Dear Editor:

We would like to report on the impact of the ovarian hyperstimulation syndrome (OHSS) on thyroid function. We believe that the effects on thyroid function were due to the high estradiol levels in our patient. A 37-year-old woman with autoimmune hypothyroidism taking 125 µg levothyroxine (LT4) daily who was scheduled to undergo controlled ovarian hyperstimulation (COH) was seen in the outpatient clinic for evaluation of the thyroid function. Serum thyroid-stimulating hormone (TSH) was at the upper limit of normal (3.5 mIU/L; reference value 0.27–4.2), and free thyroxine (FT4) was normal (11.1 ng/L; reference value 9.3–17.2). She was advised to increase her dose of LT4 to 150 µg daily for at least 4 weeks before starting COH. The patient refused and did not follow this recommendation before COH. COH consisted of 6 days of Menopur 1125 IE, and to trigger ovulation (OI) she received 10,000 U hCG. Unfortunately, she developed grade 2 (moderate) OHSS on day 5, and to deliver a healthy boy to end the pregnancy of normal-term length.

Adequate thyroid function is required for a normal gonadal function and optimal fertilization (3,4). Therefore, tests for thyroid function and autoimmunity should be performed in the workup of infertile women, and thyroid dysfunction, if discovered, should be appropriately treated. Since COH may increase the demands for thyroid hormone (5,6), we recommend that serum TSH concentrations be in the range of 0.27–2.5 mIU/L by adjusting the thyroid hormone dose in hypothyroid women who are scheduled for COH. The present case illustrates that a high normal TSH in a patient with thyroid autoimmunity (TAI) and hypothyroidism can lead to supranormal TSH levels after COH complicated by OHSS. In a previous study we showed that COH has a greater impact on thyroid function in women with TAI than in women without TAI (7).

In the particular setting of OHSS complicating COH as illustrated in the present case report, the dose increment in thyroid hormones was much higher compared to that in spontaneous pregnancies or in women with uncomplicated COH as described in the paper by Davis et al. (8). In that paper it is advised that pregnant women treated with LT4 increase their dosage with a mean of 32% after fertility treatment and 30% in spontaneously pregnant women. The authors observed no significant differences in the need to increase LT4 in both groups of women, but postconception TSH levels were clearly higher after COH compared to those in spontaneous pregnant women. The lack of significance may, however, be related to a sampling error. This case report and the study by Davis et al. make it probable that the increment in LT4 is mainly dependent on the duration and the level of increment in E2 levels. Further studies are definitely needed to determine the exact increment in LT4 according to E2 levels.

This case report and the data on the impact of high estrogens on thyroid function add some arguments in favor of lowering the upper TSH limit before COH to anticipate the possible development of clinical hypothyroidism (9,10). Screening for thyroid disorders is recommended in women with infertility, followed by strict follow-up, when COH is planned and if TAI was initially associated.

References
4. Cramer DW, Sluss PM, Powers RD, McShane P, Ginsburgs ES, Hornstein MD, Vironis AF, Barbieri RL 2003 Serum prolactin and TSH in an in vitro population: is there a link...


FIG. 1. Evolution of thyroid function before and after controlled ovarian hyperstimulation (COH).
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