**Original Article**

# Non-Pharmacological Practices That Are Used by Cancer Patients for Controlling Chemotherapy-Related Pain

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**Abstract**

**Objective:** This is a descriptive study that was conducted with the purpose of determining the non-pharmacological practices that are used by cancer patients for controlling the pain that develops in relation to chemotherapy.
**Method:** This study was carried out between May 2015 and December 2015 at a state hospital in Kastamonu, Turkey. It was conducted with 50 patients who were receiving chemotherapy treatment at the state hospital. A personal information form and the McGill Melzack Pain Questionnaire Form were used to collect the data. Descriptive statistics, Mann-Whitney U test and Kruskal-Wallis test were used for the statistical analyses.
**Findings:** It was determined that 54% of the patients felt pain on their torso, 28% had fatiguing pain and 54% stated that they felt pain inside (deep in the body). 64% described their pain as a disturbing sense, while 48% said their pain was intermittent. There was no significant relationship between the pain characteristics of the patients before or after administering chemotherapy drugs and all dimensions of pain, pain index or pain levels ($p>0.05$).
**Conclusion:** It was found that most patients felt a disturbing form of pain, and the practice they used the most frequently was "restricting movement and self-persuasion." There was no significant relationship between the pain characteristics before or after administering chemotherapy drugs and all dimensions of pain, pain index or pain levels.

**Keywords:** Cancer, chemotherapy, pain, non-pharmacological practices.

## Introduction

Many symptoms can occur in individuals with cancer due to the disease and treatment methods. Pain is among those symptoms (Ovayolu& Ovayolu, 2013). Formation of pain symptom can be related with tumoral reasons and structural changes developing with tumor as well as the treatment methods which are used in cancer treatment, inflammation and inactivityKurşun et al.,2015). 77 % of cancer related pain is due to tumor invasion and compression. For example; bone invasion, infiltration of tumor with neural tissue, vascular infiltration, obstruction of hollow or solid organ ductus, infection and inflammation of mucosa membrane and other pain sensitive structures. Surgical, chemotherapy and radiotherapy treatments for cancer therapy can also cause pain in the ratio of 19 % . Acute pain due to chemotherapy can be related with GIS damage, mucositis, myalgia, joint aches, cardiomyopathy, pancreatitis, extravasation and chronical pain can be related with peripheral neuropathy, steroid pseudorheumatism, aseptic bone necrosis (Kutluturkan, 2011; Arslan et al., 2013). The most common disorder with acute pain related with antineoplastic treatment is oral mucositis. Related with chemotherapy mucositis can affect whole mucosa through gastrointestinal canal. In addition to this, typically and clinically pain generally occur after the first week of chemotherapy as a result of clinically developed oral mucositis (stomatitis). Standard doses of many common chemotherapeutic agents can cause mucosa infection (stomatitis) additionally (Portenoy & Dhingra 2017). Frequency and severity of oral mucositis is both drug and dose

related. The most common three cytotoxic agents related with oral mucositis are doxorubicin, fluorouracil (FU) and methotrexate (Portenoy & Dhingra 2017;Paice et al.,2016). Many chemotherapeutic agents are neurotoxic. In patients treated with chemotherapy, acute neuropathic pain can occur as a polyneuropathy or less commonly a mononeuropathy. Chemotherapy related polyneuropathy is first described for patients who are treated with vinca alkaloid vincristine. Cisplatin, paclitaxel, oxaliplatine, thalidomide and bortezombid are among the other agents having high polyneuropathy incidence. All of these medications can produce acute paresthesia and dysesthesia. Chemotherapy induced neuropathic pain, slowly recovers after ceasing the treatment or decreasing the dose; Sometimes neuropathic pain becomes chronic. In general, acute chemotherapy related mononeuropathy can be best described with vincristine. The most frequent symptom is orofacial pain (especially jaw ache) among many affected area with division of trigeminal and glossopharingeal nerves. Other nerves can also be effected including recurrent laryngeal, optical and auditory nerves (Paice et al., 2016;Lee, 2018).

