Usefulness Of Dynamic TSH Evaluation For Diagnosis Of Subclinical Hypothyroidism In Luteal Deficiency

Antonio Mancini[1], Elena Giacchi[2], Aurora Saporosi[2], Giulio Olivieri[1], Chantal Di Segni[1], Riccardo Marana[2], Alfredo Pontecorvi[1]

[1]Operative Unit of Endocrinology, Catholic University of the Sacred Heart, Rome, Italy, [2]Center for Study and Research on Natural Fertility Regulation, Catholic University of the Sacred Heart, Rome, Italy

OBJECTIVES

It is known that thyroid disorders can influence menstrual cycle, but subclinical hypothyroidism (SH), as cause of ovulation disorders and luteal deficiency (LD) in particular, is underestimated. Monitoring women's cycles, according to the Billings Ovulation Method (BOM), can allow a precise timing for hormonal evaluation and diagnose LD. The Method is based on vulvar observation of the "Mucus Symptom" whose pattern is an accurate and precise marker of the ovarian function, both in ovulatory and anovulatory cycles (Fig.1). Usually, a basal TSH value of 2.5 µU/ml is considered as cut-off for a good luteal function, but alone cannot identify all cases of SH. In order to verify the sensitivity of TSH dynamics, we have performed TRH test (200 µg iv) in patients with LD, stratifying women according to different ranges of basal TSH values.

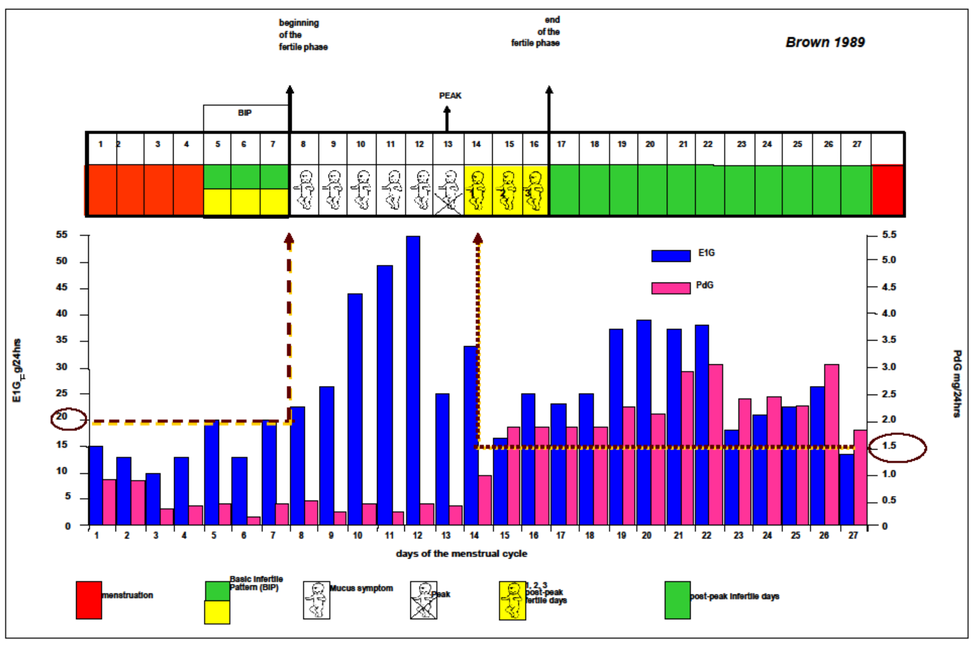


Figure 1

METHODS

We enrolled 65 women, 20-45 ys, consulting our Centre aimed to learn the BOM for achieving or spacing pregnancy. 40 exhibited an history of infertility. 10 women with normal cycles were studies as controls. LD was diagnosed by a shortened post-Peak phase length (<11 days) and/or low progesterone (P) levels on the 6th or 7th day after the "mucus peak". SH was diagnosed with TSH peak >15 µU/ml after TRH administration (normal basal TSH range: 0.4-3.2 µU/ml, by ECLIA).

RESULTS

According to basal TSH levels, patients were divided in 3 groups: group 1 (n=17, 0.8-1.4 µg/ml), group 2 (n=20,1.5-2.4), group 3 (n=28, 2.5-6.5). An increased TSH response was observed in 3/17 patients of group 1, 14/20 of group 2, 27/28 patients of group 3 (Fig.2). In the overall group, the evidence of thyroid autoantibodies was 23% and therefore we excluded autoimmune mechanism as cause of ovarian dysfunction. Mean progesterone levels were in the low-normal range in all groups (mean±SEM: 6.8±1.7 in group 1, 10.5±2.3 in group 2, 8.5±0.1 in group 3) (Fig.3).

