

세포교정영양요법(OCNT)을 이용한 골다공증 환자 사례 연구

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A Case Study on an Osteoporosis Patient Using Ortho-Cellular Nutrition Therapy (OCNT)

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ABSTRACT

Objective: A case report on the improvement of symptoms in an osteoporosis patient using ortho-cellular nutrition therapy

Methods: Currently a 70 years old Korean woman was diagnosed with osteoporosis in her late 50s around 2010 and continued to receive injection treatments once every three months. Her T-score did not improve, and fractures continued to occur in the ankles, wrists, shoulders, ribs, etc., even from light impacts.

Results: The patient underwent an osteoporosis test in February 2019, which resulted in an average T-score of -2.5 or less, equivalent to being diagnosed with osteoporosis. OCNT has been performed since May 2019 (late 60s), and in the test received in April 2020, the T-score value improved to over -2.5 and was determined normal at the hospital. Since then, OCNT continued without any further injection treatments. Unlike before, even when she fell hard, she only suffered bruises without fractures, and no additional fractures have occurred.

Conclusion: OCNT may help patients with similar problems relieve symptoms and recover.

Keywords Ortho-Cellular Nutrition Therapy (OCNT), osteoporosis, pain, fractures

Introduction

The term osteoporosis translates to porous bone. The World Health Organization (WHO) defines osteoporosis as a systemic skeletal disease characterized by a decrease in bone mass and abnormalities in microstructure, resulting in bones structurally weak and prone to fractures.¹

The incidence rate of osteoporosis is insignificant in young people because it is caused by low body

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weight, history of fractures, family history, smoking, etc. However, the incidence rate significantly increases in older people, primarily due to a rapid decrease in bone mass due to aging and menopause. In particular, in the case of women, bone mass gradually decreases from the age of 35 and then decreases at a very rapid rate as menopause occurs around the age of 50, with the most rapid loss of bone density occurring 3 to 5 years after menopause.²

Osteoporosis, closely related to aging, is one of the major diseases experienced worldwide. In countries where the aging population is increasing, including Korea, incidence rates of osteoporosis and fracture are also on the rise.³ In Korea, the incidence of hip fractures has increased approximately four-fold over the past ten years. The prevalence of lumbar osteoporosis among adults over 50 in 2010 was reported at 24% for women and 12.9% for men.^{4,5}

Osteoporosis is considered a serious disease due to the high risk of fractures. Simply speaking, bones are weak, and they can break easily. Osteoporosis patients may break their bones even after as minor as falling, sneezing, or bumping into furniture.²

Patients with osteoporosis have an increased risk of fractures in the spine, not just hip joints, so continuous diagnosis of bone density and active prevention and treatment are necessary.⁶

Diagnosis of osteoporosis

Osteoporosis is diagnosed by measuring bone density; dual-energy X-ray absorptiometry (DEXA), quantitative computed tomogram (QCT), and quantitative ultrasound (QUS) are typically used.^{2,7}

Among these, dual-energy X-ray absorptiometry provides excellent precision (error rate within 1% to 2%) and can also confirm the effect of drug intervention.⁷

Osteoporosis is determined based on BMD T-scores, the standards presented by the WHO and the International Osteoporosis Foundation. A T-score above -1 is classified as normal, between -1 and -2.5 as osteopenia, or -2.5 or less as osteoporosis. An X-ray examination is often accompanied to check for compression fractures due to osteoporosis.^{2,8}

Treatment of osteoporosis

When a patient's BMD T-scores fall below -2.5, he or she is diagnosed with osteoporosis and administered drug treatment. Drug treatments mainly used in domestic hospitals include:

- ① Calcium preparations;
- ② Vitamin D;
- ③ Calcitonin;
- ④ Estrogen;
- ⑤ Bone resorption inhibitors (bisphosphonate);
- ⑥ Sodium fluoride (NaF);
- ⑦ Parathyroid hormone;
- ⑧ Strontium;

Among these, calcium and vitamin D preparations are prescribed for approximately 30%, and bisphosphonate preparations for approximately 55%.²

In essence, most treatments for osteoporosis aim to increase bone formation or prevent bone

loss. Currently, because no powerful treatment can rebuild bones that have already been lost in the elderly, hospitals usually suggest prevention methods such as sufficient calcium, vitamin D, protein, exercise, and smoking cessation in the pre-osteoporosis stage. Most hospitals offer pharmacological treatment to patients diagnosed with osteoporosis, but since compensation for treatment is limited and sometimes accompanied by side effects, preventive and pharmacological methods are recommended simultaneously.³

The patient in this case report was diagnosed with osteoporosis in her late 50s and consistently received injection treatment every three months. Still, her bone density did not improve after extended treatments, and she suffered frequent fractures. After being treated with OCNT in the patient's late 60s, her bone density improved in less than a year and was diagnosed as normal. The injection treatment was suspended, and no further fractures have occurred, as shown in this case report.