Cancer pain that is experienced by cancer patients, provides the patients and their care supporters to apply different procedures for releasing the pain (Evans & Rosner, 2005). Recently, significant improvements on non pharmacological procedures about cancer related pain make progress besides the pharmacological procedures ( Genc et al., 2018). It is considered that the common traits of those procedures are; affecting pain distribution by controlling brain barrier or releasing natural opioids of the body like endorphin (Menefee & Monti, 2005). Pain management requires a multidisciplinary approach. Nurse is the most important part of this team due to spending long time together with the patient, consulting the patient and evaluating effects of the approaches directly. Non pharmacological methods are frequently preferred by individuals for management of pain but can not be shared with health care personnel easily. Actually while evaluating those methods, knowledge of the preferred methods will prepare an infrastructure for experimental studies. This study is planned for determining non pharmacological procedures that individuals with cancer are using for releasing chemotherapy related pain and for providing a direction to experimental studies.

## Method

### Research Type

The research has complementary type.

### Population and Sample of the Research

Population of this research consist of cancer patients applying to chemotherapy department of a public hospital in a city of Black sea region during May- December 2015. Patients who are suffering from pain, bigger than 18 years old, volunteer for attending this research, psychologically non problematic, not having any hearing handicap, open for communication are included in this research. Totally 64 patient accepted attending to this research, 14 of them gave up from including the research. Additional sample selection is not performed and entire population having above mentioned criteria constitutes the sample (50 person).

### Ethical Side of the Research

For carrying out the research Ethical Commission approval (Declaration no:2015-01) and written consent is received from the hospital administration where the research is conducted. The patients are verbally explained about the aim of this study and not using the data except for scientific purposes and written informed consent is received.

### Data Collection

Personal data form is prepared by researchers with the help of literature(Evans & Rosner, 2005; Menefee& Monti, 2005;Aydogan & Uygun, 2012;AfSar & Pınar, 2003;Bayındır & Curuk, 2015; Ozveren et al.,2016). Personal data form consist of 18 questions in total; the first part includes the questions asking sociodemographic specifications of the patients like age, gender, marital status, educational status, occupation, monthly income level, working status; the second part includes questions asking about patients' diagnosis, date of the first diagnosis, the stage of cancer, metastasis status, received medication treatments and other diseases. Mc Gill Melzack Pain Questioning Form is carried out for the patients reporting their pain after receiving chemotherapy in personal data form. Mc Gill Melzack Pain Questioning Form (MPQF) includes four parts. In the first part, the person is requested for marking the location of

the pain on the body diagram and write 'D' if the pain is coming from deep, write 'Y' if the pain is located on the surface of the body, write 'D-Y' if its' both from deep and from the surface. In the second part, there are 20 word groups investigating the pain in terms of sensory, perceptual and evaluational. Every group consist of two-six words defining the pain from different aspects. The individual is requested to chose the word group that is matching with his/her pain and to mark the word that is matching with his/her pain inside the word group. The third part includes the relationship between the pain and time. Contains word groups for determining durability, frequency of the pain, and the factors which increases or decreases the pain. In the fourth part, five word groups are defined varying between 'slight' pain and 'unbearable' pain for determining the severity of the pain. With McGill Melzack Pain Questioning Form, the location of the pain, the sense that the person feels, the relationship with time, severity and livable pain level for the individual is detected (Aslan, 2002).

**Performing the data collection form**

By using face to face interview method with the patients, the questions in the personal data form are asked after entering the chemotherapy polyclinic, and before having chemotherapy while waiting in the line for chemotherapy procedure. The questioned group is the group declaring that they had pain due to chemotherapy before. The form is filled by researchers according to the patients' answers. Disease and treatment related data are obtained from the patients medical reports. Mc Gill Melzack Pain Questioning Form is filled by researchers by asking the specification and location of the pain to the patient.

**Evaluation of Data**

Statistical analysis of the research data is conducted by using rIBM SPSS for Windows Version 21.0 (SPSS Inc. Chicago, IL, USA) packet program. Controlled with Shapiro Wilks test when normality test of numerical variables are n<50 and KolgomovSmirnov test when n>50. During Independent comparison of two groups, Independent Samples t test is used when numeric variables demonstrate normal distribution, and Mann Whitney U test is used when numeric variables don't demonstrate normal distribution. When more than two independent groups are compared. Kruskall Wallis test is used for situation/situations when numerical variables are not demonstrating normal distribution. In non parametrical tests the differences between groups are compared with Mann Whitney U test bilaterally and evaluated with Bonferroni inequality Wilcoxon test is used for comparing dependent two groups in situations when (n<30). For comparing dependent categorical variables McNemar-*Bowker Test was* used. For comparing discrepancy between categorical variables, Pearson Chi-Square,*Fisher Freeman Halton Test* is used. SpearmanRho Correlation Coefficient is used for evaluating the relationship between numerical variables when situation/situations that it is not demonstrating normal distribution. Statistical analysis are conducted by R 3.3.2v (open source) program and significance level is considered as 0.05 (p-value) in statistical analysis.

