Appendix 1 (as supplied by authors): Medically supervised test for absorption of oral levothyroxine[1,2]

1. Patients with cardiac or CNS conditions are excluded.

2. Test is conducted in a supervised medical setting.

3. The patient is kept on an overnight fast except for water.

4. The regular LT4 dose is held.

5. Patients are weighed on the morning of the examination and weight is recorded in kg.

6. An oral levothyroxine load with 1000 μg is administered with a glass of water under medical supervision (50 μg or 100 μg tablets are preferred).

7. Blood samples are drawn at times –30, 0, 30, 60, 120, 240, 360 minutes

8. Impaired bioavailability is suspected if the percent increase* from baseline is less than 50% (empirically set parameter) (normal values: approximately 100%–200%). With intermediate results (50% to 100%), need to factor in Vd.

CNS, central nervous system; fT4, free thyroxine; kg, kilograms; LT4, levothyroxine; L, liter; pmol, picomoles; μg: microgram; Vd, volume of distribution for LT4 (14% × body weight)

*Percent increase = peak serum fT4 (pmol/L) – baseline serum fT4 pmol/L divided by baseline serum fT4 pmol/L ×100

References

1. d'Estève-Bonetti L, Bennet AP, Malet D, et al. Gluten-induced enteropathy (coeliac disease) revealed by resistance to treatment with levothyroxine and alfacalcidol in a sixty-eight-year-old patient: a case report. *Thyroid* 2002;12:633-6.

2. Ogawa D, Otsuka F, Mimra Y, et al. Pseudomalabsorption of levothyroxine: a case report. *Endocr J* 2000;47:45-50.

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