Case Details

1. Subject

One case of an osteoporosis patient was studied.

- 1) Name: Lee O O (F/70 years old)
- 2) Diagnosis: Osteoporosis
- 3) Date of onset: Around 2010 (late 50s)
- 4) Treatment period: May 26, 2019 ~ April 27, 2020 (examination)
- 5) Main complaints: pain, frequent fractures
- 6) Past history: Breast cancer (diagnosed in 2012)
- 7) Social history: None
- 8) Family history: stomach cancer, breast cancer
- 9) Current medical history: None

2. Methods

OCNT was applied to alleviate symptoms as follows.

1) The patient was medicated as follows starting from May 26, 2019.

Cyaplex A (101, twice a day, one packet each time)

Tmplex (100, once a day, one packet each time)

Eufaplex (101 twice a day, one packet each time)

2) The patient was additionally medicated as follows starting from June 13, 2019.

Collaplex (101, twice a day, 4g each time)

Sulfoplex Tab (505, twice a day, five tablets each time)

3) The patient was additionally medicated as follows starting from August 26, 2019.

Calmaplex (101, twice a day, one packet each time)

Results

The patient in this case study was diagnosed with osteopenia around the age of 54, suffered an ankle fracture, and was diagnosed with osteoporosis in her late 50s.

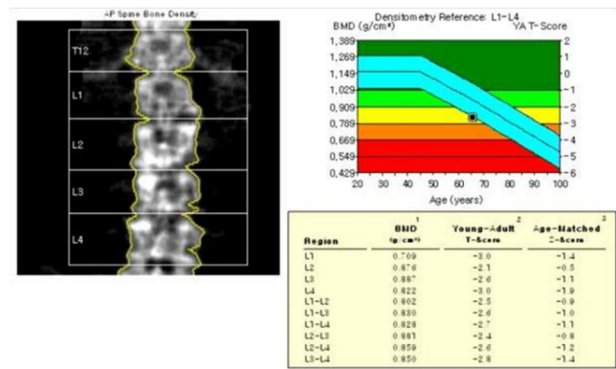
Oral bisphosphonate treatment was initially administered but discontinued due to adverse effects such as esophageal foreign body sensation and gastrointestinal disorders. Injection treatment continued every three months after switching to Bonviva. However, her bone density did not improve despite long treatments, and fractures continued even from light impacts.

OCNT began on May 26, 2019. In the beginning, the patient was medicated with (1) Cyaplex for antioxidant detoxification and strengthening immunity, (2) Tmplex, and (3) Eufaplex for vitamin D synthesis and supply of healthy cholesterol, a

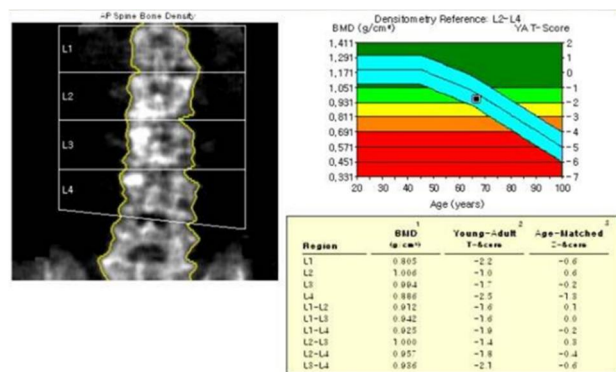
component of cell membranes. From June 13, 2019, she additionally took (4) Collaplex to supply collagen and hyaluronic acid chondroitin mucopolysaccharide, which are bone components, and (5) Sulfoflex Tab, an organic sulfur nutrient that builds bone and is involved in connective tissue formation. From August 26, 2019, (6) Calmaplex was taken to supply additional calcium, vitamin D, and vitamin K, which are involved in bone formation.

Less than a year later, the patient was diagnosed as normal after an osteoporosis test on April 27, 2020 (Fig 1). She no longer needed osteoporosis injections; unlike before, when she fell hard, she only got bruises and no more fractures.

The patient in this case study had been diagnosed with osteoporosis long ago, and her scores did not improve with medicines. Although she was fairly old, after consistently performing OCNT, her bone density improved, and she was finally diagnosed as normal.



(A) OCNT 전 (2019-02-20)



(B) OCNT 후 (2020-04-27)

Fig 1. X-ray images and BMD T-score before and after OCNT.

(A) Test results before OCNT on February 20, 2019: the average t-score value was below -2.5 and classified as osteoporosis.

(B) Test results after OCNT on April 27, 2020: the average t-score value was over -2.5 and classified as normal

Discussion

Treatments for osteoporosis include ensuring adequate calcium and vitamin D intake, weight-bearing exercise (any exercise that strengthens bones, such as walking, climbing stairs, or strength training), and drug treatment is generally recommended.