**Findings**

A 64 % of the patients including in this study are male, 36 % are female, 78 % are married, % 22 are single. 78 % of the patients have equal income and outcome or their income is more than their outcome, % 22 have less income than their outcome. 46 %of the patients have colon, 24 % lung, 14 % over, 12 % breast, 4% stomach cancer, 90% of the patients are in the 3. Stage, 10% are in the 4. Stage and 95.92 % have metastasis. 22 % of the patients have hypertension (HT), 8 % have diabetes (DM) chronical diseases, the most commonly used medication type is antimetabolites for diseases of the patients (58%). Alkylatings, monoclonal antibodies, topoisomerase inhibitor and microtubule inhibitors are following it (subsequently 54%, 48%, 20%, 2%) (Table-1).

According to the evaluation of Table 2 which is demonstrating the patients distribution according to specification of pain in Mc Gill Pain Scale; it is determined that 54% of the patients feel the pain on their body, 28% have exhausting type of pain and 54 % feel the pain inside (deep). 64 % of the patient feel annoying type of pain. When the relation between time and pain is evaluated, 48% of the patient indicate their pain as intermittent, 20 % indicate it sudden, 12 % indicate their pain rhythmic and temporary (Table-2).

| Table 1. Socio-Demographic Variables of the Patients and Disease Specifications | | |
|---|---|---|
| **Specification** | | **Number (%)** |
| **Gender** | Male | 32(64) |
| | Female | 18(36) |
| **Marital status** | Single | 11(22) |
| | Married | 39(78) |
| **Educational status** | Illiterate | 9(18) |
| | Literate | 5(10) |
| | Primary School | 13(26) |
| | Secondary School | 10(20) |
| | High School | 8(16) |
| | College | 5(10) |
| **Economical status** | Less income then outcome | 11(22) |
| | Income outcome equal | 18(36) |
| | More income than outcome | 21(42) |
| **Diagnosis** | Lung CA | 12(24) |
| | Colon CA | 23(46) |
| | Breast CA | 6(12) |
| | Stomach CA | 2(4) |
| | Over CA | 7(14) |
| **Stage of cancer** | 3. Stage | 45(90) |
| | 4. Stage | 5(10) |
| **Metastasis status** | Have | 47(95,92) |
| | Don't have | 2(4,08) |
| **Other Diseases** | None | 35(70) |
| | DM | 4(8) |
| | HT | 11(22) |
| **Received medications** | | |
| Alkylating | Yes | 27(54) |
| Alkoloid | Yes | 1(2) |
| Antimetabolite | Yes | 29(58) |
| Microtubule inhibitor | Yes | 10(20) |
| Monoclonal antibody | Yes | 24(48) |
| Topoisomerase Inhibitor | Yes | 10(20) |

**Table2. Distribution of the patients according to pain specification in McGill Pain Scale (n=50)**

| Specification | Number **(%)** |
|---|---|
| **Location of Pain** | |
| Head and neck area | 16 (32) |
| Body area | 27 (54) |
| Upper extremity region | 5 (10) |
| Lower extremity region | 2(4) |
| **Depth of Pain** | |
| Inner (Deep) pain | 27(54) |
| Outer(Superficial) pain | 23(46) |
| **Severity of Pain** | |
| Slight (1 point) | 3(6) |
| Disturbing (2 points) | 13(26) |
| Annoying (3 points) | 32(64) |
| Terrible (4 points) | 1(2) |
| Torture(5 points) | 1(2) |
| **Specification of Pain** | |
| Prickle | 3(6) |
| Contraction type | 2(4) |
| Warm like it is burning | 2(4) |
| Aching | 10(20) |
| Exhausting | 14(28) |
| Unbearable | 7(14) |
| Annoying | 8(16) |
| Expansive | 4(8) |
| Disturbing | 2(4) |
| **The relation ship between pain and time** | |
| Continuous | 3 (6) |
| Stabile | 1(2) |
| Rhythmic | 6(12) |
| Intermittent | 24(48) |
| Sudden | 10(20) |
| Temporary | 6(12) |

