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Glycatedapolipoprotein A-I exacerbates cellular senescence in human umbilical vein endothelial cells accompanied by impaired insulin secretion activity and embryo toxicity

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Glycation of apolipoproteinsis. major feature of production of dysfunctional high-density lipoproteins (HDL), which is associated with incidence of several metabolic diseases such as coronary artery disease and diabetes. High-density lipoprotein (HDL) and apolipoprotein(apo) A-I have strong antioxidant and anti-inflammatory properties in the plasma.. Fructose-induced non-enzymatic glycation of apoA-I can lead to the production ofdysfunctionalapoA-I and HDL. To compare the physiologic effects of dysfunctional apoA-I and HDL, reconstituted HDL containing native apoA-I (nA-I) or glycated apoA-I (gA-I) was injected into zebrafish embryosin the presence of inflammatory molecules. Co-injection of oxidized LDL (oxLDL) and nA-I-rHDLimproved embryo survival, while co-injection of oxLDL and gA-I-rHDL aggravated inflammatory deaths. Using pancreatic β-cells, insulin secretion was impaired by gA-I in the lipid-free and reconstituted HDL (rHDL) states up to 35%, and 40%, respectively, under hyperglycemic conditions (25 mM glucose). Treatment withgA-I and HDL from elderly patients to human umbilical vein endothelial cells (HUVECs) caused 1.8-fold, and 1.5-fold increased cellular senescence, respectively, along with increased lysosomal enlargement. In the lipid-free and rHDL states, gA-I caused 1.5-fold and 2.5-fold higher embryo death, respectively,along with production of oxidized species. Furthermore, rHDL containing gA-I (gA-I-rHDL) showed. higher isoelectric point (pI, approximately 8.5), whereas rHDL-containing nA-I(nA-I-rHDL) showed. narrow band range with lower pI (around 8.0) as well as much smaller particlesize than that of nA-I-rHDL. Conclusively, fructose-mediated apoA-I glycation resulted in severe loss of several beneficial functions of apoA-I and HDL, including anti-senescence and insulin secretion activities, accompanied by increased susceptibility of protein degradation and structural modification.

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Diabetes type-2 and pulmonary tuberculosis among Filipino patients

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Objective: To study prevalence of diabetes type-2 and pulmonary tuberculosis among Filipino patients and treatment out comes. Tuberculosis centre of Dammam medical complex (MOH) is referral centre for the Eastern Saudi Arabia where patients from all government and private hospitals having open pulmonary tuberculosis are admitted for isolation till they are rendered noninfectious. All patients are treated for. months under DOTS strategy with. drugs (2HRZE) for. months as initial intensive phase and. drugs (HR) for. months as continuation phase.

Methods and materials: We retrospectively reviewed clinical records of 1388 patients admitted with open pulmonary tuberculosis between Jan- 2003 and June-2010.

Results: Among 1388 patients, 39% (n. 542) were Saudis and 61% (n. 846) were non-Saudis. Among these 12.39% (n. 172) were Filipinos, 153 males and 19 females respectively. Out of 1388 patients, 114 (7.17%) were found to have diabetes type-2. Among these diabetics, majority. = 91 (79.82%) were Filipinos. Sputum conversion was late in diabetic patients resulting in relatively longer hospital stay compared to fellow patients having only tuberculosis.

Conclusion: Our study has shown that one possible risk factor for tuberculosis is diabetes. Majority of TB patients having diabetes type-2,. = 91 (79.82%) were Filipinos. Their sputum conversion was relatively late and their hospital stay was longer than their fellow patients having only tuberculosis. Our findings are in agreement with the current literature on the correlation of diabetes and tuberculosis.

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