

Quantitative Assessment of Major Salivary Glands
by Radionuclide Scintigraphy Following Radioiodine
Therapy in Cancer Thyroid Patients.
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Summary: The ability of the salivary tissue to concentrate radioiodine lead to significant radiation damage to the glands during radioiodine treatment of the thyroid cancer which is more evident with higher doses. The biologic effect of radioiodine I¹³¹ is largely due to the highly energetic beta rays.

Twenty nine patients of both sexes suffering from differentiated thyroid carcinoma. The patients were studied by a thoroughly taken history, full clinical examination and radionuclide imaging following single or repeated doses of radioiodine therapy.

Acute inflammation affect the major salivary glands following initial dose of 80 mCi of radioiodine which manifested by increase the rate of radioactivity accumulation and decrease the rate if the excretion together with the associated clinical manifestation of temporary xerostomia which is particularly evident in the parotid gland.

On the other hand, chronic inflammation of the major salivary glands usually follows repeated doses of radioiodine which manifested by decrease the rate of radioactivity accumulation which is more evident in parotid than submandibular salivary glands. Also, changes was less marked in patients received repeated doses of the radioiodine up to 300-<400 mCi and more frequent in patients received a repeated doses of radioiodine up to <400-590 mCi.

Conclusions: From the results of this investigation it could be concluded that:

Radioiodine therapy in cancer thyroid patients produces a variable degree of inflammation in the major salivary glands due to concentration of radionuclide by the glands parenchyma.

There is difference in the radio-sensitivity of the glands, the magnitude of the response which is more evident in parotids than submandibular glands.

Acute inflammation of the major salivary glands usually follow the initial dose of radioiodine therapy which manifested by increase the radioactivity accumulation within the gland after one month of therapy, which gradually decrease within two months following radioiodine therapy.

Chronic inflammation of the major salivary glands usually follows higher doses of radioiodine therapy, which manifested by decrease the radioactivity accumulation within the gland which is more evident with higher radioiodine therapy doses. The chronic radiation changes were less evident in submandibular glands.