Epidemiology

3.4 Fat Distribution and Cardiovascular Risk in Obese Women

G. Salvetti (1), F. Santini (1), A. Pucci (1), D. Versari (2), A. Viridis (2),
P. Fierabracci (1), G. Scartabelli (1), G. Querci (1), A. Tamberi (1), A. Pinchera
(1), A. Salvetti (2)

(1)Dipartimento di Endocrinologia e Rene, Pisa, Italy, (2)Dipartimento di
Medicina Interna, Pisa, Italy

Introduction. Obesity is associated with an increased risk of cardiovascular (CV) events. However prospective studies examining the relationship between body weight and CV mortality have reported varying findings and body fat distribution rather than excess body weight appears associated with an increased risk of CV events.

Aim. To evaluate the relationship between global CV risk (calculated by Progetto Cuore algorithm) or coronary heart disease (CHD) risk (calculated by the Framingham algorithm) or CV mortality risk (calculated by SCORE algorithm) and various anthropometric measures in a cohort of obese women.

Methods. We evaluated 162 women, age (mean $\pm$ SD) 46 $\pm$ 8 years (range 35-65); body weight 111 $\pm$ 18 Kg (78-185); BMI 43.4 $\pm$ 6.7 Kg/m² (32.1-66.3); waist circumference 124 $\pm$ 14cm (93-160); hip circumference 130 $\pm$ 13.9 cm (105-190); waist-to-hip ratio (WHR) 0.95 $\pm$ 0.08 (0.73-1.14). Visceral fat (VF) thickness, measured by ultrasound, was 85.5 $\pm$ 23.1 mm (32-160). CHD risk, evaluated according to the Framingham algorithm, was 9.4% $\pm$ 5.8. CV risk evaluated according to the Progetto Cuore algorithm was 1.72% $\pm$ 1.76. CV mortality risk evaluated according to SCORE algorithm was 0.45 $\pm$ 0.64% (0.007-3.66%).

Results. Among various parameters, WHR and VF were independently and directly associated with the risk (p<0.01). The association of WHR with the three algorithms was stronger than that observed between WHR and any of the parameters used to calculate the risk. In conclusion, among obese women the risk varies depending on the algorithm used for calculation. Among various anthropometric parameters WHR appears as the best marker of CV/CHD risk and/or CV mortality risk, suggesting that in obese women fat distribution rather than fat mass is associated with obesity-derived cardiovascular complications. This association is not driven by a single dominant risk factor used in the calculation of the global risk, but reflects the overall effect of multiple risk factors.

Conclusions. The subcutaneous adipose tissue, the muscle mass or other factors involved in determining the WHR might be involved in the expression of various risk factors, in addition to the known role played by the visceral fat.