

Influence of long-term exposure of obesity induced by unsaturated high-fat diet on the cardiac remodeling process

Mumuni Abdul Malik

University for Development Studies, Ghana

Background: Diet-induced obesity is one of the leading causes of cardiovascular morbidity and mortality that correlates with the duration and intensity of adiposity. This study tested the hypothesis that the increased time of exposure to obesity intensifies the cardiac dysfunction. In addition, also examined whether the functional impairment is due to increased levels of myocardial collagen.

Methods: Thirty-day-old male Wistar rats were distributed in control (C) and obese (Ob) groups. The C was fed a standard diet and Ob was alternately submitted to four palatable high-fat diets for 15, 30 and 45 weeks. The obesity was determined by adiposity index. The cardiac remodeling process was assessed by structural and functional analysis.

Results: Adiposity index was higher in Ob than C over time. Obesity promoted several comorbidities after 15, 30 and 45 weeks. LV mass and interventricular septum and posterior wall thickness in diastole after 15, 30 and 45 weeks were increased in Ob. However, obesity has led to an increase in LV relative wall thickness in the 30th and 45th weeks. Obesity did not promote changes in LV interstitial collagen in all periods. Obesity improved the systolic function after 30 weeks and myocardial dysfunction after 15 weeks, however, the duration of obesity did not intensify the cardiac dysfunction in vitro.

Conclusions: Long time exposure to obesity does not intensify the cardiac dysfunction and does not promote alterations on myocardial collagen.

Biography

Mumuni Abdul Malik is 26 years old and is currently a Final Year Nutrition Student of the University of Development studies, Tamale, Ghana. He is the president of Nutrition Students of Ghana, Tamale Branch. He has been carrying research work on Obesity with his fellow students of the Faculty of Nutrition. He has written about 20 abstracts and proposals in the University Journals and Publications and is currently carrying out his Research work on Obesity at the Tamale Teaching Hospital. He has attended conferences in other parts of West Africa namely; Cote d'Ivoire, Burkina Faso and Nigeria.

mumunimalik86@yahoo.com