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P-39 Fictitious hyperestrogenism in perimenopause: Difficulties in diagnosis by laboratory pitfalls
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Introduction: Laboratory errors related to interfering substances can cause significant morbidity related to unnecessary investigations and interventions and patient anxiety. Estradiol (E2) is quantified mainly with competitive immunoassays. The prevalence of analytical interference can be up to 6% and is due to the impairment of the interaction between test antibody and analyte, causing
falsely elevated levels. Nevertheless, interference due to heterophile antibody is extremely rare. **Clinical Case:** A 51-year-old woman, normal weight, nulliparous, irrelevant previous medical history, menarche at 12 years old and regular menstrual cycles, was referred to the Endocrinology Department due to elevated E2 level. She was followed 4 years before in another institution with no formal diagnosis complaining of severe vasomotor symptoms, vaginal dryness and menometrorrhagias. She was on combined oral contraceptives for 10 years as a method of contraception, which she stopped two years ago. The first two E2 random values were 2362 and 3121 pmol/L, respectively when she had 47 and 49 years old. During our evaluation in January 2021, at the age of 51 years old, in the 4th day of her menstrual cycle, the laboratory evaluation revealed: FSH 9.56 mUI/mL (2.5-10.2), LH 5.43 mUI/mL (1.9-12.5), Prolactin 18.12 ng/mL (2.8-29.2), E2 3530.51 pmol/L (71.6-529.2), 17-Hydroxiprogesterone 0.52 ng/mL (0.32-1.47), DHEAS 75.9 ug/dL (35-430), 4-Androstenedione 1 ng/mL (0.3-3.3) and SHBG 137 nmol/L (18-144). Transvaginal pelvic ultrasonography performed 15 days after menstrual period revealed 2 subserous leiomyomas, a 12 mm endometrial line and a right ovary with a pre-ovulatory follicle. CT scan of adrenal glands was unremarkable and a sellar MRI revealed a 4mm area of hypocaptation in the left region of the adenohypophysis. During this period the patient was treated with escitalopram 10 mg od, with vasomotor symptoms improvement. Two years later, after a 6-month period of amenorrhea, she repeated the analytical evaluation that revealed raised gonadotropins levels (FSH 102.12 mUI/mL, LH 25.37 mUI/mL), low progesterone 0.91 mUI/mL (< 4.45) but maintained a largely elevated estradiol level (1128.01 pmol/L) with undetectable free Estriol (< 0.10 ng/mL). This pattern motivated laboratorial review of blood samples by mass spectrometry and not by chemiluminescence as before. The value was substantially lower (447 pmol/L) hypothesizing the presence of heterophilic antibodies. **Conclusion:** Although false E2 elevation due to analytical interference is rare, it must be suspected when results are discordant with the clinical picture and there is no evidence of neoplastic disease. Here, we report a case of falsely elevated E2 that led to prolonged investigation and major impact on a female’s quality of life during the challenging period of perimenopause.