



# RADIOACTIVE IODINE

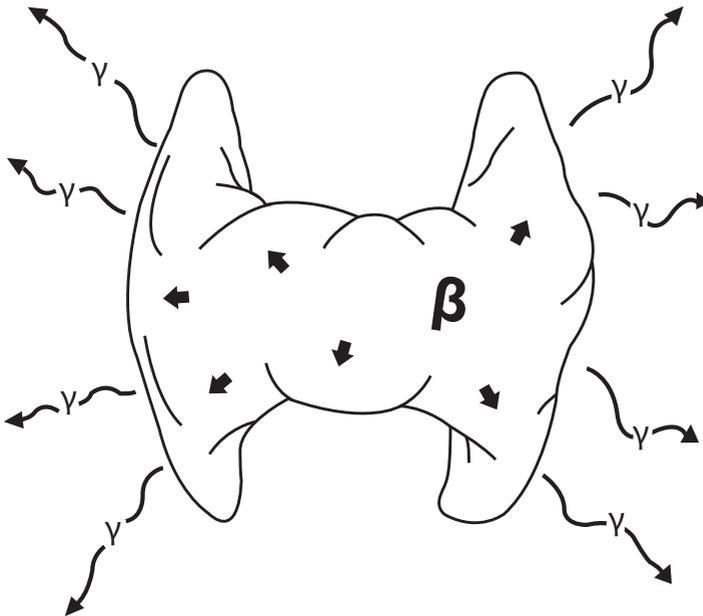
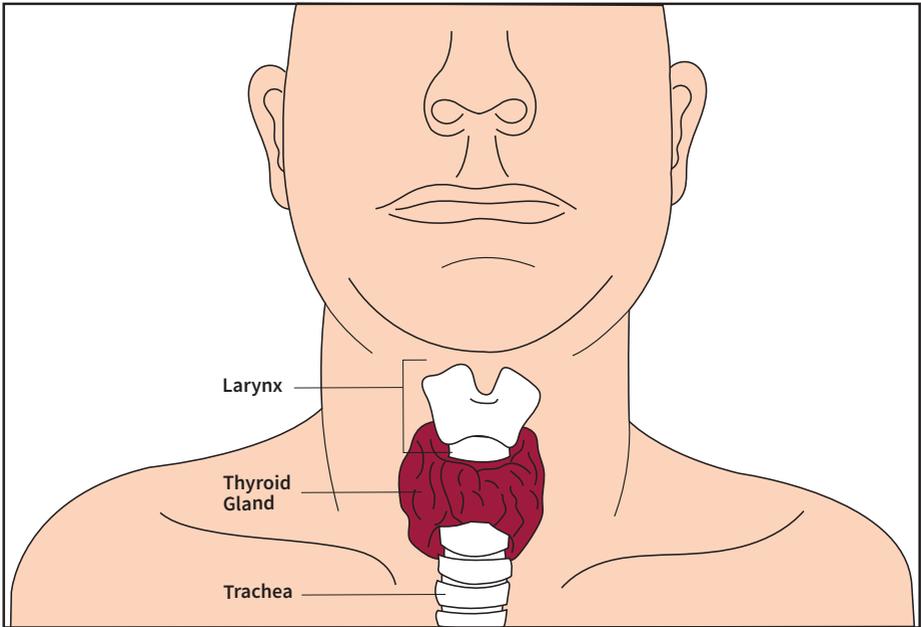
## Treatment Information

Regional Cancer Treatment Service (RCTS)  
Radiation Oncology Department



*MIDCENTRAL HEALTH*

# RADIOACTIVE IODINE TREATMENT



Radioactive isotope iodine-131 simultaneously emits two types of radiation: beta minus ( $\beta^-$ ) used for the treatment and Gamma ( $\gamma$ ) used for diagnosis.

Your doctor has arranged for you to have a dose of radioactive iodine to treat your thyroid. The following notes are intended to let you know the reason for this, what you may expect and what precautions need to be taken.

Radioactive iodine (radioiodine, I131) is commonly used to treat patients with over-active thyroid glands, and this is usually done as an outpatient. In your case the dose of radioiodine to be used is much greater so we must take extra precautions to avoid unnecessary radiation exposure to the general public.

## **WHY AM I BEING OFFERED THIS TREATMENT?**

Radioactive iodine is used following removal of your thyroid gland and is used to kill off any remaining thyroid tissue in the neck and remaining cancer cells. You are to be given this treatment probably because you have a "well-differentiated" kind of thyroid tumour; one which could spread if untreated, but which responds well to appropriate treatment. 100% removal of the thyroid by surgery is usually not possible because of the need to protect the parathyroid glands (pea-sized glands attached to the thyroid) and because of the possibility of damage to the nerves for the vocal cords, or to other structures in the neck.

