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 provided 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.

AMACA
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. Örnekleme grubunu port kateter yoluyla tedavi gören 96 kanser hastası oluşturmaktaydı. Veriler, araştırmacılar tarafından geliştirilen soru formu ile toplanmış ve tanımlayıcı istatistikler ve Pearson korelasyon 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 kanseriydi. Bu çalışmada, port kateter hastaları uzun süreli intra-venöz tedavi amacıyla takıldı. Port anketine ilişkin doğru cevap oranı ortalaması %54.1’dir (±34.42). Hastaların bilgileri geçmiş özellikleriyle analiz edildiğinde, hastaların port kateterle ilişkin bilgileri sadece kateterin yerleştirilme zamani ile pozitif olarak ilişkilidi.

SONUÇ
Bu çalışma kanserli hastaların port kateter hakkındaki bilgilerinin yetersiz olduğunu gösterdi. Biz port sistemini kullanmanın ilgili protokollerin geliştirilmesini, broşür gibi yazılı materyallerin hastaların gerekşimlerine ve tada günahına göre hazırlanmasını ve hastalarla verilmesini öneriyoruz. Hasta ve sağlık bilgilendirmenin yanı sıra broşür verilmişdir.

Anahtar sözcükler: Kanser hastaları; implante port kateter; bilgi; davranış.
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.\textsuperscript{[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.\textsuperscript{[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.\textsuperscript{[1]} Many studies have been conducted regarding the port catheter. These studies have analyzed catheter-related complications,\textsuperscript{[3,6-10]} catheter care,\textsuperscript{[1,5]} and patients’ perceptions,\textsuperscript{[11]} attitude,\textsuperscript{[12]} and experiences with implantable port catheter.\textsuperscript{[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,\textsuperscript{[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
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.

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 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)
placement of the catheter (item 1), b) covering of
the port with dry dressing after the needle is ac-
cessed (item 10), c) access of the needle under ster-
ile 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 in-
stitution (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 an-
swer 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 ana-
lyzed with respect to background characteristics
(gender, age, education status, disease duration,
the time of catheter placement, and catheter-related
problems), no significant relationship was deter-
mined except for a positive correlation between the
time of catheter placement and knowledge scores
(Table 5).

<table>
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<tr>
<th>Factors</th>
<th>Correlation coefficient</th>
<th>p</th>
</tr>
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<tbody>
<tr>
<td>Gender</td>
<td>r=.021</td>
<td>.84</td>
</tr>
<tr>
<td>Age</td>
<td>r=.033</td>
<td>.75</td>
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<tr>
<td>Education status</td>
<td>r=.183</td>
<td>.07</td>
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<tr>
<td>The time of disease</td>
<td>r=.106</td>
<td>.30</td>
</tr>
<tr>
<td>The time of placing catheter</td>
<td>r=.201*</td>
<td>.04</td>
</tr>
<tr>
<td>To be have a problem regarding the catheter</td>
<td>r=.020</td>
<td>.84</td>
</tr>
</tbody>
</table>

*p<0.05.

**DISCUSSION**

The aim of this study was to evaluate informa-
tion 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 cath-
exther in Turkey. We determined that Turkish cancer
patients have insufficient knowledge and percep-
tions 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 follow-
ing topics, which covered three advantages of the
ports: 1) its use in long-term infusion therapy and
venous access, 2) administration of medicine eas-
ily 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 cath-
eter, its advantages and disadvantages, the surgi-
cal 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. In the current study, patients were
aware only of port catheter insertion into the ante-
rior upper chest wall. We think that patients should
be informed that the port catheter can be inserted
in other areas under special circumstances (for ex-
ample, deep venous thrombosis or tumor involve-
ment 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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.\textsuperscript{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.

\textbf{REFERENCES}


19. Guidelines for prevention of intravascular catheter-related infections (August 9, 2002/51, RR10; 1-26) (Access date: 10.05.2007).