The standards for osteoporosis drug treatment for postmenopausal women and men over 50 years of

age recommended by the Korean Society for Bone and Mineral Research are:

- 1) Patients with femur fracture or spinal fracture;
- 2) Patients with osteoporosis of the femoral neck, total femur, and lumbar spine (T-value less than -2.5) with secondary causes ruled out; or
- 3) Patients with osteopenia and a history of other fractures in the past or secondary causes that increase the risk of fracture, or patients with a 10-year risk of femoral fracture of more than 3% or major osteoporosis fracture risk of more than 20% (clinically including spine, forearm, and humerus) using the FRAX model presented by the World Health Organization; [9]

Even if drug treatment is administered according to the above standards, the most crucial principle in treating osteoporosis, a systemic chronic disease, is individualization to suit the circumstances of each patient. In particular, the patient's age is also an essential factor to consider, as the choice of medication may be limited in patients over 65.¹⁰

Although bisphosphonates are the most common osteoporosis treatment, this drug may cause adverse effects depending on the patient, like the patient in this case study, and other medications may be less effective or have limitations in use depending on the situation.

If there is no improvement with drug treatment, it is vital to consume adequate amounts of nutrients, especially calcium and vitamin D. To help maintain bone density, postmenopausal women, older men, children going through puberty, and women who are pregnant or breastfeeding, should consume 1,200 to 1,500 milligrams of calcium daily. People who find it difficult to digest them in foods due to

lactose intolerance or other reasons should take them as supplements.

It should be noted vitamin D is necessary for calcium absorption; taking calcium alone does not help. Vitamin D helps the absorption of calcium and phosphorus in the intestines and participates in mineralization, thereby increasing bone density. It also helps reduce fractures through neuromuscular control. It is understood that as many as 90% of postmenopausal women are exposed to vitamin D deficiency. A survey of postmenopausal women who had been tested for osteoporosis showed that bone density decreased as vitamin D deficiency increased. Vitamin D also has the effect of preventing falls by increasing muscle strength and regulating muscle balance. One study found that it prevented falls by 49% and reduced fracture rates by 33% in postmenopausal women.² Vitamin D is produced in the skin when exposed to sunlight through outdoor activities. Still, in modern society, where exposure to sunlight is rather limited, it is necessary to take it as a supplement.

Eufaplex is a natural, non-oxidized essential fatty acid that can help synthesize vitamin D and form healthy cholesterol, a component of cell membranes. Calmaplex contains calcium, magnesium, vitamin D, and vitamin K, which are essential for bone formation and help improve bone density.^{11,12}

Tmplex and Cyaplex A were also used for antioxidant detoxification and anti-inflammatory purposes in fractures and bruises. Zinc and selenium in Tmplex play a role in the detoxification of oxidized cells and immune system functions, and anthocyanin in Cyaplex A is the most potent antioxidant among plant flavonoids and has been

reported to have antioxidant and anti-inflammatory functions.¹³⁻¹⁷

Collaplex contains low-molecular-weight collagen peptides, which can help with bone health. It also contains shark cartilage and hyaluronic acid, providing mucopolysaccharide protein and chondroitin sulfate, other bone components.

Collagen is a major body component, including bones, skin, cartilage, and tendons. One-third of the protein in the body is collagen. In particular, bones contain 35% collagen, which acts like a steel frame and is surrounded by calcium and phosphorus. When collagen is lacking, bones weaken, and muscle elasticity and strength decline. When ingested, an animal experiment showed that low-molecular-weight collagen peptides are absorbed into the skin, bones, and cartilage within 24 hours.¹⁸

Mucopolysaccharide binds to proteins in the body and exists in connective tissue, helping with the functionality of bones and cartilage. Another animal experiment reported chondroitin significantly increased bone density and improved bone microstructure.¹⁹

MSM (methylsulfonylmethane) contained in Sulfoplex Tab is an organic sulfur compound, also called dietary sulfur, and has been shown in animal experiments to delay degenerative arthritis, build bone, and engage in connective tissue formation.^{20,21} It is also effective in improving tissue damage with anti-oxidative stress and antioxidant properties and is known to help increase bone density by inducing the formation and function of osteoblasts *in vivo*.²²⁻²⁴

Since each naturally derived substance can help maintain and regenerate bones, their combination is likely to have helped in rapid bone density recovery.

This case study discusses a single case and may not be universally applicable to all elderly patients with osteoporosis. Nevertheless, this treatment appears to help improve the patient's symptoms. The case study is reported with the patient's consent.

