Gender dependence of serum soluble Klotho in acromegaly

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OBJECTIVES

In acromegaly, disease activity is biochemically assessed by growth hormone (GH) and insulin-like growth factor-1 (IGF-1) levels. However, they are often discrepant, as several factors including gender influence their relationship. We recently found excessively high serum levels of soluble Klotho (sKl) in acromegalic patients, which depended on GH to a comparable extent as IGF-1. To further elucidate the relationship between GH and sKl, we examined the effect of gender on sKl in patients with untreated acromegaly.

PATIENTS AND DESIGN

We determined GH, IGF-1 and sKl in sera of 62 consecutive patients with newly diagnosed acromegaly (31 females/31 males, aged 20-85 years).

RESULTS

For their given GH excess at presentation with acromegaly, females had lower IGF-1 (490 ± 33 vs 604 ± 33 ng/ml, P = 0.02), but higher sKl [5171 ± 590 vs 3439 ± 431 pg/ml (mean ± SE), P = 0.02] levels than males. In multiple regression analysis, IGF-1 was closely associated with logGH (estimate 139, SE 47, P = 0.005) and BMI (estimate 14.2, SE 4.8, P = 0.005). sKl was closely associated with logGH (estimate 3088, SE 652, P = 0.0001) and gender (estimate 2034, SE 612, P = 0.002), and to a lesser extent with BMI (estimate 174, SE 66, P = 0.01).

CONCLUSIONS

For a given GH status, sKl concentrations are higher and IGF-1 concentrations are lower in women than in men. GH is the strongest predictor for both sKl and IGF-1, but gender needs to be considered when using these parameters for monitoring acromegalic patients.