## **HOW DOES RADIOACTIVE IODINE WORK?**

Iodine is a necessary dietary element required to make thyroid hormone. I131 is also concentrated in thyroid tissue and in many well-differentiated thyroid tumours. It is given by mouth in a capsule, that is absorbed from the stomach into the blood stream, then "seeks out" thyroid or thyroid tumour tissue. Any tissue which concentrates I131 gives itself a lethal radiation dose. Other organs of the body do not concentrate the I131 so are not damaged. The I131 therefore completes the removal of the thyroid and also targets any tumour spread elsewhere in the body, if there is any.

## **HOW LONG DOES RADIOACTIVE IODINE STAY IN MY BODY?**

In a patient who has had almost all their thyroid removed (as you have) less than 20% of the dose given remains in the body within 24 hours. The remainder is removed from the body, mostly in your urine. Small amounts also leave the body in saliva, sweat and bowel motions.

# HOW CAN OTHERS BE EXPOSED TO RADIATION FROM THE RADIOACTIVE IODINE?

Just as light shines through a thin sheet of paper, the gamma rays emitted by radioactive iodine radiate from their source in all directions and some “shine” out of your body. The “dose” received by another person would be relatively small but we are required to ensure that unless a person receives some benefit from exposure then this should be minimised.

After taking the radioiodine capsule you are not “infectious”, but you could think of yourself as a radiator, where the amount of “heat” diminishes rapidly with distance from the source.

Reducing exposure to radiation can be done by reducing the time of exposure (as with sun bathing), by using shielding (similar to wearing a sun hat) and by keeping just a little further away from the source (in this case YOU).

A further possible source of radiation exposure to others is from your contaminated wastes (urine, sweat, tears, saliva, bowel motions) so these must also be disposed of safely, and good hygiene is necessary to avoid contaminating surfaces or areas others may touch or pass by. You can take the following precautions during the first few days after returning home:

- Sleep alone and avoid kissing or sexual intercourse.
- Avoid prolonged close contact with others, particular young children and pregnant women.
- Wash your hands with plenty of soap and water each time you use the toilet.
- After using the toilet flush twice.
- Keep toilet clean and rinse bathroom sink and tub after use.
- Keep your toiletry items separate from the rest of the family.
- Try and stay at least 2 metres away from others.

At the time of discharge you will be advised what other precautions may be necessary in order to minimise radiation exposure to your family and other people. These precautions have various time frames and these will be determined at the time of your discharge.

## **ARE THERE SIDE EFFECTS?**

Most patients having this treatment experience few or even no side effects. If there is more than a little thyroid remnant there may be some discomfort in the neck after the first treatment, starting about the second day and lasting several days. Some patients experience some nausea soon after taking the capsule - you may ask to have an anti-nausea tablet to relieve this. You might also experience some pain over the salivary gland, altered taste and a dry mouth lasting for a few weeks following treatment.

Drinking plenty of fluids after treatment helps to wash out the radioactivity and reduce the risk of side effects. Ensure you have regular bowel motions as this is another way radioactivity leaves your body.

There may rarely be longer term side effects of radioiodine and your doctor will discuss these with you.

## **FEMALE PATIENTS: WHAT IF I AM PREGNANT OR BREAST FEEDING?**

It is very important that you do not have radioactive iodine treatment if you are pregnant or think there is a good chance that you may be. Please let your treatment team know if you are unsure before you have any treatment. A blood test will be done on the day of admission to confirm that you are not pregnant. You should use reliable contraception during investigation and treatment and for at least 6 months after radioactive iodine treatment. In the long term your fertility will not be affected even after repeated doses of radioactive iodine.

If you are breast feeding, you should stop this at least four weeks and preferably eight weeks before you have the radioactive iodine treatment and you should not start again afterwards.

## **MALE PATIENTS: WILL IT AFFECT MY ABILITY TO HAVE CHILDREN?**

Male patients are advised not to get their partner pregnant for four months after radioactive iodine treatment and until they are sure they will not need any more radioactive iodine treatment. In the long term your fertility should not be affected but there may be a small risk if repeated radioactive iodine treatment is needed.