**Table 3. Distribution of avarage scores from patients' McGill Pain Scale**

| | Mean | SD | Median | Min | Max |
|---|---|---|---|---|---|
| **Sensory** | 8.1 | 7 | 6 | 1 | 29 |
| **Sentimental (Affective)** | 2,6 | 3.4 | 1 | 0 | 11 |
| **Evaluation** | 1.9 | 1.6 | 2 | 0 | 5 |
| **Various** | 3.8 | 3.8 | 3 | 1 | 14 |
| **PRI*** | 16.5 | 13.2 | 13 | 1 | 57 |
| **PPI**** | 2.6 | 1.2 | 3 | 1 | 5 |
| **PRI+PPI** | 19.2 | 14 | 15 | 2 | 61 |
| **NWC***** | 10.9 | 9 | 9 | 1 | 40 |
| **Total point(PRI+PPI+NWC)** | 30.2 | 22.9 | 24 | 3 | 101 |
| **Time-1** | 2.2 | 0.9 | 3 | 1 | 3 |
| **Time-2** | 2.8 | 0.4 | 3 | 1 | 3 |
| **Time-3** | 1.9 | 0.2 | 2 | 1 | 3 |
| **Location of the pain** | 3.2 | 1.0 | 4 | 1 | 5 |
| **Depth/ Superficiality of the pain** | 1.3 | 0.4 | 1 | 1 | 2 |

