A thermal dysregulation problem after breast cancer surgery; what could be?

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Abstract

Rationale: Chronic fatigue syndrome (CFS) is a complicated disorder characterized by severe fatigue that is not relieved with rest and associated with physical symptoms such as sleep problems, headache, muscle pain, or joint pain.

Patient concerns: Forty-one year old patient complained from feeling cold after breast cancer surgery.

Diagnoses: The diagnoses of fibromyalgia, depression, neurological, psychiatric, and vascular disorders were excluded by appropriate clinical and laboratory investigations. She was diagnosed as CFS.

Interventions: The patient was treated successfully via aerobic exercise therapy that scheduled for 30 min at least 3 days per week.

Outcomes: At 6-month follow-up, her complaints were almost resolved and the patient regained her physical health and mental attitude.

Lessons: A thermal dysregulation should be taken into consideration as one of the symptoms of CFS.

Abbreviations: CFS = chronic fatigue syndrome, FSS = fatigue severity scale, GET = graded exercise therapy.

Keywords: breast cancer, chronic fatigue syndrome, thermal dysregulation

1. Introduction

There is a common perception among both patients and caregivers that breast cancer patients often experience debilitating deficiencies in their ability to achieve thermal comfort. They can feel cold or hot flashes. Until today, there is no scientific research about this topic but there are ongoing discussions about the mechanism of thermal dysregulation. Surgical trauma and high stress levels can cause chronic fatigue syndrome (CFS) and sometimes it can bring atypical complaints like thermal dysregulation. In this case, we report a patient, which consulted with chill, diagnosed as CFS and treated successfully.

2. Case report

A 41-year-old female patient was diagnosed with breast cancer in 2005 and underwent partial mastectomy and axillary dissection. After the operation she received 4 cycles of chemotherapy and 6 weeks of radiation therapy, and then she took goserelin acetate (LHRH analog) for 24 months and Tamoxifen citrate (selective estrogen receptor modulator) for 4 years. During regular examinations, recurrence of breast cancer and newly emerged endometrium malignancy occurred and she underwent total mastectomy and total abdominal hysterectomy salpingo-oophorectomy in 2015. One month after receiving 4 cycles of chemotherapy (6 months after surgery), she complained from severe headache, fatigue, and feeling cold on the right side of her head and body. She was diagnosed as fibromyalgia and was prescribed pregabalin in an outer clinic. But due to weight gaining and dyspeptic complaints, she had to give up the treatment and consulted to our clinic. Anemia, vascular problems, and hormonal problems were investigated in the differential diagnosis of cold intolerance. The complete blood count test was normal. The peripheral vascular examination was to elicit no signs of peripheral vascular pathology and ankle–brachial index was measured as normal (1.03). Serum thyroid hormones, adrenocorticotropic hormone, and cortisol levels were analyzed and hypothyroidism and adrenal insufficiency diagnoses were also excluded. Locomotor system examination showed that she had full range of motion and there was no pain. Due to low level of vitamin D (measured as 6.8 ng/mL), bone mineral densitometry was executed in order to evaluate presence and degree of osteoporosis. Lumbar T score and femur neck score were −1.7 and 0.4, respectively. Twelve tender points were scored as positive but the diagnosis of fibromyalgia was excluded according to American College of Rheumatology 2010 classification criteria. She was also examined for the presence of Raynaud disease but did not tolerate the test. Not only her hands but also her whole body had cold intolerance. She was evaluated in terms of neuropathic pain, because she had pain on her right side. The Leeds Assessment of Neuropathic Symptoms and Signs pain scale and painDETECT questionnaire were applied to the patient and scores were found as 3 and 5, respectively. Thus neuropathic pain was also excluded. She complained fatigue for

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14 months and poor sleep quality. The fatigue severity scale (FSS) score was measured as 5.44. The patient stated that these complaints caused significant loss of physical and social function. The patient was consulted to Psychiatry Outpatient Clinic and depression and other psychiatric disorders were also excluded. We considered that the surgical intervention and high stress would be prodromal factors for CFS. So, she was diagnosed as CFS and aerobic exercise-based therapy program was started which decreased her complaints.

3. Discussion

Sense of cold or hot is usually seen in patients with breast cancer and also can affect the quality of life.\textsuperscript{[1]} The occurrence of these symptoms and breast cancer has not been correlated yet. In contrast to studies on hot flashes, almost no interest has been given to feeling chills. Until today, it has not been analyzed scientifically. Mostly it has been discussed in Internet blog sites and support groups.

Thermoregulation is a natural reaction of people to the temperature in homeostatic process. Neurological ways, energy balance, age, and thyroid hormones have effect on the thermoregulation.\textsuperscript{[1]} Typically, sense of cold is mentioned in reports with together sense of hot flashes and based on menopause and hormone suppression treatment. But there can be another pathological mechanism except hormonal causes. There are some studies that relate cold stress with cancer-related fatigue or taking chemotherapy.\textsuperscript{[1–3]} McDaniel et al reported that patients underwent chemotherapy, had cold feeling in their chest and arm following their therapy. However, this complaint was disappeared shortly after chemotherapy.\textsuperscript{[13]} Not only breast cancer but also other malignancies were associated with feeling cold.\textsuperscript{[14]}

Fatigue is the most common side effect of cancer and its treatment, which ranges from 60% to 96% of the patients. It can also endure for months or years even after successful treatment. It is seen in approximately 30% of the breast cancer patients.\textsuperscript{[15]} If it continues more than 6 months it is diagnosed as CFS. It does not improve by rest and effects professional, social, and personal life. It is mostly seen in females.\textsuperscript{[6–7]} It is thought that immunological, virologic, physiological, and neuroendocrine factors are some of mechanisms in its existence; named as central sensitization.\textsuperscript{[8]} Although American Psychiatric Association has grouped CFS with other Somatic Symptom Disorders like fibromyalgia,\textsuperscript{[9]} the National Institutes of Health expressed CFS are not primarily psychological in nature and further biological researches have to be done.\textsuperscript{[10]} Like chilling, some pro-inflammatory cytokines may play role in the development of fatigue. Especially after surgery some cytokines can go on releasing for a long term. It is thought that surgical trauma and high stress levels are triggered factors.\textsuperscript{[11,11]} Graded exercise therapy (GET) and cognitive behavioral therapy are 2 partly overlapping treatments that have proven to be beneficial for patients with CFS.\textsuperscript{[12]}

We thought that thermal dysregulation can be related with CFS in this patient, due to undergoing fatigue more than 6 months, sleeping disorder, and stress in physical and social area. Hence, the patient was examined with FSS and was diagnosed as CFS. Patients with CFS rarely spend time outdoors and have minimal physical activity. In our patient in relation to osteoporosis, the level of vitamin D and bone mineral densitometry were measured. The level of vitamin D was determined as suboptimal and replaced. Both the replacement of vitamin D and GET were applied to the patient for CFS. The patient was advised to exercise for at in 30-min sessions at home, for least 3 times a week. The result was satisfactory.

4. Informed consent

The patient gave her consent to publish this case report.

5. Conclusion

We should bear in mind that malignancy patients could consult to us with feeling cold or hot. After eliminating other physiological factors for thermal dysregulation, we should examine the patient in terms of presence of CFS. Otherwise, this can cause discomfort in their life.

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