University Hospitals of Leicester NHS Trust

Metabolic Medicine

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Radiation Safety after Radioactive Iodine

Radioactive iodine is an effective treatment for thyrotoxicosis - it is given in the form of a single capsule to swallow which contains a radioactive form of iodine. Treatment is organised in collaboration with Dr Peat in the Radiotherapy department who holds the official 'license' to prescribe radioactive treatments.

The radioactivity treats and controls the overactivity of the thyroid gland so that medical treatment for thyroid overactivity can usually be stopped - either immediately or after a few weeks or months. If overactivity does recur soon after radioiodine we may need to restart treatment with Carbimazole (or PTU) temporarily, and/or use a 'β-blocker' called Propranolol to block your symptoms.

What are the restrictions after radioactive iodine?

The radioactive material will stay in your body for several days. In order to reduce the amount of radiation other people will receive from you - there are a number of restrictions on what you should do for a number of days after you receive the radioactive iodine. These rules are particularly strict for contact with children (anyone less than 16 years old) and pregnant women. If these restrictions are followed then other members of your family and all other people you meet will receive insignificant amounts of radiation as a result of your treatment and your contact with them.

After our standard dose of Radioactive Iodine to treat thyrotoxicosis (15mCi or 550MBq) the following standard radiation safety restrictions will be applied:

Avoid all close contact with children (aged under 16) or pregnant women for 12 days.

- This means you should not cuddle children at all. You should generally keep a distance of at least 1 metre (4 feet) away from children except for very brief periods of time (5 minutes or less). The same restrictions apply to contact with pregnant women and you should not sleep in the same bed if your partner is pregnant.

Avoid extended periods of close contact with children or pregnant women for 25 days.

- Some close contact is allowed but you should not cuddle children for more that 15 minutes per day. For the rest of the time you should keep a distance of at least 1 metre (4 feet). The same restrictions apply to contact with pregnant women and you should not sleep in the same bed if your partner is pregnant.

Sleeping with your partner

- you should not sleep with another person in the same bed **for 4 days**

Avoid prolonged close contact with other persons away from home for 1 day

- You should avoid situations were you will be closer than 1 metre (4 feet) to another person for more than 3 hours - this includes on public transport or places of entertainment.
- Occasionally this may mean staying away from work.

Avoid becoming pregnant or fathering children for 4 months

What about the effect of radiation on me?

Possible bad effects of radioactive iodine on the person who receives it have been very carefully studied and the results are very reassuring

Hypothyroidism:

- Most people who receive radioactive iodine therapy eventually develop an underactive thyroid & need to take the natural hormone replacement *thyroxine* for the rest of their lives. This is typically one tablet/day.
- For this reason we will need to monitor your thyroid blood tests regularly after treatment - and we will usually arrange this as part of the 'Thyrotoxicosis Shared-Care Scheme' in collaboration with your General Practitioner

Thyroid eye disease:

- Many people with thyrotoxicosis have thyroid eye disease (dysthyroid eye disease, thyroid orbitopathy or Grave's ophthalmopathy). Symptoms include watering, soreness and prominence of the eyes, and swelling or puffiness of the eyelids. In more severe cases double vision or blurring of vision can occur.
- Studies have shown that the risk of a 'flare up' of thyroid eye disease is greater after radioactive iodine (15% of cases during the next 6 months) than after other medical treatment (3% of cases). For this reason, we tend to avoid radioactive iodine in patients with significant eye disease.
- The risk of a flare up of thyroid eye disease after radioactive iodine can be reduced by treating with a high dose of steroid tablets, however this dose of steroids would often be associated with steroid side-effects, and most people who receive radioiodine will not get a flare-up of eye disease. Therefore, we do not recommend preventative steroid treatment for everyone, and tend to avoid radioactive iodine in patients with significant thyroid eye problems unless there is a good reason why other treatments are unsuitable. If you have thyroid eye problems and need radioactive iodine, or would prefer this treatment, then we will consider you case individually to decide what treatment might be necessary.

Risk of cancers:

- Extensive, long term studies suggest that overall risk of getting cancer and/or dying from cancer is *not* increased in people who had radioactive iodine compared to the normal population. Some studies have actually shown a *reduced* cancer risk after treatment

Thyroid cancer:

- Recent studies suggest that the risk of thyroid cancer may be slightly increased in patients who have received radioactive iodine compared to the normal population (the relative risk is 3 times the expected risk, but still only 1 case in every 8000 patient-years of follow-up). It is not known if this risk is actually due to radioactive iodine or simply related to the thyrotoxicosis itself. Thyroid cancers are usually easily treated and rarely cause serious problems. The actual risk to your life & health therefore appears very small.

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Internet URL's: www.btf-thyroid.org www.endocrineweb.com/hyper1.html