References

1. Bartl R, Frisch B. Informed decisions: osteoporosis. Heidelberg: Springer-Verlag Berlin; 2004. 253 p
2. Ye-Soo Park, Diagnosis and treatment of osteoporosis, J Korean Med Assoc 2012 November; 55(11): 1083-1094
3. Ji-Yoon Noh, Young Yang, Haiyoung Jung, Molecular Mechanisms and Emerging Therapeutics for Osteoporosis, Int J Mol Sci. 2020 Oct 15;21(20):7623
4. Hyun Koo Yoon, Byung Seok Lee, Ki-Hyun Park, Joo Hyun Park, Kyung Ah Jeong. Osteoporosis in Korea, Clin Calcium. 2004 Sep;14(9):123-7.
5. Shin CS, et al. Prevalence and risk factors of osteoporosis in Korea: a community-based cohort study with lumbar spine and hip bone mineral density. Bone 2010;47:378-387.
6. Tara Coughlan and Frances Dockery. Osteoporosis and fracture risk in older people, Clinical Medicine 2014 Vol 14, No 2: 187-91
7. J M Lane, L Russell, S N Khan. Osteoporosis, Clin Orthop Relat Res. 2000 Mar;(372):139-50.
8. N B Watts. Using bone mineral density T-scores to diagnose postmenopausal

- osteoporosis, *Endocr Pract.* 2000 Mar-Apr;6(2):217-8
9. Korean Society for Bone and Mineral Research. Physician's guide for diagnosis and treatment of osteoporosis 2015 [Internet]. Seoul: Korean Society for Bone and Mineral Research;2015 [cited 2019 Sep 5]. Available from: <http://www.ksbmr.org/journal/index4.php>
 10. Sungwook Chun, Pharmacological treatment of osteoporosis , *J Korean Med Assoc* 2019 October; 62(10):542-550
 11. CALDER, Philip C. Immunomodulation by omega-3 fatty acids. Prostaglandins, leukotrienes and essential fatty acids, 2007, 77.5-6: 327-335.
 12. CHOI, So-Young, et al. Effects of Sigma Anti-bonding Molecule Calcium Carbonate on bone turnover and calcium balance in ovariectomized rats. *Laboratory Animal Research*, 27.4: 301-307(2011).
 13. Ferenčík, M., Ebringer, L. Modulatory effects of selenium and zinc on the immune system. *Folia Microbiol* 48, 417–426 (2003).
 14. Schrauzer, G. Anticarcinogenic effects of selenium. *CMLS, Cell. Mol. Life Sci.* 57, 1864–1873 (2000).
 15. CUNNINGHAM-RUNDLES, Susanna; MCNEELEY, David F.; MOON, Aeri. Mechanisms of nutrient modulation of the immune response. *Journal of Allergy and Clinical immunology*, 115.6: 1119-1128 (2005).
 16. Wang, H. et al. Antioxidant and antiinflammatory activities of anthocyanins and their aglycon, cyanidin, from tart cherries. 62, 294-296 (1999).
 17. Kamei, H. et al. Suppression of tumor cell growth by anthocyanins in vitro. 13, 590-594 (1995).
 18. Teresa Figueres Juher, Esther Basés Pérez, An overview of the beneficial effects of hydrolysed collagen intake on joint and bone health and on skin ageing, *Nutr Hosp.* 2015 Jul 18;32 Suppl 1:62-6.
 19. Shan Shan Qi, et al. Chondroitin Sulfate Alleviates Diabetic Osteoporosis and Repairs Bone Microstructure via Anti-Oxidation, Anti-Inflammation, and Regulating Bone Metabolism, *Front Endocrinol (Lausanne)*. 2021 Oct 27;12:759843
 20. Ezaki, J., Hashimoto, M., Hosokawa, Y. & Ishimi, Y. Assessment of safety and efficacy of methylsulfonylmethane on bone and knee joints in osteoarthritis animal model. *J Bone Miner Metab* 31, 16-25, (2013).
 21. Shujiro Otsuki, W. Q., Atsushi Ishihara, Toshiaki Kabe. Elucidation of dimethylsulfone metabolism in rat using a 35S radioisotope tracer method. *Nutrition Research* 22, 312-322 (2002).
 22. Hasegawa, T., Ueno, S., Kumamoto, S. & Yoshikai, Y. Suppressive effect of methylsulfonylmethane (MSM) on type II collagen-induced arthritis in DBA/1J mice. *Japanese Pharmacology and Therapeutics* 32, 421-427 (2004).

23. BUTAWAN, Matthew; BENJAMIN, Rodney L.; BLOOMER, Richard J. Methylsulfonylmethane: applications and safety of a novel dietary supplement. *Nutrients*, 9.3: 290 (2017).
24. Hanan Aljohani, et al. Methylsulfonylmethane Increases the Alveolar Bone Density of Mandibles in Aging Female Mice, *Front Physiol.* 2021 Oct 4;12:708905.