The Effect of Oral Care With Black Mulberry Extract on Oral Mucositis, Dry Mouth, and Weight Gain in Patients With Cancer

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BACKGROUND: For patients receiving chemotherapy, various oral care therapies are used to treat oral mucositis, but the use of black mulberry extract as an effective treatment has not been widely studied.

OBJECTIVES: This study examined whether black mulberry extract is an effective treatment for oral mucositis, dry mouth, and weight gain compared to sodium bicarbonate in patients with cancer.

METHODS: The control group (N = 20) received sodium bicarbonate, and the intervention group (N = 20) received black mulberry extract. Mucositis and weight gain were evaluated on days 1, 7, and 15 after oral care application.

FINDINGS: For both groups, mean scores indicated a statistically significant decrease in mucositis and dry mouth at all three time points. Mean scores were significantly lower in the intervention group on days 7 and 15. At all three time points, increases in weight were statistically significant for the intervention group but not for the control group. Increased weight gain in the intervention group was statistically significant when comparing the two groups on days 7 and 15.

BECAUSE ORAL MUCOSA EPITHELIAL CELLS DIVIDE MORE RAPIDLY than other cells, chemotherapeutic agents suppress the growth and maturation of cells and disrupt the primary mucosal barrier in the mouth and throat (Shumsky et al., 2019). As a result, oral mucositis can develop. Oral mucositis can lead to deterioration in the mucosal barrier; weakening of the oral mucosal epithelial cells; erythema; edema; bleeding; ulcerations; hoarseness; and difficulty speaking, chewing, and swallowing (Shimamura et al., 2018). Oral mucositis typically occurs within one week after chemotherapy administration and heals after 21 days (Bahar et al., 2019). Weight loss, dehydration, ulceration of the mucosa, and fluid–electrolyte imbalance may develop in patients who are undernourished (Eduardo et al., 2018). The presence of mucositis can cause patients to experience severe pain in the oral cavity and/or throat, which impairs their ability to chew, swallow, and speak, leading to inadequate fluid–nutrient intake, malnutrition, and communication problems (Lee et al., 2020; Silva et al., 2021). These symptoms and side effects can increase the length of patient hospital stays and treatment costs, as well as cause patients' quality of life to deteriorate (Fernández-Rodríguez et al., 2019; Pereira et al., 2018).

Various pharmacologic and nonpharmacologic oral care methods and therapies are used in the treatment of oral mucositis (Lim & Choi, 2019; Thakur et al., 2020). In a study conducted in Turkey, the most common substances used to prevent mouth sores in patients with cancer receiving chemotherapy included chlorhexidine gluconate mouthwashes (68.2%); sodium bicarbonate (54.2%); saltwater (51.7%); sage, chamomile, and fennel tea (46.7%); water with lemon (27.5%); black mulberry molasses (26.7%); honey (24.2%); and turmeric (17.5%) (Berk et al., 2020). Black mulberry has anti-inflammatory, antioxidative, and analgesic effects (Li et al., 2018; Liu et al., 2021). Black mulberry contains papiriflavonal A, kuraridin, saforaflavanon D, and saforaiso flavanon A, all of which can provide antifungal and strong antimicrobial activity and are particularly effective in the healing of mouth and dental wounds (Sireesha & Sri, 2021). Doğan et al. (2017) also reported that black mulberry molasses prevents oral mucositis by 38%, delays the formation of mucositis, and reduces the severity of mucositis in patients undergoing radiation therapy to the head and neck. In a study of patients with chronic obstructive pulmonary disease unrelated to cancer, Korkut et al. (2021) found that oral care with black mulberry syrup accelerated the