable personnel and transportation problems in the district where they were located. Providing information to the patients is not enough for the continuity of care, it is also important to perform follow-up and control. Male patients experienced more problems during the use and care of catheters compared to female patients ($p<0.039$). Some studies have noted that there is no difference between gender and port-related complications development, while some studies have stated that gender is a risk factor in port-related problems (Yu et al., 2018; Hsieh et al., 2009). In our study, primary school graduates had more problems with the use and care of catheters than university graduates ($p<0.037$). Patient training should be carried out by evaluating the level of understanding of the individual.

In our study, in terms of the effect of the port catheter on daily life, 84% of the patients stated that they did not experience any problems and 98% stated that the port catheter was a safe method. In their study, Kaygın et al.(2012) found that the central port catheter use is a safe method in the long treatment process and the delivery of cytotoxic agents and the delivery of palliative treatments in cancer patients (Kaygın, Dağ, Güneş, Şenocak, Erkut, 2012). In our study, it is seen that it is compatible with the literature. 97% of the patients stated that it provided convenience/comfort during the long treatment process.

CONCLUSION AND RECOMMENDATIONS

In our study, it was observed that the infection complications were the most experienced complication related to the port catheter in cancer patients. It was observed that the patients who were not in the treatment period did not go to the health institution during the time required for the care of the port catheter, and they reported that the reason for this was the lack of qualified health personnel to provide care in their district and the transportation difficulty. Those who are less educated than high school and males have more problems than others. In addition to the use of verbal and written training materials regarding port catheter care, it is recommended; to monitor catheter care of patients who are not in the treatment process, to meet the patients' information needs about transportation to institutions that can provide care, and to employ trained personnel in the center and peripheral hospitals.

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