*Pain index

**Severity of pain

***Number of selected definers

## Table 4. Average Scores of the Patients from McGill Pain Scale and Applying Status of Non Pharmacological Procedures

| | | | Sentimental | | *Test İst.* | *p* | Sensory | | *Test İst.* | *p* | Evaluation | | *Test İst.* | *p* | Various | | *Test İst.* | *p* | PRI (Pain Index) | | *Test İst.* | *p* | PPI (Type of Pain) | | *Test İst.* | *p* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Before the procedure** | Praying | Evet | 2.29±1.35 | 2(1-3) | -0.346 | 0.729 | 3.1±0.77 | 3(3-4) | -0.778 | 0.436 | 3.62±1.28 | 4(2-5) | -1.904 | 0.057 | 3.05±1.2 | 3(2-4) | -0.577 | 0.564 | 8.05±3.72 | 8(5-9) | -0.596 | 0.551 | 2.81±0,98 | 3(2-3) | -0,240 | 0,810 |
| | | Hayır | 2.24±1.57 | 1(1-3) | | | 2.79±1.08 | 3(2-4) | | | 2.83±1.44 | 2(2-4) | | | 3.28±1.25 | 3(2-4) | | | 7.62±3.47 | 8(5-9) | | | 2.83±0.89 | 3(2-3) | | |
| | Limiting movements | Evet | 2.14±1.52 | 1(1-3) | -0.678 | 0.498 | 3±1.02 | 3(3-4) | -0.721 | 0.471 | 3.45±1.34 | 4(2-4) | -1.181 | 0.238 | 3.14±1.25 | 3(2-4) | -0.171 | 0.864 | 6.68±3.24 | 6(5-8) | -2.251 | **0.024** | 2.64±0.85 | 3(2-3) | -1.071 | 0.284 |
| | | Hayır | 2.36±1.45 | 2(1-3) | | | 2.86±0.93 | 3(3-3) | | | 2.93±1.46 | 2(2-4) | | | 3.21±1.23 | 3(2-4) | | | 8.68±3.58 | 8.5(6-9.5) | | | 2.96±0.96 | 3(2-3.5) | | |
| | Distracting attention | Evet | 2.71±1.38 | 3(1-3) | -1.603 | 0.109 | 3.21±0.7 | 3(3-4) | -1.113 | 0.266 | 3.79±1.12 | 4(3-5) | -1.891 | 0.059 | 3±1.18 | 3(2-4) | -0.623 | 0.533 | 9±3.9 | 8.5(6-10) | -1.484 | 0.138 | 3.14±0.95 | 3(2-4) | -1.425 | 0.154 |
| | | Hayır | 2.08±1.48 | 1(1-3) | | | 2.81±1.04 | 3(2.5-3.5) | | | 2.92±1.46 | 2(2-4) | | | 3.25±1.25 | 3(2-4) | | | 7.33±3.34 | 7.5(5-9) | | | 2.69±0.89 | 3(2-3) | | |
| | Musical therapy | Evet | 1.25±0.5 | 1(1-1.5) | -1.413 | 0.158 | 2.5±1 | 3(2-3) | -1.008 | 0.313 | 2±0 | 2(2-2) | -1.564 | 0.118 | 2.5±1 | 2(2-3) | -1.234 | 0.217 | 7.25±2.22 | 7(5.5-9) | -0.036 | 0.971 | 2.75±0.5 | 3(2.5-3) | -0.095 | 0.924 |
| | | Hayır | 2.35±1.49 | 2(1-3) | | | 2.96±0.97 | 3(3-4) | | | 3.26±1.44 | 4(2-4) | | | 3.24±1.23 | 3(2-4) | | | 7.85±3.65 | 8(5-9) | | | 2.83±0.95 | 3(2-3) | | |
| | Autosuggestion | Evet | 2.32±1.43 | 2.5(1-3) | -0.344 | 0.731 | 2.91±0.92 | 3(2-4) | -0.297 | 0.767 | 3.59±1.3 | 4(2-5) | -1.842 | 0.065 | 2.91±1.19 | 3(2-4) | -1.359 | 0.174 | 8.55±3.47 | 8(7-9) | -1.224 | 0.221 | 3.09±0.87 | 3(2-4) | -1.809 | 0.071 |
| | | Hayır | 2.21±1.52 | 1.5(1-3.5) | | | 2.93±1.02 | 3(3-4) | | | 2.82±1.44 | 2(2-4) | | | 3.39±1.23 | 4(2-4) | | | 7.21±3.55 | 6(5-9) | | | 2.61±0.92 | 3(2-3) | | |
| | Hot and cold application | Evet | 3.33±2.08 | 4(1-5) | -1.090 | 0.276 | 1±0 | 1(1-1) | -2.858 | **0.004** | 1±0 | 1(1-1) | -2.808 | **0.005** | 4±1.73 | 5(2-5) | -1.115 | 0.265 | 10±2.65 | 9(8-13) | -1.382 | 0.167 | 3.67±1.15 | 3(3-5) | -1.390 | 0.164 |
| | | Hayır | 2.19±1.42 | 2(1-3) | | | 3.04±0.86 | 3(3-4) | | | 3.3±1.35 | 4(2-4) | | | 3.13±1.19 | 3(2-4) | | | 7.66±3.57 | 8(5-9) | | | 2.77±0.89 | 3(2-3) | | |
| | Massage for compression points on hands and feet (reflexology) | Evet | 2.2±1.79 | 1(1-3) | -0.259 | 0.796 | 3.2±0.45 | 3(3-3) | -0.421 | 0.674 | 2.4±1.52 | 2(2-2) | -1.145 | 0.252 | 3.6±1.52 | 4(2-5) | -0.733 | 0.464 | 8.4±4.93 | 9(4-9) | -0.196 | 0.845 | 2.6±1.14 | 3(2-3) | -0.378 | 0.705 |
| | | Hayır | 2.27±1.45 | 2(1-3) | | | 2.89±1.01 | 3(3-4) | | | 3.24±1.4 | 4(2-4) | | | 3.13±1.2 | 3(2-4) | | | 7.73±3.43 | 8(5-9) | | | 2.84±0.9 | 3(2-3) | | |
| | Relaxation of muscles | Evet | 5± | 5(5-5) | -1.591 | 0.112 | 4± | 4(4-4) | -1.353 | 0.176 | 4± | 4(4-4) | -0.469 | 0.639 | 5± | 5(5-5) | -1.463 | 0.143 | 7± | 7(7-7) | -0.280 | 0.779 | 2± | 2(2-2) | -1.069 | 0.285 |
