



# Radyoterapi Alan Hastalarda Akupunktur Tedavisinin Radyoterapiye Bağlı Oluşan Yan Etkiyi Azaltmada Rolü

## The Role of Acupuncture Treatment in Reducing Radiotherapy-Related Side Effects in Patients Receiving Radiotherapy

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### Öz

Dünya genelinde geleneksel tedavi yöntemlerinden olan akupunkturun kullanımı her geçen gün artmaktadır. Akupunktur organizmanın kendi kendini tedavi ettiği güvenli, ucuz ve basit bir yöntemdir ve en önemli özelliği yan etkisinin olmamasıdır. Akupunktur tedavisi radyoterapiye bağlı oluşan yan etkilerin azaltılması ve bu tedavilerden maksimum yarar sağlanması açısından son derece önemlidir. Yapılacak çalışmalarla bu olumlu etkinin muhtemel etki mekanizmalarının açıklanması radyoterapiye bağlı oluşabilecek yan etkilerin tedavisi ve profilaksisinde akupunkturun yerinin anlaşılması ve klinik uygulamalardaki endikasyonlarının belirlenmesi açısından faydalı olacaktır.

Anahtar kelimeler Akupunktur, radyoterapi, kanser, yan etkiyi

### Abstract

**Aim** The use of acupuncture, which is one of the traditional treatment methods worldwide, is increasing day by day. Acupuncture is a safe, inexpensive and simple method of self-treatment of the organism and the most important feature is the lack of side effects. Acupuncture treatment is extremely important in terms of reducing the side effects caused by radiotherapy and providing maximum benefit from these treatments. Explaining the possible mechanism of action of this positive effect with the studies to be performed will be useful for understanding the place of acupuncture in the treatment and prophylaxis of side effects that may occur due to radiotherapy and determining the indications in clinical applications.

**Keywords** Acupuncture, radiotherapy, cancer, patients, side effects

## INTRODUCTION

Human beings who have been experiencing illness since ancient times tried to resist diseases through many different approaches such as trial, error and observation during the struggle with it. Some of these methods have been repeated as traditional applications. With the advancement of science and technology, the old traditional practices have gradually moved away. However, these traditional methods arouse great curiosity in the continual, self-changing, and developing aspect of western medicine and the interest in these methods is increasing day by day. This interest has been especially in the last 20-30 years in developed countries. The aims of traditional therapy are generally; to support treatment, to provide treatment, to improve quality of life, to feel good, to reduce the side effects of drugs, to prevent the development of cancer, to prevent cancer recurrence, to use instead of conventional treatment, to provide a potential cure by stretching the disease process, to reduce pain, to reduce stress and anxiety. It is preferred to reduce, to regulate sleep, to provide physical and psychological support. One of these treatment methods is acupuncture.<sup>1-5</sup>

### Definition of acupuncture and mechanism of action

Acupuncture is one of the oldest and well-known traditional methods of treatment and is a technique performed by immersing fine needles specific to specific points in the body for a therapeutic purpose. The aim here is to stimulate certain points in the body to reach the balance of energy flow again. Application in acupuncture is made to the skin and subcutaneous muscle tissue, and any stimulation during the application is affected by skin and subcutaneous muscle tissue.<sup>1-3</sup> In acupuncture, the key to achieving the desired result is to know where to stimulate the skin and to perform this procedure appropriately. With this application, the repair force in our body is activated. Thus, the organism can eliminate the disease with its own means without the need for drug treatment. The most known and used effects of acupuncture is pain relief effect. In humans and rats, acupuncture analgesia caused by muscle under

acupuncture point, contraction and low-frequency flow was determined to cause acupuncture analgesia. Acupuncture strengthens the immune system by increasing the body's resistance, raising antibodies and gammaglobulins. The effect of acupuncture on the immune system is thought to be due to the effects of endogenous opioids on beta-endorphins, leucine enkephalin and methionine enkephalin. It also increases body resistance by increasing leukocytes, antibody synthesis, and migration capabilities of neutrophils. The dopamine and serotonin levels in the brain increase with acupuncture. It increases regeneration effect by increasing regional blood supply and provides cell renewal. Acupuncture makes a homeostatic effect by balancing the sympathetic, parasympathetic and endocrine systems in the body.<sup>1-8</sup>

