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Case Report-A learning from clinical experiential history

세포교정영양요법(OCNT)을 이용한 유방암 환자 사례 연구

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A Case Study on the Breast Cancer Patients Using Ortho-Cellular Nutrition Therapy (OCNT)

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ABSTRACT

Objective: Case report of improvement in muscle pain, insomnia, and depression in a breast cancer patient using Ortho-Cellular Nutrition Therapy.

Methods: A Korean woman in her 50s was diagnosed with breast cancer. After being diagnosed with stage 1 breast cancer, her quality of life has greatly deteriorated due to the side effects of the drugs administered.

Results: Symptoms of insomnia and muscle pain improved after nutritional therapy.

Conclusion: Applying nutritional therapy to patients with the aforementioned condition can help alleviate symptoms.

Keywords Ortho-Cellular Nutrition Therapy (OCNT), breast cancer, improved adverse drug reaction, muscle pain, insomnia, depression

Introduction

Hormone-positive breast cancer patients, who account for 70 percent of all breast cancer patients, are prescribed hormone suppressants for 5 to 10 years. According to 2003 dissertation data, 83% of patients prescribed tamoxifen in the first year took their prescribed medication, but after four years, only 50% took their medication. It means that patients receive a prescription, but discard it without taking it. In other words, the rate of random discontinuation worldwide is about 30-40%. The efficacy of tamoxifen in preventing recurrence and metastasis has been verified in several clinical studies.

Common clinical study includes the NSABP-14 study with the participation of 2644 breast cancer patients. The results show that administration of tamoxifen reduces

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the recurrence rate and mortality in early breast cancer patients without lymph node metastasis.[1] The 15-year recurrence rate without tamoxifen is 46.3%, but with tamoxifen, it is 33.7%. Tamoxifen's shows pharmacologic activity dependent on conversion by CYP2D6 to its active metabolite, endoxifen. When tamoxifen is administered, it intentionally competes with estrogen to bind to the ER (Estrogen Receptor) and replaces estrogen. Tamoxifen may also bind to calmodulin, a calcium-modulated protein that affects DNA synthesis and thus inhibits cell proliferation.[2]

With this pharmacologic mechanism, tamoxifen acts as a competitive substrate inhibitor of estrogen and may cause estrogen deficiency as a side effect. These side effects are very similar to menopausal symptoms in women.[3,4]

The most common symptoms are irregular menstrual patterns, hot flashes on the face and upper body, heart palpitations, dry vulva, painful urination, and osteoporosis, which can lead to arthritis and joint pain.[4]

Because of these side effects, 83% of patients prescribed tamoxifen in the first year took their prescribed medication, but after four years, only 50% took their medication. Globally, tamoxifen has a patient-led drug discontinuation rate of about 30-40%, meaning that people receive a prescription for the drug but discard it without taking it.[5]

If tamoxifen is helpful in suppressing the recurrence of breast cancer, it reduces side effects and helps with the continued administration of the drug. It aims to find out what nutrients need to be consumed to help suppress the recurrence of breast cancer and improve one's psychological and physical health in the event of discontinued administration.

The patient of this case was diagnosed with hormone-positive breast cancer stage 1 (Nov. 2016) and underwent total mastectomy hysteron-oophorectomy after being diagnosed with *BRCA 2* (*Breast Cancer Susceptibility Gene 2*) gene mutation the following year. Since then, the patient steadily took tamoxifen from 2017 to 2019 and suffered from muscle pain, insomnia, and depression as a side effect.

Cases

1. Target

It targeted one patient with breast cancer.

1) Name: Jang, O O (F/54 years old)
2) Diagnosis: Breast cancer
3) Date of Onset: 2019
4) Treatment Period: Dec. 2019 - current (ongoing)
5) Chief Complaint: Muscle pain (shoulder, neck), insomnia, depression
6) Past History: Breast cancer
7) Social History: None
8) Family History: Blood cancer
9) Current Medical History: None

2. Method

OCNT was applied as follows for the purpose of symptom relief.

Cyaplex F (101, twice a day, one sachet per dose)
Eufaplex (101, twice a day, one sachet per dose)
Chloplex (101, twice a day, one sachet per dose)
Tmplex (101, once a day, one sachet per dose)
Vplex (101, twice a day, one sachet per dose)

The following was administered to maintain the current condition after the improvement of symptoms.