| | | Hayır | 2.2±1.43 | 2(1-3) | | | 2.9±0.96 | 3(3-4) | | | 3.14±1.43 | 4(2-4) | | | 3.14±1.21 | 3(2-4) | | | 7.82±3.58 | 8(5-9) | | | 2.84±0.92 | 3(2-3) | | |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **After the procedure** | Praying | Evet | 1.76±1.09 | 1(1-2) | -0.597 | 0.551 | 2.24±0.83 | 2(2-3) | -0.890 | 0.373 | 1.95±0.86 | 2(1-2) | -0.460 | 0.646 | 2.48±1.03 | 2(2-3) | -0.409 | 0.682 | 7.71±3.93 | 8(5-9) | -1.046 | 0.296 | 2.19±0.98 | 2(2-3) | -0.668 | 0.504 |
| | | Hayır | 1.69±1.2 | 1(1-2) | | | 2.03±0.94 | 2(1-3) | | | 1.9±1.01 | 2(1-2) | | | 2.34±1.11 | 2(1-3) | | | 6.69±2.97 | 6(4-8) | | | 2.31±0.85 | 2(2-3) | | |
| | Limitation of movements | Evet | 1.68±1.13 | 1(1-2) | -0.103 | 0.918 | 2.18±0.96 | 2(1-3) | -0.350 | 0.726 | 2.09±1.02 | 2(1-3) | -1.059 | 0.289 | 2.55±1.06 | 3(2-3) | -0.987 | 0.324 | 6.14±3.11 | 5(4-8) | -1.782 | 0.075 | 2±0.76 | 2(1-3) | -1.682 | 0.092 |
| | | Hayır | 1.75±1.17 | 1(1-2.5) | | | 2.07±0.86 | 2(1-3) | | | 1.79±0.88 | 2(1-2) | | | 2.29±1.08 | 2(1.5-3) | | | 7.89±3.48 | 8(5-9) | | | 2.46±0.96 | 2(2-3) | | |
| | Distracting attention | Evet | 1.93±1.21 | 1.5(1-3) | -1.098 | 0.272 | 2.14±0.86 | 2(2-3) | -0.091 | 0.927 | 2±0.88 | 2(1-2) | -0.574 | 0.566 | 2.36±1.15 | 2(2-3) | -0.349 | 0.727 | 8.64±4.11 | 8(5-10) | -1.697 | 0.090 | 2.21±1.05 | 2(2-3) | -0.574 | 0.566 |
| | | Hayır | 1.64±1.13 | 1(1-2) | | | 2.11±0.92 | 2(1-3) | | | 1.89±0.98 | 2(1-2.5) | | | 2.42±1.05 | 2(2-3) | | | 6.53±2.94 | 5.5(4-8.5) | | | 2.28±0.85 | 2(2-3) | | |
| | Musical therapy | Evet | 1±0 | 1(1-1) | -1.503 | 0.133 | 2.75±0.5 | 3(2.5-3) | -1.638 | 0.101 | 2±0.82 | 2(1.5-2.5) | -0.380 | 0.704 | 2.25±0.96 | 2.5(1.5-3) | -0.149 | 0.882 | 6.75±2.75 | 6.5(4.5-9) | -0.054 | 0.957 | 2.25±0.96 | 2.5(1.5-3) | -0.133 | 0.894 |
| | | Hayır | 1.78±1.17 | 1(1-2) | | | 2.07±0.9 | 2(1-3) | | | 1.91±0.96 | 2(1-2) | | | 2.41±1.09 | 2(2-3) | | | 7.15±3.48 | 7(5-9) | | | 2.26±0.91 | 2(2-3) | | |
| | Autosuggestion | Evet | 1.86±1.08 | 1.5(1-3) | -1.426 | 0.154 | 2.09±1.02 | 2(1-3) | -0.494 | 0.621 | 2±0.93 | 2(1-2) | -0.665 | 0.506 | 2.36±1.09 | 2(2-3) | -0.275 | 0.784 | 7.86±3.6 | 8(5-9) | -1.148 | 0.251 | 2.18±0.91 | 2(2-3) | -0.820 | 0.412 |
| | | Hayır | 1.61±1.2 | 1(1-1.5) | | | 2.14±0.8 | 2(1.5-3) | | | 1.86±0.97 | 2(1-2.5) | | | 2.43±1.07 | 2(2-3) | | | 6.54±3.18 | 5.5(4-9) | | | 2.32±0.9 | 2(2-3) | | |
| | Hot and cold application | Evet | 2±1.73 | 1(1-4) | -0.167 | 0.867 | 1±0 | 1(1-1) | -2.323 | **0.020** | 1±0 | 1(1-1) | -1.954 | 0.051 | 2±1 | 2(1-3) | -0.617 | 0.537 | 8±1 | 8(7-9) | -0.807 | 0.420 | 3.33±0.58 | 3(3-4) | -2.214 | **0.027** |
| | | Hayır | 1.7±1.12 | 1(1-2) | | | 2.19±0.88 | 2(2-3) | | | 1.98±0.94 | 2(1-3) | | | 2.43±1.08 | 2(2-3) | | | 7.06±3.5 | 6(4-9) | | | 2.19±0.88 | 2(2-3) | | |
| | Massage for compression points on hands and feet (reflexology) | Evet | 1.6±1.34 | 1(1-1) | -0.548 | 0.584 | 1.8±0.84 | 2(1-2) | -0.817 | 0.414 | 1.8±1.1 | 1(1-3) | -0.378 | 0.705 | 2±1.22 | 2(1-2) | -0.993 | 0.321 | 6.6±3.71 | 4(4-9) | -0.623 | 0.534 | 2.4±1.14 | 2(2-3) | -0.275 | 0.783 |
| | | Hayır | 1.73±1.14 | 1(1-2) | | | 2.16±0.9 | 2(1-3) | | | 1.93±0.94 | 2(1-2) | | | 2.44±1.06 | 2(2-3) | | | 7.18±3.41 | 7(5-9) | | | 2.24±0.88 | 2(2-3) | | |
| | Relaxation of muscles | Evet | 2± | 2(2-2) | -0.850 | 0.396 | 4± | 4(4-4) | -1.715 | 0.086 | 3± | 3(3-3) | -1.252 | 0.211 | 2± | 2(2-2) | -0.397 | 0.691 | 4± | 4(4-4) | -1.264 | 0.206 | 2± | 2(2-2) | -0.331 | 0.740 |
| | | Hayır | 1.71±1.15 | 1(1-2) | | | 2.08±0.86 | 2(1-3) | | | 1.9±0.94 | 2(1-2) | | | 2.41±1.08 | 2(2-3) | | | 7.18±3.41 | 7(5-9) | | | 2.27±0.91 | 2(2-3) | | |

