

Low serum estradiol and high SHBG increase fracture risk in elderly men

Previous studies on the influence of androgen and estrogen levels on fracture risk in elderly men have produced conflicting results. A new prospective study that used gas chromatography–mass spectrometry to measure sex hormone levels in men aged 69–80 years has shown that low estradiol and high sex-hormone-binding globulin (SHBG) levels are independent predictors of fracture risk.

The study cohort comprised 3,014 men from three Swedish cities, who were followed for an average of 3.32 years after enrolment. Serum testosterone, dihydrotestosterone and estradiol were measured by gas chromatography–mass spectrometry, and SHBG was measured by immunoradiometric assay. Free testosterone and free estradiol levels were calculated from these values. Age and fracture risk were positively associated with SHBG levels, and inversely associated with levels of all sex steroids. Estradiol and testosterone levels were correlated, and the association with fracture risk was stronger for free than for total hormone levels. Age-adjusted regression models suggested that levels of free estradiol (but not free testosterone) were independently associated with fracture risk (hazard ratio 1.36 per 1 SD decrease). SHBG levels also independently predicted fracture risk (hazard ratio 1.32 per 1 SD increase). Both associations remained significant after adjustment for height, weight, femoral neck BMD and grip strength. The relationship between estradiol and fracture risk was nonlinear: threshold estradiol levels below which fracture risk increased were 16 pg/ml for total estradiol and 0.27 pg/ml for free estradiol.

Original article Mellström D *et al.* (2008) Older men with low serum estradiol and high serum SHBG have an increased risk of fractures. *J Bone Miner Res* **23**: 1552–1560

Risk of gestational diabetes mellitus is increased in hypertensive women

Women with prior gestational diabetes mellitus (GDM) are at an increased risk of high blood pressure in the years following delivery.

To investigate whether a relationship exists between high blood pressure before and during early pregnancy and an increased risk of GDM, Hedderson and Ferrara conducted a case-control study using data from a Californian medical care program.

The study included pregnant women who did not have diabetes before pregnancy and who were screened for GDM between 24 and 28 weeks' gestation. The 381 women identified as having GDM (cases) were compared with 942 randomly selected control women with negative screening results. Blood pressure findings during early pregnancy were divided into the following three categories: normotensive (<120/80 mmHg), prehypertensive (120–139/80–89 mmHg), or hypertensive (\geq 140 and/or \geq 90 mmHg or use of antihypertensive medications).

After adjustment for age, ethnicity, gestational week of blood pressure measurement, BMI and parity, women had around a 1.5-fold or twofold increased risk of developing GDM if they were prehypertensive or hypertensive, respectively. In a subgroup analysis, high blood pressure measured during the 5 years before pregnancy also predicted a substantially increased risk of GDM. Furthermore, women with a BMI \geq 25.0 kg/m² before pregnancy who were hypertensive in the first trimester had an almost threefold increased risk.

The findings suggest that routine blood pressure assessments could identify women at high risk of GDM, and enable the early initiation of preventative interventions.

Original article Hedderson MM and Ferrara A (2008) High blood pressure before and during early pregnancy is associated with an increased risk of gestational diabetes mellitus. *Diabetes Care* [doi:10.2337/dc08-1193]

Tight blood-pressure control must be maintained in patients with type 2 diabetes

Findings from the United Kingdom Prospective Diabetes Study (UKPDS) highlighted the benefits of tight blood-pressure control in type 2 diabetes. In this randomized trial, hypertensive patients with newly diagnosed type 2 diabetes who were assigned tight blood-pressure control ($n=758$; target <150/85 mmHg) rather than less-tight control ($n=390$; target