# BEFORE ADMISSION TO HOSPITAL

- Three weeks before admission take your thyroxine every second day for one week. Then stop the thyroxine for the remaining two weeks before your admission. You may well start to feel tired if you require the thyroxine replacement, but this is necessary for a good effect. It is very important that you follow the instructions about stopping your thyroid medication as failure to do so may stop the treatment from working. You will start taking Thyroxine again two days after having the capsule (i.e. on the Wednesday after the dose).
- Some patients may not tolerate stopping thyroxine medication for other medical reasons. At your doctor's discretion you may be asked to remain on your thyroxine and have an injection of Thyrogen alfa 24 and 48 hours prior to your admission into your buttock. This will be arranged with the district nursing team and is essential for the radio-iodine to successfully work. Side effects might be nausea (11%), headache (6%), fatigue and dizziness (2%).
- If you are taking any other tablets you should carry on doing so and bring a supply with you on admission and show them to your doctor and nurse team.
- If you are taking any vitamins or mineral supplements or cod liver oil, you should stop taking them about three weeks before your therapy to help reduce your iodine levels.
- A diet rich in iodine can reduce the effectiveness of the treatment. Therefore, two weeks before coming in to hospital we recommend that you follow a low iodine diet. You will find a list of foods to avoid at the back of this booklet.
- The most important thing to prepare for during this admission is BOREDOM! Therefore bring things to keep yourself occupied for 2 - 3 days - books, magazines, computer games, laptop computer, knitting etc. There is a TV in your room.

Please note that all items you take into the room must be checked for radioactive contamination before you can take them home. If any of your items are contaminated, it may need to remain in the hospital for an extended period of time, or you will be instructed how to store it at home after you leave the hospital.

Please leave unessential jewellery and personal accessories at home. It is a good idea to bring an old toothbrush that you are prepared to throw away.

It is preferable that you remove all personal clothing and effects and wear hospital clothing for your entire length of stay. This is important in the

case of a spill. You should bring your own slippers/slip-ons, but please bring old footwear that can either be thrown away or kept in storage until the radioactivity has decayed away. Similarly, if you choose to wear your own clothing, bring old clothes that can be thrown away at the end of your treatment. Underwear can become very contaminated with radioactivity, so please bring some old underwear to throw away.

## **YOUR DIET**

### **Low-Iodine Diet Guidelines — Key Points**

- This is a Low-Iodine Diet, not a No-Iodine Diet or an Iodine-Free Diet.
- The goal is to take less than 50 mcg iodine per day.
- The diet is for a short time period, for the 2 weeks before a radioactive iodine treatment and 2 day after treatment.
- Avoid foods high in iodine (over 20 mcg per serving).
- Eat any foods low in iodine (up to 5 mcg per serving).
- Limit the quantity of foods moderate in iodine (5 to 20 mcg per serving).
- Read the ingredient lists on labels of packaged foods.
- Check with your specialist about medications you're taking.
- Read the ingredient list on all packaged foods.

### **Not Allowed— Avoid These Foods and Ingredients**

- Iodized salt, sea salt, and any foods containing iodized salt and sea salt.
- Seafood and sea products (fish, shellfish, seaweed, seaweed tablets, carrageenan, agar-agar, alginate, nori and other sea-based ingredients).
- Dairy products of any kind (milk, cheese, yogurt, butter, ice cream).
- Egg yolks or whole eggs. Small amount in prepared foods are allowed.
- Bakery products containing iodine.
- Molasses
- Foods containing Red food Dye
- Cured foods, such as ham, corned beef and sauerkraut
- Most Chocolate (due to milk content).
- Soybeans and soybean products such as tofu, soy milk, soy sauce.
- Avoid some other beans: red kidney beans, lima beans..
- Iodine-containing vitamins and food supplements.

## **Allowed Foods and Ingredients**

- Fruits except rhubarb and maraschino cherries (with Red Dye).
- Vegetables: preferably raw or frozen without salt, except soybeans.
- Unsalted nuts and unsalted nut butters.
- Whites of eggs.
- Fresh meats up to 200gram a day.
- Grain and cereal products, provided they have no high-iodine ingredients.
- Pasta provided it has no high-iodine ingredients.
- Sugar, jelly, jam, honey, maple syrup.
- Black pepper, fresh or dried herbs and spices.
- Oils. All vegetable oils, including soy oil.
- Sodas (except with Red Dye #3), fruit juices.
- Non-instant coffee, non-instant tea,
- Beer, wine, other alcoholic beverages.

# DISCHARGE FROM HOSPITAL

You will be discharged from the hospital most likely between 24 and 72 hours after the start of the treatment.

