Oral estrogen therapy is associated with declining renal function in elderly women

The onset of menopause seems to diminish the protection afforded by female sex against progressive loss of kidney function. Ahmed *et al.* have conducted a large observational study examining the effects of hormone therapy on renal function.

The study population comprised females aged at least 66 years with two outpatient serum creatinine measurements taken at least 18 months apart; 1,459 were using estrogen-only, progestin-only or combination hormone therapy and 4,386 (controls) were not using any hormone therapy. Hormone users tended to be younger, were less likely to have diabetes, and had a higher mean baseline estimated glomerular filtration rate (eGFR) than non-users. After adjusting for age, diabetes, comorbidity and baseline eGFR, use of estrogen-only therapy was associated with an additional eGFR decline of 1.21 ml/min/1.73 m^2 during the median follow-up period of 2 years (range 1.9–2.2 years), compared with non-use of hormone therapy. The increase in eGFR decline was proportional to the cumulative estrogen dose and was seen only with oral estrogen administration. No association with eGFR decline was observed for transvaginal estrogen formulations, progestin-only therapy or combination therapy.

Although the study did not control for the timing of initiation of hormone therapy (perimenopausal vs postmenopausal), the results indicate that oral estrogen therapy is associated with accelerated decline of renal function in elderly postmenopausal women.

Original article Ahmed SB *et al.* (2008) Oral estrogen therapy in postmenopausal women is associated with loss of kidney function. *Kidney Int* **74:** 370–376

Waist:hip ratio predicts subsequent chronic kidney disease better than BMI

Most studies of associations between obesity and subsequent chronic kidney disease (CKD) used BMI to measure obesity. However, BMI might not reflect obesity levels in individuals with atypical body composition, especially in those with increased muscle mass. Waist:hip ratio specifically measures central obesity (visceral adiposity) and identifies individuals at increased risk of metabolic dysfunction.

Elsayed and colleagues analyzed pooled data from 13,324 participants in the Atherosclerosis Risk in Communities Study and the Cardiovascular Health Study. At baseline, participants' mean age was 57.4 years, mean BMI was 27.2 kg/m^2, and mean waist:hip ratios were 0.96 in men and 0.89 in women. During follow-up (9.3 years), CKD developed in 300 or 710 patients (2.3% or 5.5%), when defined on the basis of serum creatinine level or estimated glomerular filtration rate, respectively.

After adjustment for confounding variables including age, sex, race, education level, comorbid conditions, and baseline renal function, BMI no longer correlated with development of CKD. By contrast, increased waist:hip ratio still correlated strongly with incident CKD, which suggests that waist:hip ratio identifies additional risk for CKD beyond that conferred by pre-existing diabetes, hypertension, or dyslipidemia. In addition, increased waist:hip ratio was associated with increased risk of a composite outcome (decreased kidney function and death), whereas increased BMI seemed to protect against this outcome. Interestingly, increased BMI also favors survival in studies of patients on dialysis or with heart failure.

The authors recommend that future studies should use waist:hip ratio instead of BMI to assess obesity.

Original article Elsayed EF *et al.* (2008) Waist-to-hip ratio, body mass index, and subsequent kidney disease and death. *Am J Kidney Dis* **52:** 49–57

BMI is associated with hypertension in women, even within the 'normal' weight range

Individuals who have a BMI >25 kg/m^2 are at an increased risk of developing hypertension, but the correlation between BMI and hypertension is unclear for women with a BMI <25 kg/m^2. To investigate this association, Shuger *et al*. conducted an observational study of women with normal baseline blood pressure, most of whom were within the 'normal' weight range.

From 1971 to 2004, 5,296 healthy women (aged 20–77 years, mean BMI 22.7 kg/m^2, most white) underwent a baseline evaluation