**Summary: Radiation protection of the patients' entourage treated for hyperthyroidism with radioiodine**

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**Introduction:**

The exposure of the patients' entourage who underwent vectorized internal radiation therapy is a subject that raises many questions. We have already conducted a study on the entourage of patients treated for thyroid cancer [1], this time we have focused on patients with hyperthyroidism. These patients do not benefit of any hospitalization, though it is important to know the impact of radiation protection instructions in the exposure of their cohabitants.

**Material and method:**

For this study, we have solicited the entourage of 34 patients treated for hyperthyroidism by administering radioiodine capsule. These people agreed to be dose-monitored wearing an OSL (Optically Stimulated Luminescence) dosimeter on a collar during 10 days, noting the details of their days, the hours and distance passed in the presence of the treated patient. We have analyzed their responses and mapped their exposure.

**Results:**

The entourage exposure is of course related to the administered activity (fixed dose based on thyroid hormone levels). However, the link between the patient and the monitored person of his entourage, helps to define two distinct classes: Parents (20) and Spouses (14). The results show that spouses are more exposed than parents. However, in both cases, we measured exposures exceeding 1 mSv (10% of parents and 14% for spouses), the public's exposure limit.

**Conclusion:**

It is important to provide radiation protection instructions to outgoing vectorized internal radiation therapy's patients, as well as their entourage, for both thyroid cancer and hyperthyroidism. Note that the non-compliance with these instructions can result an exposure exceeding 1 mSv, the public's exposure limit.

**References:**

[1] Gabriel S, Farman B, Bourrelly M, Carpentier O, Sebag F, Palazzo FF, et al. Radiation doses to cohabitants of patients undergoing radioiodine ablation for thyroid cancer: poor compliance with radiation protection guidelines but low radiation exposure. Nucl Med Commun 2011;32:829–833