On discharge, the items you have brought to the room and are taking back home will be checked for contamination. You will also be advised how to minimize radiation exposure to your family members, colleagues at work and public.

A "radionuclide instructions card", similar to the one shown below, will be given to you, specifying the time frames for the different precautions you will have to take, for example to avoid close contact with small children and pregnant women.

 Regional Cancer Treatment Service, Radiation Oncology Dept Palmerston North Hospital, 50 Raene St Palmerston North, NZ Enquiries: Ward 23 Phone: (06) 350 8043	
<b>RADIONUCLIDE INSTRUCTION CARD</b>	
.....	Patient name.....
.....	Radionuclide: Iodine-131
.....	Activity.....GBq
.....	Administered on.....
.....	Doctor.....
<i>Please carry this card with you at all times until the latest date of restrictions and for six months when travelling through ports and airports, and if travelling overseas.</i>	

<b>PLEASE OBSERVE THE FOLLOWING RESTRICTIONS</b>	
1. Avoid journeys on public transport until.....	
2. Avoid prolonged close contact with adults until.....	
3. Do not return to work until.....	
4. Avoid prolonged personal contact with children and pregnant women until.....	
5. Do not sleep in the same bed with partner until.....	
6. ....	
.....	Med. Physicist.....
.....	Date.....
c 2234	

You may start, or resume taking replacement thyroxine tablets 2 days after taking the radio-iodine capsule.

## FURTHER TREATMENTS?

As a routine procedure we generally give two doses, following the above pattern. The second dose is given about three months after the first. Often the dates for the second dose can be arranged before discharge from hospital after the first dose.

The scan after the second I131 dose is likely to show little or no thyroid uptake. If so, and if no abnormal uptake is seen elsewhere then this is usually the end of these treatments.

If the scan suggests that there is, or may be, spread of the tumour taking up I131 then we would probably proceed to further doses at intervals of 2 - 4 months, until no trace remains.

It will still be important to keep taking thyroxine life-long, and you will still be followed up by your GP and/or specialist, depending on circumstances.

If you have further queries please contact:

Ward 23, Palmerston North Hospital, Phone (06) 350 8043

## MONITORING OF YOUR RADIOIODINE LEVELS

During your stay in the Ward, the level of radiation emitted from your body will be checked several times by a member of staff from the Medical Physics Department. This helps us estimate for how long you need to remain in the Ward, which is usually between 24 and 72 hours.

## HYGIENE

Your room will have an en suite toilet, hand basin and shower.

Using the toilet:

- Avoid urine spills and men should preferably urinate in the sitting position
- Flush twice after every use
- Keep the toilet especially clean
- Wash your hands thoroughly after every use
- When using the sink for washing hands or brushing teeth, please run the water continuously. Run the water in the sink for 20secs after use as well.

## RUBBISH & LINEN

The rubbish and linen bags may only be removed after being checked for radioactive contamination.

## NUCLEAR MEDICINE SCAN

You will have a scan in the Nuclear Medicine department that will either be before you are discharged from the hospital, or at a later date. Your specialist will decide this before the discharge.

## ADMISSION TO HOSPITAL

- You will be admitted to hospital on a Monday morning, as the radioactive iodine comes only once a week.
- You will be admitted to a single side room. All medical and nursing admission procedures and required tests are performed before the radioactive iodine is given.
- You will be told about the precautions, restrictions and procedures, and shown where the facilities are.
- You will have a rubbish bag for disposable rubbish and a linen bag for used hospital linen in the room.
- No materials taken into the room may be removed until they have been checked for radioactivity.
- You may move about the room but must wear footwear.

## THE TREATMENT

- The radioactive capsule (which looks just like a vitamin capsule) is usually given by a Nuclear Medicine staff member in your room. That's it! - only one capsule.
- You should notify the nursing staff promptly if you feel any signs of nausea and think you might vomit.

## VISITORS

- All visitors must report to the nursing staff before entering your room.
- No visitors until 24 hours after you have taken the capsule.
- No pregnant women.
- No children under age 16 years.
- Other visitors should stay as far away from you as possible, near the doorway.
- Visiting time is limited to 1 hour.
- Visitors must have no personal contact with you.
- Visitors should not handle any linen, food utensils, toiletries, or use your bathroom facilities.
- Visitors must not take anything from your room.



Regional Cancer Treatment Service (RCTS)  
Radiation Oncology Department

PLEASE BRING THIS WITH YOU ON YOUR FIRST DAY

Admission to Hospital

# RADIOACTIVE IODINE

