Abstract: P5295

Stable and temporal metabolically benign obesity and cardiovascular disease onset in males and females: the missing link with adiponectin

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Background/Introduction: Metabolically healthy obesity (MHO) status has been recently conferred to be a transient condition with cohorts revealing that a considerable proportion, from 33% to 52%, lose their status over time. Purpose: To evaluate the stability of MHO, its effect on 10-year first fatal/non fatal CVD onset and the mediating effect of adiponectin. Methods: A prospective study was conducted during 2001-2012 studying n=1,514 males and n=1,528 females (aged >18 years old) free of CVD. Follow-up CVD assessment (2011-2012) was achieved in n=2,020 participants; of them, n=317 incident cases were identified. Obesity was defined as body mass index=30kg/m2 and healthy metabolic status as absence of all NCEP ATP III (2005) metabolic syndrome components (excluding waist circumference). Circulating adiponectin level was measured at baseline (4.0 (2.0) µg/mL). Results: MHO prevalence reached 4.8% (n=146) (4.9% in males and 4.7% in females, p=0.198). 28.2% of obese participants presented a metabolically benign status at baseline. In the 5-year follow-up period, transition to metabolically unhealthy status was observed for 33% of MHO participants. Within the decade, almost half of MHO participants resulted as metabolically unhealthy obese. Unadjusted analysis revealed that stable vs. temporal MHO subjects had better lifestyle (i.e. higher adherence to Mediterranean diet and better physical activity status) at the recruitment (all ps<0.05). Temporal MHO subjects presented lower adiponectin values (2.8 (1.1) µg/mL) compared with their stable MHO counterparts (4.1 (1.9) µg/mL) (p<0.05). Multivariate Cox regression analysis revealed no significant discrepancies on 10-year CVD risk between MHO and metabolically healthy non-obese subjects (Hazard Ratio (HR)=0.95, 95% Confidence Interval (95%CI) 0.37, 2.08, p=0.32). Only the subset of temporal MHO subjects reached the level of significance (HR=1.43, 95%CI 1.02, 2.01, p=0.04). Stable MHO status was not independently associated with 10-year CVD risk (p>0.05). Low vs. high adiponectin level was associated with ~1.3 times higher 10-year risk to move from MHO to metabolically unhealthy obesity status (HR=1.33 95%CI 1.10, 4.02). Sensitivity analyses revealed that adiponectin had a significant interacting effect on the examined associations (p for interaction=0.01); stratified analysis using the mean value of adiponectin to define the strata revealed that MHO (stable or temporal) status was positively associated with 10-year CVD event only in participants with low adiponectin levels i.e. below the mean value of 4.1 µg/mL (HR=1.45 95%CI 1.19, 3.68). Conclusions: Weight management is needed to prevent cardiometabolic features even in participants with increased weight status with healthy metabolic status. It is noteworthy that adiponectin may be an underlying path of the stability and CVD risk corresponding to this intermediate condition probably related with insulin resistance and other relevant paths.