*Mann-Whitney U test is used . Descriptive statistics are given as Avr±SS and median(Q1-Q3).*

Table-3 demonstrates McGill Pain Scale sub group of patients having chemotherapy (Pain Index, Pain Severity, Number of Selected Definers) and their average total scores, minimum-maximum and standard deviation values. McGill Pain Scale average total score is 30,2± 22,9 (3-101).

There is a significant difference between patients applying hot and cold from non pharmacological procedures and patients who are not applying them in terms of average score of ' sensory', 'evaluation and PPI (Severity of Pain) (p=0.004, p=0.005 and p=0.027). Average sensory and evaluation score of patients who are not applying 'hot and cold procedure' is higher than the patients who are applying this procedure. According to ''PPI (Severity of pain)'' average scores, patients who are applying hot and cold procedure have higher average scores than the patients who are not applying them (Table-4).

There is a significant difference between the patients applying and not applying'' movement limitationfrom non pharmacological procedures, in terms of average scores of '' pain index'' (PRI) (p=0.024). The patients who are not applying movement limitation have higher pain index average scores than the patients applying it (Table-4).

There isn't any significant difference in terms of pain specifications and dimensions of pain, pain index and pain levels between before and after having the chemotherapy medications according to the patients statements (p>0.05) (Table-4).

