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LASERS

PREVENTIVE EFFECT OF LOW LEVEL LASER THERAPY(LLLT) ON RADIODERMATITIS IN PATIENTS WITH HEAD & NECK CANCER : A SINGLE INSTITUTION EXPLORATIVE STUDY.

Jh Park⁽¹⁾ - Hj Byun⁽¹⁾ - Dk Yoon⁽¹⁾ - Je Lee⁽¹⁾ - Yh Choi⁽¹⁾ - Cs Park⁽¹⁾ - Sj Oh⁽¹⁾ - Sw Park⁽¹⁾ - Jh Lee⁽¹⁾ - Dy Lee⁽¹⁾ - Jh Lee⁽¹⁾ - Jm Yang⁽¹⁾

Sungkyunkwan University School Of Medicine/samsung Medical Center, Department Of Dermatology, Seoul, Republic Of Korea⁽¹⁾

Introduction: Head and neck cancers have historically been treated with radiotherapy. However, side effects on the skin, such as erythema, epilation, desquamation, hyperpigmentation, erosion and ulcer are common and referred to as radiodermatitis. Recent study on radiodermatitis of breast cancer patients revealed the effectiveness of low-level laser therapy (LLLT). It is a noninvasive treatment option used to stimulate wound healing and reduce inflammation, edema, and pain for more than 40 years.

Objectives: The primary endpoint is to evaluate the clinical efficacy of LLLT in patients receiving high dose radiation therapy(≥60 Gy). The secondary endpoint is to evaluate the risk factors of radiodermatitis

Materials and methods: Patients with lung or head and neck cancer who were planning to receive high dose radiation therapy(≥60 Gy) in the neck or supraclavicular area were included in the study. A total of 33 subjects were analyzed by two blinded physicians. The subjects received LLLT(830nm, intensity 60mJ/cm2, intensity level 4) three times a week for 6 weeks. The degree of radiodermatitis was evaluated during LLLT once in every week, and one week after LLLT was completed using the Common Terminology Criteria for Adverse Events (CTCAE). The subjects were divided into two groups according to the maximum grade, and analyzed for risk factors for radiodermatitis.

Results: Among 42 subjects included, 9 patients (21.4%) were dropped out due to low compliance and exacerbated general condition. Total 33 subjects were analyzed. Until the third week of radiation therapy, the proportion of subjects graded as CTCAE grade greater than 2 was 0%. It was then raised to 3% at the fourth week , 9.1% at the fifth week , and 39.4% at the sixth week. One week after LLLT was completed, the proportion of CTCAE grade greater than 2 was 42.4%, and CTCAE grade greater than 3 was 9.1%. No clinically significant side effect has occurred. Age, BMI, site of treatment, total dose, duration, concurrent chemotherapy, scar line, smoking status were evaluated as risk factors. There









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were no statistically significant differences in between group 1 and group2. In addition, the odds ratio for each factor did not seem to increase the risk of radiodermatitis.

Conclusion: LLLT could have effects on radiodermatitis of the neck and supraclavicular area, especially for CTCAE grade greater than 3 compared to the previous studies which report 25-50% of CTCAE grade 3 or 4 dermatitis. However, no statistically significant risk factors were found in this study. Since this is an explorative study with small number of subjects, randomized controlled trial with greater number of subjects is needed.



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