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1: [Endokrynol Pol.](#) 2005 Nov-Dec;56(6):876-82.

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17beta-estradiol regulation of human growth hormone (hGH), insulin-like growth factor-I (IGF-I) and insulin-like growth factor binding protein-3 (IGFBP-3) axis in hypoestrogenic, hypergonadotropic women.

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OBJECTIVE: Ovarian hormonal function may be as important contributing factor to hGH-IGF-I-IGFBP-3 axis as age. **AIM:** To examine plasma hGH, IGF-1 and IGFBP-3 levels in women with premature ovarian failure compared to healthy normal controls and postmenopausal ones. **PATIENTS:** Group A-15 women with premature ovarian failure (POF) (mean: age 38.9+/-5.2 years, FSH 101.4+/-29.0 IU/l; 17beta-estradiol 22.5+/-14.6 ng/l). Group B consisted of 15 menopausal women (mean: age 54.7+/-2.7 years; FSH 81.9+/-32.1 IU/l; 17beta-estradiol 17.1+/- 8.0 ng/l). Group C - controls - 15 normally menstruating women (mean: age 37.1+/-9.0 years; FSH 6.2+/-1.0 IU/l; 17beta-estradiol 144.8+/-117.1 ng/l). **METHODS:** Body mass and BMI were measured. Basic fasting plasma hGH, IGF-I, IGFBP-3, insulin, testosterone and LH as well as prolactin (PRL), FSH and estradiol were assessed by RIA kits. Statistical analysis. Shapiro-Wilk test, Mann-Whitney u-test, Spearman rang correlation coefficient, stepwise multiple regression. **RESULTS:** Mean serum IGF-I level was the lowest ($p < 0.005$) in group B (172.0+/-54.6 microg/l) and the highest in group C (273.6+/-109.0 microg/l). The mean plasma IGF-I level in group A was similar (NS) (208.3+/-66.5 microg/l) to that found in group B and lower ($p < 0.02$) compared with that in group C. The lowest ($p < 0.005$) serum IGFBP-3 level was found in group B (3.1+/-0.7 microg/l) compared to group C (4.4+/-0.3 microg/l). The mean plasma IGFBP-3 level (3.1+/-1.0 microg/l) in group A was lower than in group C ($p < 0.005$) but identical as in group B. No statistically significant differences between groups were observed in mean hGH levels. Women in group A and C were younger ($p < 0.001$) than those in group B. The lowest mean estradiol level was found in groups A and B. The highest was in group C ($p < 0.001$). Mean plasma LH and FSH levels were higher ($p < 0.001$) in groups A and B vs group C. In group C there were links between IGF-I and age ($r = -0.60$; $p = 0.014$) The IGF-I/age relation disappeared in the groups A and B ($r_A = -0.26$; $r_B = 0.10$; NS). The same regards IGFBP-3/ age link ($r_A = -0.44$, NS; $r_B = 0.31$; NS). Estradiol level was related to hGH levels in group C ($r = 0.54$; $p < 0.05$). In none of groups hGH/IGF-1 as well as IGFBP-3/hGH relations were found. Prolactin accounted for 69% of the variance in IGF-I level in the group B ($p = 0.003$) and for 24% in group A (NS). Testosterone accounted for 88% ($p = 0.004$) of the variance in IGF-I level in group B and IGFBP-3 was responsible for 86% ($p = 0.038$) of

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the variance in IGF-I level in group C. Again IGFBP-3 was responsible for 47% ($p=0.023$) in group A and for 49% ($p=0.04$) in group B of the hGH variance. CONCLUSIONS: 17 β -estradiol may be as important contributor to insulin-like growth factor-I (IGF-I) plasma level as age in hypoestrogenic, hypogonadotropic women.

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