



# Are We Missing Salivary-Gland Dysfunction Years After a Single $^{131}\text{I}$ Treatment for Thyroid Cancer?

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a few days before radioactive iodine treatment and approximately 5 years later. In most cases, the first scintigraphy was performed after withdrawal of thyroid hormone treatment, with a serum TSH of  $>30$  mU/L. Patients received relatively large doses of  $^{131}\text{I}$ —between 3.7 and 5.55 GBq of  $^{131}\text{I}$ . Five years after a single radioactive iodine treatment, up to 20%

of all patients had salivary-gland dysfunction, but only 16% reported a dry mouth. In the majority of cases, only one to two salivary glands were affected, perhaps explaining the scarcity of symptoms. No major morphologic alterations of the salivary glands, such as constrictions of the secretory channels, were observed.

## ANALYSIS AND COMMENTARY ● ● ● ● ●

This large study certainly provides worthwhile information for endocrinologists who are treating patients with radioactive iodine. The currently recommended doses of  $^{131}\text{I}$  are 1.1 to 1.85 GBq (30 to 50 mCi), which is markedly below the dose used in this study. Since the authors observed salivary-gland dysfunction more frequently in patients treated with the highest dose of 5.55 GBq, one is inclined to conclude that these complications will be rare, albeit not absent, with the currently recommended regimen.

No information was provided on how to improve salivary-gland dysfunction. The authors mention one

study claiming improvement, but they rightly suggest that this should be tested on a larger scale (2).

The salivary glands are not the only tissue equipped with a mechanism for actively transporting iodide. For instance, the gastric and colonic mucosa avidly transport iodide and the follicular cells of the ovaries have the same capacity. Several relevant publications on this subject are available, but to my knowledge, little information obtained with modern technology, as used here, has yet been reported. The possibility of damage in tissues others than the thyroid after  $^{131}\text{I}$  therapy, especially secondary malignancies, remains a major concern (3-5).

## References

1. Grewal RK, Larson SM, Pentlow CE, Pentlow KS, Gonen M, Qualey R, Natbony L, Tuttle RM. Salivary gland side effects commonly develop several weeks after initial radioactive iodine ablation. *J Nucl Med* 2009;50:1605-10. Epub September 16, 2009.
2. Silberstein EB. Reducing the incidence of  $^{131}\text{I}$ -induced sialadenitis: the role of pilocarpine. *J Nucl Med* 2008;49:546-9. Epub March 14, 2008.
3. Metso S, Auvinen A, Huhtala H, Salmi J, Oksala H, Jaatinen P. Increased cancer incidence after radioiodine treatment for hyperthyroidism. *Cancer* 2007;109:1972-9. [Erratum, *Cancer* 2007;110:1875.]
4. Sawka AM, Thabane L, Parlea L, Ibrahim-Zada I, Tsang RW, Brierley JD, Straus S, Ezzat S, Goldstein DP. Second primary malignancy risk after radioactive iodine treatment for thyroid cancer: a systematic review and meta-analysis. *Thyroid* 2009;9:451-7.
5. Hieu TT, Russell AW, Cuneo R, Clark J, Kron T, Hall P, Doi SA. Cancer risk after medical exposure to radioactive iodine in benign thyroid diseases: a meta-analysis. *Endocr Relat Cancer* 2012;19:645-55.