

# Response to the letter: endocrine disturbances related to the use of lithium

*Carta resposta: distúrbios endócrinos relacionados ao uso do lítio*

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We would like to thank you for your comments and interest in our article. Undoubtedly, the findings of your study add more information to the topic, with potential for further discussion.

According to our knowledge, studies on the use of free T4 (fT4) as a biomarker for therapeutic adjustment in patients using lithium is still an underexplored and innovative field of research with very conflicting results in literature research.

Some studies do show a decrease in fT4 as described in your study (1). Others try to correlate this finding with a worsening in clinical response, showing greater severity of depression and more affective disorders related with a decreased fT4 level, but in an uncontrolled setting (2). In another study, a decrease in fT4 levels correlated with improvement in maniac symptoms (3).

Some other studies rather correlate higher T3 and fT3 levels with an improvement in psychiatric symptoms, instead of fT4 (4), describing a greater fT3/fT4 ratio as a favorable outcome marker of lithium prophylactic efficacy in major depressive disorders, and conceiving T3 concentration as a necessary condition to optimal therapeutic response (5).

On the other hand, a study in rats showed greater fT4/fT3 ratio following lithium administration, suggesting lithium would have a more pronounced effect in decreasing fT3 rather than fT4 (6). We also found an study in schizophrenic patients suggesting a possible inhibitory effect of lithium on peripheral conversion of fT4 to fT3 in susceptible patients showing an increased fT4 after lithium administration (7). Another study over a 12-month period with bipolar patients showed elevation in TSH, but no changes in fT4, fT3, T3 and T4 during lithium treatment whatsoever (8).

All these studies with these variable and conflicting findings show the need of further investigation to better understanding the relation of lithium and thyroid status concerning its therapeutic action in psychiatric disorders.

## REFERENCES

1. Ozpoyraz N, Tamam L, Kulan E. Thyroid abnormalities in lithium-treated patients. *Adv Ther.* 202;19(4):176-84.
2. Frye MA, Denicoff KD, Bryan AL, Smith-Jackson EE, Ali SO, Luckenbaugh D, et al. Association between lower serum free T4 and greater mood instability and depression in lithium-maintained bipolar patients. *Am J Psychiatry.* 1999;156(12):1909-14.
3. Lee S, Chow CC, Wing YK, Shek AC, Mak TW, Ahuja A, et al. Thyroid function and psychiatric morbidity in patients with manic disorder receiving lithium therapy. *J Clin Psychopharmacol.* 2000;20(2):204-9.
4. Baumgartner A, von Stuckrad M, Muller-Oerlinghausen B, Gräf KJ, Kürten I. The hypothalamic-pituitary-thyroid axis in patients maintained on lithium prophylaxis for years: high triiodothyronine serum concentrations are correlated to the prophylactic efficacy. *J Affect Disord.* 1995;34(3):211-8.

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5. Schöpf J, Lemarchand T. Lithium addition in endogenous depressions resistant to tricyclic antidepressants or related drugs: relation to the status of the pituitary-thyroid axis. *Pharmacopsychiatry*. 1994;27(5):198-201.
6. Allagui MS, Hfaiedh N, Vicent C, Guermazi F, Murat JC, Croute F, et al. Changes in growth rate and thyroid- and sex-hormones blood levels in rats under sub-chronic lithium treatment. *Human Exp Toxicol*. 2006;25(5):243-50.
7. Terao T, Oga T, Nozaki S, Ohta A, Otsubo Y, Yamamoto S, et al. Possible inhibitory effect of lithium on peripheral conversion of thyroxine to triiodothyronine: a prospective study. *Int Clin Psychopharmacol*. 1995;10(2):103-5.
8. Lombardi G, Panza N, Biondi B, Di Lorenzo L, Lupoli G, Muscettola G, et al. Effects of lithium treatment on hypothalamic-pituitary-thyroid axis: a longitudinal study. *J Endocrinol Invest*. 1993;16(4):259-63.