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Relation between chemotherapy and xerostomia

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This report is submitted to fulfill the requirements for the **oral cavity**

Abstract

the aim of this study is to determine how important chemotherapy is, and to specifically highlight information regarding it is role in reducing salivary flow.

Introduction

Chemotherapy (chemo) is a type of treatment that includes a medication or combination of medications to treat cancer. The goal of chemo is to stop or slow the growth of cancer cells. Chemo is considered a systemic therapy. This means it may affect your entire body. Chemo medications attack rapidly growing cancer cells, but they can also affect healthy cells that grow rapidly. The effect of these medications on normal cells often causes chemo side effects[(1)], in addition it has localized effects on salivary glands, leading to xerostomia, which can be define as an overall redaction of salivary output, there are many another causes for xerostomia include: aging as result of continues loss of acinar cell, radiotherapy, Sjogren's syndrome (primary and secondary**).** The chronic dryness of the mucosa in xerostomia leads to caries, periodontal diseases, candidiasis and ascending(bacterial) sialadenitis[(2)], Dry mouth can be a side effect of muscle relaxants and sedatives.[(3)] Other potential complications include altered speech, changes to taste or smell, difficulty swallowing and indigestion. Any of these side effects can impact patients' overall eating and drinking habits and nourishment.[(4)]

Discussion

Only few studies were found about relation of chemotherapy and xerostomia but the most studies were found in general about it was The electronic databases of MEDLINE/PubMed and EMBASE were searched for articles published in English since the 1989 NIH Development Consensus Conference on the Oral Complications of Cancer Therapies until 2008 inclusive. For each article, two independent reviewers extracted information regarding study design, study population, interventions, outcome measures, results, and conclusions. Seventy-two interventional studies met the inclusion criteria. In addition, 49 intensity-modulated radiation therapy (IMRT) studies were included as a management strategy aiming for less salivary gland damage. Management guideline recommendations were drawn up for IMRT, amifostine, muscarinic agonist stimulation, oral mucosal lubricants, acupuncture, and submandibular gland transfer. There is evidence that salivary gland hypofunction and xerostomia induced by cancer therapies can be prevented or symptoms be minimized to some degree, depending on the type of cancer treatment. Management guideline recommendations are provided for IMRT, amifostine, muscarinic agonist stimulation, oral mucosal lubricants, acupuncture, and submandibular gland transfer. Fields of sparse literature identified included effects of gustatory and masticatory stimulation, specific oral mucosal lubricant formulas, submandibular gland transfer, acupuncture, hyperbaric oxygen treatment, management strategies in pediatric cancer populations, and the economic consequences of salivary gland hypofunction and xerostomia.[(5)] In a prospective study, 78 patients with Stage III-IV oropharynx/nasopharynx cancer underwent

chemo-IMRT, with the aim of sparing the parts of the bilateral PGs, oral cavity (OC) containing the minor salivary glands, and contralateral submandibular gland (SMG) outside the target (when contralateral level I was not a target). Before therapy and periodically for 24 months, validated patient-reported xerostomia questionnaire (XQ) scores and observer-graded xerostomia scores were recorded. Also, the stimulated and unstimulated saliva was measured selectively from each of the PGs and SMGs. The mean OC doses served as surrogates of minor salivary gland dysfunction. Regression models assessed the XQ and observer-graded xerostomia predictors. Statistically significant predictors of the XQ score on univariate analysis included the OC, PG, and SMG mean doses and the baseline XQ score, time since RT, and both stimulated and unstimulated PG saliva flow rates. Similar factors were statistically significant predictors of observer-graded xerostomia. The OC, PG, and SMG mean doses were moderately intercorrelated (r = 0.47–0.55). On multivariate analyses, after adjusting for the PG and SMG doses, the OC mean dose ($p < .0001$), interval from RT ($p < .0001$), and stimulated PG saliva ($p < .0025$) were significant predictors of the XQ scores and the OC mean dose and time for observer-graded xerostomia. Although scatter plots showed no thresholds, an OC mean dose of <40 Gy and contralateral SMG mean dose of <50 abstract were each associated with low patient-reported and observer-rated xerostomia at almost all post-therapy points. The PG, SMG, and OC mean doses were significant predictors of both patient-reported and observer-rated xerostomia after chemo-IMRT, with OC doses remaining significant after adjusting for the PG and SMG doses. These results support efforts to spare all the salivary glands by IMRT, beyond the PGs alone.[6] Prospective longitudinal studies of 93 patients with oropharyngeal cancer treated with definitive chemotherapy–intensity-modulated radiotherapy (IMRT). Observer-rated dysphagia (ORD), patient-reported dysphagia (PRD), and patient-reported xerostomia (PRX) assessment of the swallowing mechanics by videofluoroscopy (videofluoroscopy score), and salivary flow rates, were prospectively assessed from pretherapy through 2 years. ORD grades ≥2 were rare and therefore not modeled. Of patients with no/mild videofluoroscopy abnormalities, a substantial proportion had PRD that peaked 3 months posttherapy and subsequently improved. Through 2 years, highly significant correlations were observed between PRX and PRD scores for all patients, including those with no/mild videofluoroscopy abnormalities. Both PRX and videofluoroscopy scores were highly significantly associated with PRD. On multivariate analysis, PRX score was a stronger predictor of PRD than the videofluoroscopy score. Xerostomia contributes significantly to PRD. Efforts to further decrease xerostomia, in addition to sparing parotid glands, may translate into improvements in PRD[7]

Conclusion

after thoroughly researching studies showed that the evidence of salivary gland hypo function and xerostomia induced by cancer therapy.

References

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