**Discussion**

Cancer related pain is a multi dimensional and complicated experience which gives suffering and decreases the quality of life (Dedeli & Karadeniz, 2009). Cancer treatment related pain as a symptom, negatively effects individuals from physical and psycho social aspects. In our study, from the distribution of pain according to specifications of pain in the McGill Pain Scale, it is detected that patients commonly feel the pain from their bodies, exhausting type, inner side (deep), annoying type. When the relationship between pain and time is evaluated; patients generally stated that they have intermittent pain. Breivik and al. (2009) determined in their study that 44 % of the patients stated their pain as severe, 49 % stated moderate. 3 % of the patients stated their pain as ' the worst pain that they can ever imagine'. The most preferred non pharmacological procedure is detected as 'movement limitation and autosuggestion'. Ozveren et al.(2016) reported in their study that nurses are commonly applying, attention distraction, hot- cold application and relaxation exercises. In a study of Taylor with colorectal cancer patients, high spiritual wellness is found to be significantly effective for treatment of physical symptoms, it is also stated that having experiences together with cancer, increases individual awareness as a part of theirselves (Taylor,2003). In their research found that 54.4 % of the patients have severe pain, 82.9 % use analgesics, and 87 % of them pray as a non pharmacological method (Genc et al., 2018). Nowadays, despite sufficient pain management can be provided with pharmacological and non pharmacological procedures, patients still can have problems with uncontrolled pain. Cancer related pain is a multi dimensional symptom which can not be managed frequently. Obstructions in cancer management has many dimensions including, patients, health care providers and system. Multi dimensional interdisciplinary approach will be the best way to overcome the obstacles in management of cancer related pain.

A significant difference can not found between the pain specifications that the patients stated before and after the chemotherapy medication method and whole dimensions of pain, pain index and pain levels. In a study of (Bayındır & Curuk, 2015), who are evaluating nursing thesis about complementary and alternative medicine procedures about pain in Turkey, it is detected that complementary and alternative treatmentmethods which are used in 39 thesis, are effective for reducing the pain. It is detected that the commonly used complementary and alternative treatment method in the evaluated thesis is cold application (9 thesis) method, the other methods which are used in the thesis include relaxation exercises (7 thesis), music (6 thesis), hot application (5 thesis), tactile (5 thesis), massage (4 thesis), acupuncture (3 thesis) and TENS (2 thesis) and those methods are effective for pain (Bayındır & Curuk, 2015). It is considered in our study that the reason of not founding a significant difference between the pain values before applying a non pharmacological method and the pain values after applying a non pharmacological method is having less sample number.

Average sensory and evaluation scores of the patients who are not using hot and cold application from non pharmacological procedures is higher than the ones who are applying this procedure. In terms of average scores of "PPI (Severity of pain)" , patients who are applying hot and cold procedure have higher average scores than patients who are not applying it.

According to Mc-Gill pain scale, sensory dimension indicates perceiving of pain, evaluational dimension indicates the deterioration of the patients' duty (function) and social role (function and social roles) inside the society and PPI indicates the severity of pain. In our study, it is found that patients who are not using hot and cold application have higher pain perception than the patients who are using it, also have more effects on their social roles; pain severity for the patients who are using hot and cold application is higher than the patients who are not using it.

Average pain index score of patients who are not performing movement limitations is higher than the patients who are performing this procedure. According to this result, it is found that pain perception, effecting from pain and pain related social role affection of the patients who are not performing movement limitation is more.

Richardson et al.(2007), Carlson et al.(2008), Elkins et al.(2008) stated in their study that hypnosis is effective for pain management, In their meta analysis study, Paley et al.(2011) in their study Dean-Clower et al.(2010), Mehling et al.(2007) found that acupuncture is effective for pain management; Carlson et al.(2008) stated in their study that meditation method is effective for reducing pain and stress; Billhult et al.(2007), Wilkinson et al.(2008), Myers et al.(2008), Pruthi et al.(2009), Listing et al.(2009), Ernst(2009), Lim et al.(2011), Falkensteiner et al.(2011) in their study stated that massage is effective for reducing the pain; In their study, Li et al.(2011), Bradt et al.(2011), Lin et al.(2011) found that musical therapy is effective for reducing the pain; Stephenson et al.(2007), Kim et al.(2010), Sharp et al.(2010) in their study found that reflexology method is effective for reducing the pain.

Non pharmacological procedures are gradually increasing all over the world. The results of our study is parallel with the literature knowledge.

**Conclusion and Recommendations**

Evaluating the pain symptom that patients who are included in this research had during the treatment period, it is detected that majority of them have annoying type of pain and the commonly used procedure is 'limitation of movements and autosuggestion'. A significant difference can not be found between the pain specifications before and after chemotherapy medication method and whole dimensions of pain, pain index and pain level. For reducing the negative effects of the treatment related pain symptom on the quality of life for the patients, nurse should;

• Plan experimental studies for non pharmacological procedures which patient can use for their pain

• Plan, perform and evaluate the results of nursing interventions appropriate for individuals for management of symptoms, educate the patient and his/her family.

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