### Application area of acupuncture

In 1970, the World Health Organization (WHO) adopted acupuncture as the official treatment method. Currently, WHO has approved the efficacy of acupuncture treatment in the treatment of hemiplegia, rehabilitation of mental and psychological disorders, dependence, correction of side effects in chemotherapy, and in more than 80 conditions such as obesity. Nowadays, in some cases, it is applied as a therapeutic treatment method in some cases according to the WHO list of treatable diseases. Due to the fact that the cost is very low, its application is practical and it gives benefits to patients without almost no side effects, it has come up again in recent years and its usage has started to become widespread. However, little is known about the willingness of cancer patients to use acupuncture.<sup>1-8</sup> Frankel et al. reported that people with pain or who had previous knowledge of acupuncture were more willing to use acupuncture during radiotherapy in a survey of cancer patients receiving radiotherapy.<sup>9</sup>

### The use of acupuncture in radiotherapy

This treatment modality, which dates back to a few centuries before today, is progressing day by day, taking on a more scientific identity throughout the world. The indica-

tions for acupuncture include the treatment of side effects due to radiotherapy among the pathologies in which the therapeutic efficacy is shown, but more evidence is needed. In recent years, there have been reports of contradictory results as well as evidence that it reduces the side effects associated with radiotherapy. In addition, the mechanism of action of acupuncture in radiotherapy is not fully explained. When the literature is reviewed, it is observed that acupuncture has been used in the treatment of xerostomia, dysphagia, cancer-related fatigue, nausea and vomiting due to radiotherapy-related side effects.<sup>6,7,8,11,12,13,14</sup> In a randomized, double-blind, placebo-controlled study by Widgren et al., they compared the acupuncture group and the non-acupuncture group in patients receiving chemotherapy with pelvic radiotherapy. Acupuncture was applied to PC6 point and 10 sessions during bilateral treatment. In conclusion, they reported that nausea and vomiting were less common in the acupuncture group.<sup>7</sup> Meng et al. examined the effect of preventing acupuncture in patients with nasopharyngeal cancer receiving radiotherapy and preventing xerostomy in the untreated group. Acupuncture body points were applied to Ren 24, LU 7, K6, Shenmen, Point Zero, SG 2 and three times a week during 7 weeks of radiotherapy. Questionnaire and sialometry were evaluated weekly during radiotherapy and 1 and 6 after the end of radiotherapy. They reported that acupuncture is effective in reducing xerostomy and improving quality of life when used concurrently with radiotherapy.<sup>8</sup> In another study, in a randomized study of head and neck tumors receiving chemoradiotherapy, the acupuncture group received acupuncture points during treatment (ST36, SP9, K3, LI11, GV20, GV24, Yintang, LI2, ST7, ST5, CV24, SI16, GB20, CV23 10-12 sessions were applied to a depth of 5-10 mm. Acupuncture has been reported to be effective in the treatment of dysphagia in patients with advanced head and neck tumors.<sup>10</sup> On the other hand, Wong et al. reported that there was no significant difference between the two groups in the acupuncture group compared to acupuncture in a multi-center randomized study comparing acupuncture and pilocarpine in the prevention of

radiation-induced xerostomy. In the systemic review of thirty-three studies evaluating the efficacy of acupuncture in palliative care for cancer patients, acupuncture has been reported to be promising in reducing both side effects and cancer pain caused by both chemotherapy and radiotherapy.<sup>12</sup> Kasymjanova et al. indicated that acupuncture had a statistically significant improvement in pain, appetite, nausea, nervousness and well-being in patients with lung cancer receiving chemotherapy and / or radiotherapy, and it was emphasized that at least 6 acupuncture sessions were necessary for a clinically significant recovery chance.<sup>13</sup>

## CONCLUSION

As a result, the use of acupuncture, which is one of the traditional treatment methods worldwide, is increasing day by day. Acupuncture is a safe, inexpensive and simple method of self-treatment of the organism and the most important feature is the lack of side effects. Acupuncture treatment is extremely important in terms of reducing the side effects caused by radiotherapy and providing maximum benefit from these treatments. Explaining the possible mechanism of action of this positive effect with the studies to be performed will be useful for understanding the place of acupuncture in the treatment and prophylaxis of side effects that may occur due to radiotherapy and determining the indications in clinical applications.

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