Summary

Introduction:

Metabolic syndrome and depression are considered to be important risk factors for the development of cardiovascular diseases. The prevalence of metabolic syndrome is estimated to be around 25% of the adult population in industrialized countries, including the population of Czech Republic. The prevalence of depression is estimated to be around 15% of the same adult population. It is not clear yet on the base of poor literature, which is so far available, whether there is a causal relationship between these factors or not.

Objective:

To try to find a relationship between metabolic syndrome and depression in a population sample using clinical and metabolic parameters.

Methods:

The prevalence of depressivity or other psychopathologies was evaluated with the use of self-report questionnaires in a randomly selected population sample of 259 people living in Pilsen. The questionnaires were mailed to the subjects. Those of them who responded were invited to the examination of anthropometric and laboratory parameters defining the metabolic syndrome and to the examination of some other parameters. The occurrence of risk factors of the metabolic syndrome of insulin resistance and the relationship between depression and metabolic syndrome was investigated. Metabolic syndrome of insulin resistance was diagnosed as a presence of 3 of the following 5 factors: Triglycerides □ 1.7 mmol/l, HDL cholesterol < 1.0 mmol/l in males or < 1.3 mmol/l in females, blood pressure □ 130/85 mmHg (and/or antihypertensive medication), fasting plasma glucose □ 6.1 mmol/l, waist circumference > 102 cm in males or > 88 cm in females. The subjects who scored 50 or higher on the Zung´s Self-Rating Depression Scale were considered to be depressive.

Results:

Besides some significant gender differences in the anthropometric and metabolic parameters and besides some significant differences between the subjects with and without metabolic syndrome, there have been statistically significant differences between the subjects with and without increased depressivity according to the Zung´s Self-Rating Depression Scale. Waist to hip ratio was significantly higher in both women and men with depressive symptoms (mean 0.82 vs 0.86, P=0,02; mean 0.96 vs 0.93, P=0,01, respectively). Comparison of other anthropometric parameters in women showed only a trend toward a higher waist circumference in women with depressive symptoms (84 cm vs 82 cm, P=0.15). Men with depressive symptoms had significantly higher waist circumference (mean 100 cm vs 94 cm, P=0.007) and body mass index (mean 29 kg/m2 vs 27 kg/m2, P=0.02) than those without depressive symptoms. Women with depressive symptoms had significantly lower HDL cholesterol levels (mean 1.79 mmol/L vs 1.90 mmol/L, P=0.04). There were no significant differences in triglyceride levels in women after adjustment for age. Men with depressive symptoms had significantly higher triglyceride levels (mean 2.19 mmol/L vs 1.65 mmol/L, P=0.02). Women with depressive symptoms showed a trend toward an increased fasting plasma C-peptide level (mean 0.77 nmol/L vs 0.63 nmol/L, P=0.10) and a trend toward higher HOMA index (mean 2.27 vs 1.78, P=0.17). In men with depressive symptoms there was also a trend toward an increased

fasting plasma C-peptide level and HOMA index (mean 0.85 nmol/l vs 0.73 nmol/l, P=0.09; mean 2.52 vs 1.92, P=0.11, respectively), and a trend toward a higher immunoreactive insulin level (mean 9.00 mIU/L vs 7.00 mIU/L, P=0.08). Women with depressive symptoms had significantly higher levels of urinary free cortisol (mean 219.40 vs 191.64 nmol/24 h, P=0.02) than those without depressive symptoms. There was a trend toward a lower serum cortisol

level in women with depressive symptoms (mean 413.99 vs 462.84 nmol/L, P=0.09). Men with depressive symptoms showed a trend toward an increased noradrenaline urine excretion (mean 69.77 vs 63.84 μg/24 h, P=0,17).

Conclusion:

Our results support the possible link between depression and risk factors of metabolic syndrome of insulin resista.