Metabolic profile of obese subjects
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ABSTRACT
Obesity, a global scourge, has deleterious effects on health because it is associated in the long term with multiple and severe complications. Frequent metabolic and hemodynamic complications combine to form the metabolic syndrome: glycoregulation disorders, dyslipidemia, hypertension, coagulation disorders, hyperuricemia, the common factor of which is hyperinsulinemia and the consequences in terms of atherosclerosis and particularly severe vascular accidents. These complications occur mainly in the middle part of life. In the light of these data, in this protocol carried out in a sample of subjects followed in consultation for obesity, we aimed at assessing the metabolic profile in order to establish the correlation between certain parameters of the metabolic syndrome and overweight.

INTRODUCTION AND PURPOSE OF THE STUDY
Obesity is associated with many cardiovascular and metabolic complications. The metabolic complications of obesity are not inevitable. About two-thirds of overweight people and 45% of obese people do not have biological abnormalities. However, the number of obese people without biological abnormality decreases as Body Mass Index (BMI) and age increase. It is now accepted that obesity has deleterious effects on health and longevity. The risk of developing type 2 diabetes increases about twice (on average) with moderate obesity, five times with a net obesity and up to ten times with morbid obesity. Some studies come to the conclusion that the duration of obesity is more important than its severity. Metabolic and hemodynamic complications combine to form the metabolic syndrome: glycoregulation disorders, dyslipidemia, hypertension, coagulation disorders, hyperuricemia, the common factor of which is hyperinsulinism and the consequences in terms of atherosclerosis, particularly severe vascular accidents. These complications occur mainly in the middle part of life.

In the light of these data, we wanted to establish the metabolic profile of obese subjects in order to establish the correlation between certain parameters of the metabolic syndrome and overweight.

MATERIAL AND METHODS
Our prospective analysis involved 58 obese subjects divided into two groups according to sex. These patients benefit from a hygiene-dietetic management. The body mass index of these subjects is equal to or greater than 30 kg/m².

The blood dosage of glucose, cholesterol, triglycerides and uric acid was performed by enzymatic method specific to each parameter. The software Statistical Package of Social Sciences (SPSS 17.0) was used for statistical analysis of results; ANOVA analysis allowed the comparison of the groups.

RESULTS AND STATISTICS
58 subjects were overweight, of which 30 women and 28 men were the subject of this study.

| Table 1: Comparative study of biological balance of obese subjects. |
|---------------------|-----------------|----------------|
| Patients           | Women (30)      | Men (28)       |
| Age (years)        | 55              | 53             |
| BMI (kg/m²)        | 33              | 31,50          |
| Glucose (g/l)      | 1,30            | 1,40           |
| Cholestérol (g/l)  | 2               | 1,80           |
| Triglycerides (g/l)| 1,60            | 1,70           |
| Uric acid (mg/l)   | 59              | 65             |
Figure 1: The average age of the patients who participated in the study is approximately the same; they are middle-age.

Figure 2: Comparison of the mean BMI of the 2 groups; The BMI of men and women is greater than 30 without significant difference between the two groups.

Figure 3: The average blood glucose level in both groups is higher than normal with no significant difference between women and men (normal blood glucose being between 0.70 and 1.10 g / l).

Figure 4: Cholesterol levels are normal in both sexes.

Figure 5: The histogram comparing the average of triglyceride levels in the 2 groups showed higher than normal rates with a significant difference (P <0.05); the normal rate being <1.50 g / l.

Figure 6: Hyperuricemia was observed in the two groups with a significant difference at P < 0.05 in comparison with the usual normal level (< 50 mg/l for women and 60 mg/l for men)
DISCUSSION

It is well established that central obesity (abdominal and intra-abdominal) is clearly associated with hyperinsulinemia, insulin resistance and its pathological consequences. Many endocrine and metabolic abnormalities have been observed in both human obesity and animal models.

Various etiologies have been proposed in the animal model, ranging from genetic obesity (double recessive fa gene, double recessive ob or db gene, single dominant gene, multiple genes), obesity produced by nutritional manipulations (Fat and so called "cafeteria"). Lesions of the central nervous system (hypothalamus in particular) produce obesity as well as a decrease in physical activity.

The most frequent alterations found in most cases of human or animal obesity are the combination of hyperinsulinemia, resistance to insulin action, an increase in circulating lipids (Free fatty acids, triglycerides) and moderate or severe hypertension.

When obesity is established, hyperinsulinemia is present both on an empty stomach and because of stimulation by glucose or other insulin-secretion stimulators. This pathology coincides with a lower sensitivity to the action of insulin, especially in the muscle, adipose and liver. Even at maximum doses the insulin response of these organs can be amputated.

The association of obesity with gout, known for a long time through cross-sectional studies, was confirmed in a prospective study of the cohort of American healthcare professionals. The risk of gout increased with body weight and the ratio of hip to chest. The relative risk of gout was also close to 3 in men with a body mass index more than 35 kg/m².

The hyperinsulinism of the metabolic syndrome explains the association between metabolic syndrome and hyperuricemia and gout: indeed, insulin increases the tubular reabsorption of urate. Moreover, high consumption of fructose causes hyperuricemia and obesity, so that gout and metabolic syndrome have common dietary factors. However, for some hyperuricemia precedes the onset of the metabolic syndrome.

CONCLUSION

Obesity, a global scourge, is often associated with metabolic disorders. Abnormalities of carbohydrate tolerance and hyperuricemia are very common in obese adults.

The occurrence of a lithiasis disease also seems very likely. It is therefore systematically investigate the association between uricemia and other components of the metabolic syndrome in order to identify patients regular medical monitoring to assess their metabolic profile.

Therefore, the management of obesity is multidisciplinary. Indeed, particular attention must be paid to metabolic disorders, namely diabetes and hyperuricemia, the improvement of which is necessary to contribute to the reduction of co-morbidities associated with obesity.