Cyaplex F (100, once a day, one sachet per dose)
Cyaplex X (001, once a day, one sachet per dose)
Eufaplex (101, twice a day, one sachet per dose)
Chloplex (100, once a day, one tablet per dose)
Tmplex capsule (200, once a day, two sachets per dose)
Bioplex (200, once a day, two sachets per dose)

Result

The patient in this case was experiencing severe muscle pain near the shoulder and neck, and the quality of life deteriorated due to insomnia and depression. When 2nd line OCNT was performed after the 1st line OCNT, the symptoms of muscle pain and depression were reduced significantly compared to before, and only symptoms of insomnia remained in the 3rd line OCNT, and muscle pain, insomnia, and depression all improved in the 4th line OCNT (**Table 1**).

Table 1. The indicator for the chief complaint was filled out by the patient herself. The level of intensity worsens from 1 to it reaches 10.

Symptoms	1st 2019. 12	2nd 2020. 04	3rd 2020. 08	4th 2020. 12	Remarks
Muscle pain (shoulder, neck)	9	3	1	1	
Insomnia	8	6	3	1	
Depression	8	2	1	0	

Consideration

The exact cause of muscle pain is not yet known, but it is considered to be caused by an abnormal perception of pain. The metabolism of serotonin is reduced in the central nervous system of a person suffering from fibromyalgia, and there may be abnormalities such as reduction of growth hormones and adrenal cortical hormones, and dysfunction of the autonomic nervous system. *In vitro*, experiments have revealed that quercetin contained in Cyaplex F serves as an inhibitor of CYP3A4, CYP2C19, and CYP2D6, which are types of cytochrome P450 enzymes.[2] In particular, CYP2D6 is an antidepressant and is known to be involved in the metabolism of amiditriptyline, which is used for drug treatment such as myalgia.[6] In addition, this enzyme metabolizes various endogenous substances such as 5-hydroxytryptamine (serotonin) and neurosteroids, and CYP2D6 is involved in the synthesis of m-tyramine and p-tyramine into dopamine in the brain and liver.[7,8] Therefore, the ingestion of quercetin can help to reduce muscle pain and depression by improving the functions of the central nervous system and the autonomic nervous system. Alpha-linolenic acid contained in Eufaplex is metabolized to docosahexaenoic acid.[9] The corresponding docosahexaenoic acid, also known as DHA, is a major component of the human brain, cerebral cortex, skin, and retina.[10] This docosahexaenoic acid mediates choline, glycine, and taurine transporter-mediated transport, potassium channel delay, and rhodopsin response included in synaptic vesicles, which can help to release neurotransmitters and relieve patients' symptoms.[11,12] Animal experiments have reported that the chlorella powder contained in Chloplex improves blood color and muscle inflammation levels when ingested steadily.[13] Animal experiments have also reported that chromium contained in Tmplex stimulates serotonin secretion under motor ability and stress conditions.[14] This can help to reduce serotonin metabolism in the central nervous system observed in patients with fibromyalgia. In addition, Bioplex contains post-synbiotics and probiotics, which help with construction of the gut microflora. It has also been revealed that gut microflora are involved in the metabolism of serotonin.[15] Therefore, the construction of gut microflora can help improve muscle pain, insomnia, and depression in patients. Folic acid and vitamin B12, which were revealed to be particularly low in depressed patients, are used for S-adenosylmethionine (SAM) metabolism. SAM is known to exhibit neurological functions by transferring the methyl group to other molecules. Therefore, supplying vitamins such as B12 contained in Vplex to patients with depression can help improve relevant symptoms.[16]

Besides, combination therapies such as Cyaplex F and Cyaplex X, which contain Aronia extracts, were used to improve the side effects of breast cancer, as well as to improve actual cancer tissues through antioxidant effects, etc. The Aronia extract exhibits antioxidant properties in plasma and platelets in healthy individuals as well as

breast cancer patients, and when given to patients undergoing breast cancer treatment or post-operative chemotherapy, it has been shown to significantly reduce oxidative/nitrosative stress in platelets of breast cancer patients.[17]

Thus, it is conceivable that the OCNT performed in this way may provide a pharmacologic mechanism to help improve the side effects of breast cancer medications as well as the disease itself.

The patient in this case underwent ovarian and uterine resection due to *BRCA* gene mutation. There are no concerns about endometrial cancer, which is one of the side effects of tamoxifen. However, the side effects of tamoxifen when administered to prevent the recurrence of breast cancer, are quite serious, including muscle pain, depression, and insomnia. Therefore, the patient decided to discontinue the administration of tamoxifen while taking other necessary nutrients. However, the patient's main symptoms, such as muscle pain, insomnia, and depression were confirmed to be improved after the OCNT, and the patient no longer depends on tamoxifen while maintaining nutritional therapy to this day. We are reporting this with the patient's consent.

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