

## OBSTRUCTIVE SLEEP APNEA SYNDROME IN YOUNG AND MIDDLE-AGED MEN WITH COPD

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**Abstract:** This article discusses the obstructive sleep apnea syndrome in young and middle-aged men with COPD. The results obtained allow us to consider the TyG index in patients with COPD as an independent integral indicator of IR, reflecting the close relationship of dyslipidemia with its leading role, with dysglycemia, which are markers of cardiovascular risk.

**Keywords:** sleep apnea syndrome, COPD, TyG index, integral indicator, close relationship, dyslipidemia, cardiovascular risk.

### Introduction

Obstructive sleep apnea syndrome (OSAS) and obesity are important risk factors for cardiovascular disease in all age groups in patients with chronic obstructive pulmonary disease (COPD). Independent association of OSAS with visceral obesity and insulin resistance (IR), along with little-studied gender differences in IR variants, necessitate the study of the main metabolic factors associated with OSAS in patients with COPD of working age with a body mass index (BMI) that does not reach obesity, taking into account gender.

**Purpose of the work:** to evaluate the relationship between OSAS and metabolic parameters in young and middle-aged men with COPD without verified obesity.

**Materials and methods:** Examined 38 men 42.5 [35.0; 50.3] years without hypertension, dysglycemia, with BMI less than 29.9 kg/m<sup>2</sup>, were divided into 2 groups according to the apnea/hypopnea index (AHI): group 1 (23 people, AHI<5.0), group 2 (15 people, AHI>5.0). Determined: BMI (kg/m<sup>2</sup>) waist circumference (WT, cm); fasting blood glucose (BG, mmol/l), insulin (IRI, IU/ml) with Insulin ABBOTT kits; triglycerides (TG), HDL and LDL (mmol/l) by the Konelab analyzer. IR was assessed

by  $HOMA-IR = (BG) \times (IRI) / 22.5$  (cutoff point 2.7); triglyceride-glucose index (TyG index) was calculated by the formula:  $\ln [TG (mg/dL) \times BG (mg/dL) / 2]$ , (cut-off point 8.65). Using the STATISTICA 10.0 program, nonparametric indicators were evaluated: median (Me), [25th; 75th percentile]; Spearman correlation coefficient (R), significance of differences according to the Mann-Whitney test (significance level for them  $p < 0.05$ ).

**Results and discussion:** age-comparable, groups 1 and 2 differed in BMI: 24.5 [23.1; 25.0] and 26.7 [21.2; 28.7]; WT: 85.0 [84.0; 90.0] and 93.0 [83.0; 97.0] respectively. There were no differences in lipid levels (TG 1.4 [1.0; 1.7] and 1.7 [0.8; 5.0]; HDL 1.3 [1.0; 1.5] and 1, respectively). 1 [0.76; 2.3]; LDL 3.5 [2.4; 4.0] and 3.2 [1.5; 5.5]) parameters, however, LDL levels significantly exceeded the target in both groups. Carbohydrate indicators were also comparable: BG levels, respectively, 5.3 [5.0; 5.6] and 5.1 [4.0; 6.0]; HbA1c – 5.2 [4.9; 5.8] and 5.4 [4.4; 6.1].

However, given the spread of BG and HbA1c levels in the groups, the presence of variants of impaired glucose tolerance in a number of examined patients cannot be ruled out. This possibility in group 2 is indirectly indicated by the index  $HOMA-IR = 1.5$  [1.2; 5.5], although the cut-off point was exceeded in only two people; in group 1, its indicators were 1.6 [1.2; 2.0]. With the comparability of groups in terms of the TyG index, its indicators exceeding the cut-off point were noted in both groups: respectively 8.6 [8.4; 9.0] and 8.9 [8.0; 9.8], which reflects the presence of IR in a complex (based on TG and BG) metabolic index. At the same time, TyG correlates with LDL in group 2 ( $R = 0.66$ ) while maintaining the correlation in the total matrix of both groups ( $R = 0.45$ ), as well as with HDL in group 1 ( $R = -0.45$ ), group 2 ( $R = -0.52$ ) and common matrix ( $R = -0.52$ ).

### Conclusion

The TyG index reflects IR even before the appearance of clear disorders of carbohydrate metabolism, regardless of OSAS, taking into account its correlations with LDL and their high levels, the leading role of the lipid component can be assumed. The

results obtained allow us to consider the TyG index in patients with COPD as an independent integral indicator of IR, reflecting the close relationship of dyslipidemia with its leading role, with dysglycemia, which are markers of cardiovascular risk.

## References

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