

# Self-Assessment Quiz

## Thyroid Imaging

The Continuing Education Committee presents this self-evaluation quiz on thyroid imaging. Answers can be found on p. 51. References are listed at the end of the quiz to assist you in your review of this topic. Please select the BEST answer for each of the questions listed below.

- A disadvantage in treating hyperthyroidism with radioactive iodine is:

  - nonresponse to single dose.
  - post-therapy hypothyroidism.
  - sterility.
  - a and b.
  - a and c.
  - all of the above.

Ref. 1 p. 69
- The preferred imaging agent(s) for diagnostic thyroid imaging is (are):

  - $^{123}\text{I}$ .
  - $^{125}\text{I}$ .
  - $^{131}\text{I}$ .
  - $^{99\text{m}}\text{Tc}$ .
  - a and d.
  - a, c, and d.

Ref. 2 pp. 23–24
- Iodine-131 is most commonly used for the treatment of benign and malignant disease because of its beta radiation.

  - True
  - False

Ref. 2 p. 28
- When  $^{131}\text{I}$  whole-body imaging is performed on patients with a history of thyroid cancer, the preferred imaging time postdose is:

  - 24 hr.
  - 48 hr.
  - 72 hr.
  - 96 hr.

Ref. 3 p T-14
- Patients scheduled to receive therapeutic doses of  $^{131}\text{I}$  should be admitted to the hospital with restrictions when the dose exceeds:

  - 25 mCi.
  - 30 mCi.
  - 50 mCi.
  - 60 mCi.
  - 100 mCi.

Ref. 4 p. 146
- The following radionuclides are actively transported into the thyroid gland by a process called "trapping":

  - $^{131}\text{I}$ .
  - $^{123}\text{I}$ .
  - $^{99\text{m}}\text{Tc}$ pertechnetate.
  - a and b.
  - all of the above.

Ref. 5 pp. 79–86
- Thyroid uptake determinations can be affected by:

  - radiographic contrast media.
  - dietary intake of iodine.
  - renal function.
  - beta-blockers.
  - a, b, and c.
  - all of the above.

Ref. 5 p. 84
- Elevated thyroid uptake is often seen in:

  - Graves' disease.
  - Hashimoto's thyroiditis.
  - toxic nodular goiter.
  - all of the above.

Ref. 5 pp. 84–86
- Which of the following can be used to image the thyroid in a patient who is taking thyroid medication such as synthroid?

  - $^{123}\text{I}$
  - $^{131}\text{I}$
  - $^{99\text{m}}\text{Tc}$ pertechnetate
  - $^{201}\text{Tl}$

Ref. 6 pp. 1515–1520
- Use of  $^{123}\text{I}$  instead of  $^{131}\text{I}$  for thyroid imaging will reduce the absorbed dose by a factor of:

  - 10.
  - 50.
  - 100.
  - 1000.

Ref. 7 p. 41
- are (is) not organified to form thyroid hormone, but slowly wash(es) from the gland.

  - Iodides
  - Iodine-131
  - Iodine-123
  - Technetium-99m pertechnetate

Ref. 5 p. 79
- Occasionally, a thyroid nodule will appear "hot" on a  $^{99\text{m}}\text{Tc}$  pertechnetate scan and "cold" on an iodine scan. This is because:

  - the nodule organified the iodine.
  - the nodule did not organify the iodine.
  - the nodule did not trap  $^{99\text{m}}\text{Tc}$ pertechnetate.
  - the nodule did not trap the iodine.

Ref. 8 pp. 35–43
- Errors in measurement of thyroid size made when using a pinhole collimator may occur due to:

  - incorrect orientation.
  - parallax error.
  - small dot size.
  - long acquisition time.

Ref. 9 pp. 418–420

14. A mass at the base of the tongue could be a:
- lipoma.
  - cyst.
  - fibroma.
  - lingual thyroid.
  - all of the above.
- Ref. 10 p. 194
15. Which of the following will suppress thyroid uptake of iodine for the longest period of time?
- synthroid
  - expectorants
  - IVP contrast
  - oral cholecystographic agents
- Ref. 11 p. 47

### References

- Sterling K. *Diagnosis and Treatment of Thyroid Disease*. Cleveland: CRC Press; 1975:69.
- Alazraki N, Mishkin F. *Fundamentals of Nuclear Medicine*. New York: Society of Nuclear Medicine; 1984:23–28.
- Yulle DL. A Clinician's Guide to Nuclear Medicine Procedures. NEN-DuPont, 1983:T-14.
- Early P, Sodee DB. *Technology and Interpretation of Nuclear Medicine Procedures*. St. Louis: CV Mosby; 1972:146.
- Mettler F, Guiberteau M. *Essentials of Nuclear Medicine*. Orlando, FL: Grune and Stratton; 1983:79–86.
- Brendel AJ, Guyot R, Jeandot G, et al. Thallium-201 Imaging in the follow-up of differentiated thyroid carcinoma. *J Nucl Med* 1988; 29:1515–1520.
- Kline J. *CRC Manual of Nuclear Medicine Procedures*. Boca Raton, FL: CRC Press; 1983:41.
- Alazraki N, Mishkin F. *Fundamentals of Nuclear Medicine*. New York: Society of Nuclear Medicine; 1988:35–43.
- McKittrick M, Park H, Kosegi, J. Parallax error in pinhole thyroid scintigraphy: A critical consideration in the evaluation of substernal goiters. *J Nucl Med* 1985; 26:418–420.
- Treves S, Larsen R, Pezzuti R. The thyroid. In: Treves S, ed. *Pediatric Nuclear Medicine*. New York: Springer-Verlag; 1985:194.
- Kline J. *CRC Manual of Nuclear Medicine Procedures*. Boca Raton, FL: CRC Press; 1981:47.