Figure 2

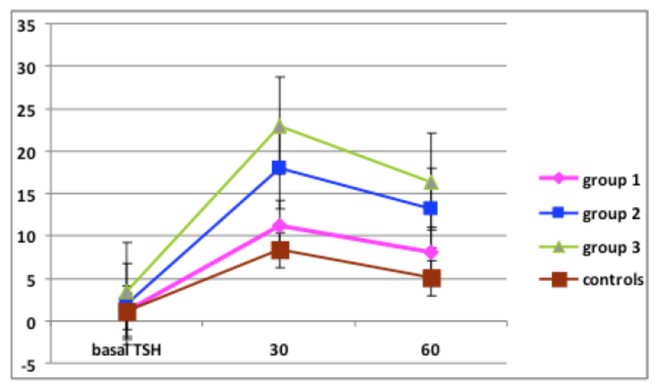
LUTEAL DEFICIENCY

Basal TSH levels

group 1 n= 17 (0.8-1.4 ug/ml)
group 2 n= 20 (1.5-2.4 ug/ml)
group 3 n= 28 (2.5-6.5 ug/ml)

OVULATORY CYCLES

Controls n= 10



TRH test results

Progesterone levels

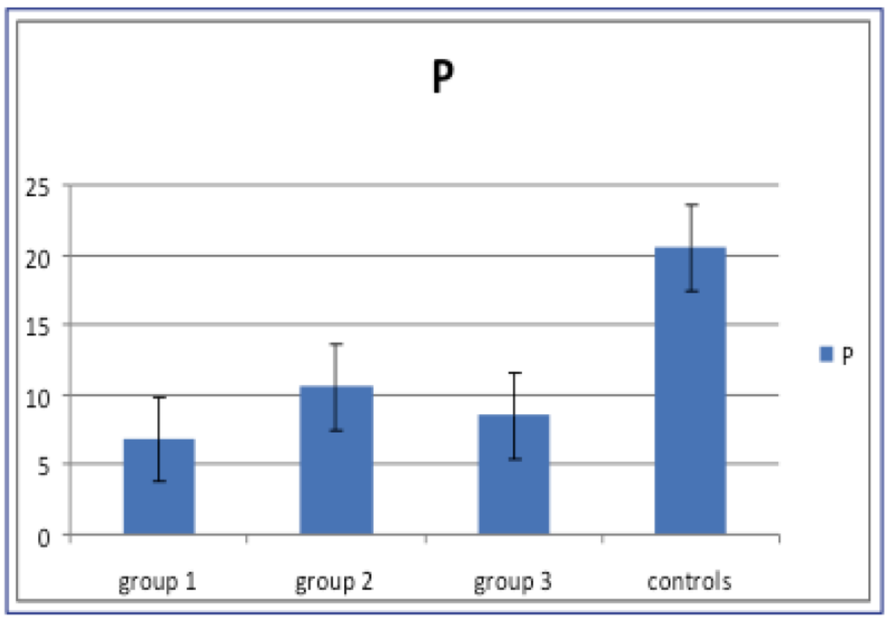


Figure 3

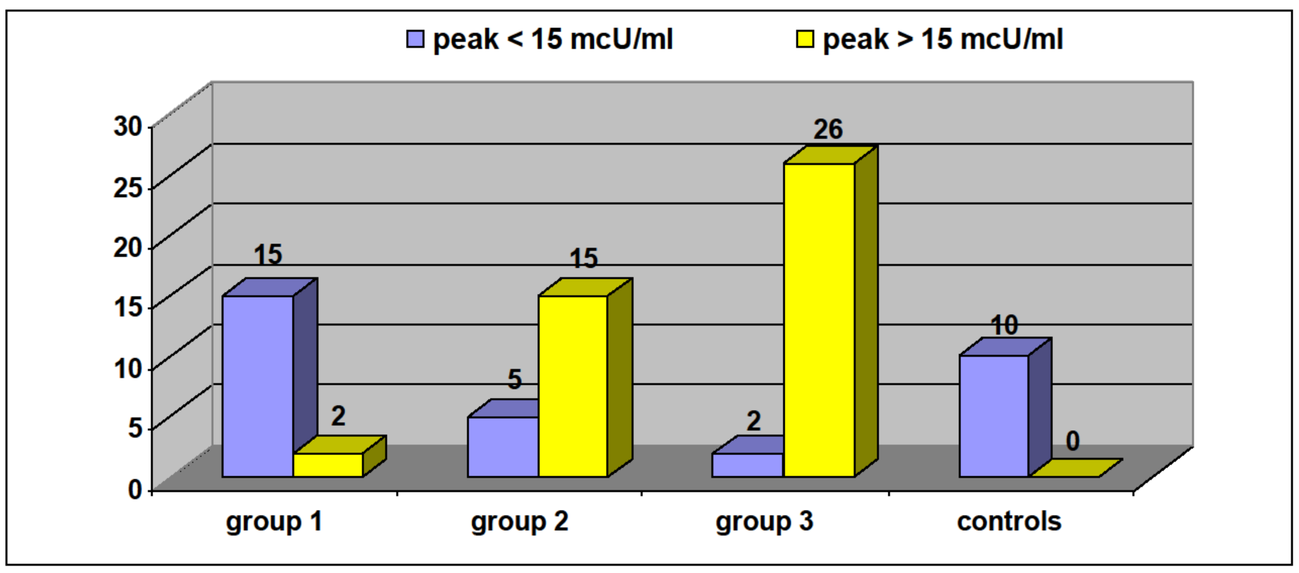


Figure 4

CONCLUSIONS

These data suggest that SH has an important impact on luteal function; TRH test is important for diagnosis of SH even if basal TSH levels are < 2,5 µg/ml. BOM can be effective for screening these situations and give rise a useful tool in diagnostic and therapeutic options in subfertile couples. Dynamic TSH evaluation can allow to diagnose SH,even in presence of normal TSH basal levels.