Rosacea is a chronic inflammatory disease with a prevalence varying between 1 and 20% and is the highest in fair-skinned Europeans (1). The appearance of rosacea differs between the sexes; there is a female predominance and the onset of the disease is earlier in females than in males (1). Of the 4 subtypes of rosacea (erythematotelangiectatic, papulopustular, ocular and phymatotic) the erythematotelangiectatic type is more common in females and the phymatous type in males (2).

There is a rising consensus that rosacea is not only limited to the skin but is a chronic systemic inflammatory disease. Several systemic diseases have recently been shown to be associated with rosacea (3). However, it is disputed whether rosacea is associated with cardiovascular (CV) diseases. The risk for comorbidities in rosacea has also been suggested to differ between sexes. Egeberg et al. found that rosacea is associated with type 1 diabetes, celiac disease, multiple sclerosis and rheumatoid arthritis particularly in females (4).

The aim of this study was to clarify the CV risk factors in rosacea patients by comprehensively studying the CV risk profile of middle-aged patients with rosacea.
in females during midlife and later on (8). One study has previously found an association between insulin resistance and rosacea (9) and our finding of increased insulin levels are in agreement with that study.

Previously, several studies have suggested an association between rosacea and CV diseases (9–12) but there are opposing results as well (13, 14). Duman et al. evaluated 60 patients with rosacea and found increased CV risks, including dyslipidemia and highly sensitive C-reactive protein levels (10). A large Taiwanese cohort study of 30,000 rosacea patients presented an association between rosacea and independent coronary artery disease (12). A corresponding finding was made in a twin study (n = 550) where higher risk for cardiac comorbidity was evident in patients with rosacea (15). On the contrary, a Turkish case-control study (n = 85) did not find any association between rosacea and CV risk factors (14), and a Danish cohort study (n = 4,948) reported no increased risk of death due to CV events in rosacea patients (13). The controversial findings between the studies may be explained by different study methods, such as varying diagnosing of rosacea: The Taiwanese register study was based on the International Classification of the Diseases (ICD) (12), while the Danish register-based study comprised of the in-hospital treated patients or those treated in the secondary care setting (13). Also, the fact that information about the confounding factors, such as tobacco smoking, was based on the ICD codes may have led to some underestimation (13). The major strength of our study was the clinical skin evaluation, performed by dermatologists instead of self-reporting or register based data. CV risk factors were enrolled comprehensively; trained nurses performed measurements, the cardiologist measured CIMT and risk scores for CV diseases were used. National Registers (concerning medical history, previous chronic diseases, education status) were used to supplement self-reporting. Life style factors were surveyed widely. We were also able to survey variety of possible confounding factors, such as tobacco smoking and BMI, due to the unique birth cohort study design.

Our findings suggest that female patients with rosacea may have an increased risk of CV diseases, which should be taken account when evaluating rosacea patients in clinical practice. However, further case-control studies among females of different age groups are needed to verify our findings. Our finding of high testosterone levels in rosacea patients raises an important question of whether anti-androgen treatments, such as spironolactone, should be used more often in the treatment of rosacea in middle-aged females, especially in cases that are unresponsive to a more conventional therapy.

REFERENCES