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Oral Rehabilitation in Irradiated Patients; A Review on Prosthetic Treatment Options

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ABSTRACT

Head and neck radiotherapy has some intraoral side effects that affect treatment planning for oral rehabilitation. some treatment options with their success have been discussed in articles. Choosing the right treatment should be based on the patient's oral conditions affected by radiotherapy.

Keywords: Radiotherapy, Oral rehabilitation, Treatment options

INTRODUCTION

Many patients with head and neck cancers receive maxillofacial radiotherapy (RT) that have some side effects, they also may require intraoral reconstructive treatment after RT. Most common intraoral side effects of RT are: xerostomia, mocositis, tooth decay and osteoradionecrosis. Side effects can reduce the success of treatment and increase prosthetic complications [1].

Based on literature that considered Oral rehabilitation in irradiated patient, prosthetic intraoral treatments can be divided into three main categories:

Implant supported prosthesis, removable prosthesis, tooth supported prosthesis.

Most articles considered oral rehabilitation with implant supported prosthesis after radiotherapy, but up to our research there isn't any literature that discusses all types of treatment options; therefore, the purpose of this article is to review literatures that have addressed this issue.

REVIEW

Implant supported prosthesis:

Radiotherapy isn't considered as a contraindication for implant insertion. However, the waiting period of 13 to 24 months after radiotherapy is recommended. The success rate of treatment in irradiated mandibles was similar to the success rate in areas of the jaw that did not receive radiotherapy [2].

Shaw [3] concluded that Mandibular implants were more successful and with the exception of a few soft tissue problems, most patients have successful prosthetic treatment, more failures were detected with bone grafted implants and maxillary implants. Radiotherapy does not appear to have a negative effect on implant longevity. It seems hyperbaric oxygen has not been of much benefit [3].

For better osteointegration, loading of the prosthesis should be delayed for six months instead of the traditional three to four months for mandible [4].

It is also recommended that primary placement of implants before radiotherapy leads to predictable osteointegration [5,6].

Removable tooth and/or tissue supported prosthesis:

Radiotherapy reduces the amount of saliva and due to the vascular changes, that occur, the patient's mucosa becomes atrophic and sensitive and prone to ulcers.

Considering these conditions, to avoid causing trauma, Oelgiesser [2a] advised, it is better to prevent the administration of removable dentures to the patient to avoid soft tissue damage and bone exposure and osteonecrosis, so fixed prostheses are preferred [2].

Gerngross [7] found that post-prosthesis insertion complications in patients who had received complete denture after radiation therapy were 1.7 times more than others,

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while most of these patients had greater than 5000 cGy. Curtis [8] believed removable prosthesis are acceptable with Some consideration in irradiated patients: Use of non-pressure technique and spaced trays for impression making, use of monoplane teeth, instruction to patient to remove denture during night and when detecting soreness, removing rough projection from tissue surface and use of soft liners [8].

Tooth supported prosthesis:

Brauner [9] believed that fixed tooth supported prosthesis is better than removable because of lower risk of soft tissue ulceration.

Due to the high risk of tooth decay and soft tissue inflammation around fixed prosthesis, tooth supported prosthesis should be selected based on less complexity and accessibility for examination in follow-up sessions [1].

In patient who have low motivation and ability regarding oral hygiene and in situation where there is no possibility of supragingival margin for fixed prosthesis, it is better to extract teeth and consider implant supported prosthesis [10]. All articles have addressed different dental condition of patient who received different dose and site for radiation therapy, so there is a need for a systematic review in this field, also more articles about irradiated patients who received different types of removable dentures and fixed dental prostheses is needed.

CONCLUSION

Choosing the right treatment plan should be based on the patient's condition. Oral hygiene situation, dose of radiation and period of time that passes after that, quality and quantity of available teeth affect treatment planning.

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