**RISK OF INCIDENT CARDIOVASCULAR DISEASE ACCORDING TO THE METABOLIC HEALTH AND OBESITY STATES**

**D. Navarro-González1**, L. Sánchez-Íñigo1, A. Fernández-Montero3,4,

J. Pastrana-Delgado3,4, J. Alfredo Martínez4,5,6

1 Garcia-Orcoyen Hospital, Navarra Health Service - Osasunbidea. Spain

3 University of Navarra Clinic, Pamplona. Spain

4 IdiSNA - Health Research Institute of Navarra

5 University of Navarra, Pamplona. Spain

6 Centre of Biomedical Research in Pathophysiology of Obesity and Nutrition (CIBERObn), Carlos III, Madrid. Spain

*Objectives*: To assess the risk of cardiovascular disease (CVD) according to the metabolic health and obesity states. The TyG index and the ATP-III components of the metabolic syndrome were used to define these states.

*Background:* Mortality from CVD has decreased in recent decades, attributed to reductions in cholesterol levels, blood pressure or smoking prevalence. However, these decreases were offset by raises in obesity and diabetes. Some obese individuals may be at low risk of metabolic related complications, while normal-weight individuals are not "healthy".

*Methods and Results*: A total of 5003 patients free of CVD participants were followed up during 9.1 ±4.3 years. A Cox proportional HR was used to estimate the risk of incident CVD across the metabolic health and obesity states.

The HR for metabolically unhealthy non-obese and obese was 1.49 (95% CI: 1.08-1.33) and 1.89 (95% CI: 1.24-2.89), respectively, according to the TyG index criteria for metabolic health. When using the ATP-III criteria for classification, the HR was 1.38 (95% CI: 1.07-1.77) and 1.40(95% CI: 0.94-2.10), respectively.

*Conclusions*: Metabolically unhealthy individuals exhibited a greater risk of CVD than metabolically healthy obese and non-obese. The TyG index may be a useful candidate marker to define the metabolic health status.

***Table 1*.** Risk of incident CVD according to the metabolic health and obesity states

|  |  |  |
| --- | --- | --- |
|  | **Metabolic health and obesity states based on TyG indexa** |  |
|  | **MHNO** | **MHO** | **MUNO** | **MUO** | ***p* for interaction** |
| **n** | 3289 | 673 | 632 | 409 |  |
| **Number of incident** **cases of CVD** | 241 | 50 | 102 | 71 |  |
| **Incidence (%)** | 7.32 | 7.43 | 16.14 | 17.36 |  |
| **Person-years** | 30809.9 | 5669.9 | 5533.7 | 3329.9 |  |
| **Incidence/1000 person-years** | 7.82 | 8.81 | 18.43 | 21.32 |  |
| **Multivariate adjusted model b** | 1 (ref) | 0.89 (0.59-1.33) | 1.49 (1.08-2.07) | 1.89 (1.24-2.89) | <0.001 |
|  | **Metabolic health and obesity states based on ATP-III criteriaa** |  |
|  | **MHNO** | **MHO** | **MUNO** | **MUO** | ***p* for interaction** |
| **n** | 3189 | 626 | 732 | 456 |  |
| **Number of incident** **cases of CVD** | 222 | 53 | 121 | 68 |  |
| **Incidence (%)** | 6.96 | 8.47 | 16.53 | 14.91 |  |
| **Person-years** | 30010.2 | 5385.1 | 6333.4 | 3614.8 |  |
| **Incidence/1000 person-years** | 7.39 | 9.84 | 19.10 | 18.81 |  |
| **Multivariate adjusted model b** | 1 (ref) | 1.07 (0.72-1.61) | 1.38 (1.07-1.77) | 1.40 (0.94-2.10) | <0.001 |
| a MHNO: metabolically healthy non-obese, MHO: metabolically healthy obese, MUNO: metabolically unhealthy non obese, MUO: metabolically unhealthy obese.  b Adjusted for age, sex, BMI, cigarette smoking, daily alcohol intake, lifestyle pattern, hypertension, type 2 diabetes, antiaggregation therapy, HDL-C, LDL-C and TG. |