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Fatty liver and atherogenic dyslipidemia have opposite effects on diabetic micro- and macrovascular disease
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Abstract
Background and aims: Non-alcoholic fatty liver (FL) is comorbid with obesity, metabolic syndrome and type 2 diabetes. Atherogenic dyslipidaemia (AD), frequent in FL, is associated with risk of micro- and macrovascular complications. Given the paradoxical ocular protection of FL in T2DM, we studied how FL modulates micro- and macrovascular complications as a function of AD. Methods: Cross-sectional factorial analysis of 744 diabetic patients in whom FL, identified by ultrasonography, was present in 68%. AD, defined by low HDL-C plus elevated TG, was present in 45%. Four groups were analysed as regards cardiometabolic features, micro-/macroangiopathies, cataract and ocular hypertonia: FL[-]AD[-] (n = 171); FL[-]AD[+] (n = 66); FL[+]AD[-] (n = 235); and FL[+]AD[+] (n = 272). Results: Age, gender and glycemic control were similar across groups. Prevalence of overall macroangiopathy and coronary artery disease were higher in patients with AD, irrespective of FL. Overall macroangiopathy was higher, by 64% in FL[-]AD[+] and by 38% in FL[+]AD[+]. Coronary artery disease was higher, by 128%, in FL[-]AD[+], and by 67%, in FL[+]AD[+]. (Micro)albuminuria was more frequent (+55%) in FL[-] AD[+] compared to FL[-] AD[-]. Retinopathy prevalence was 35% in FL[-], unaffected by AD. Retinopathy frequency was much lower in FL[+], irrespective of AD, decreased by −47% in FL[+]AD[-] and −32% in FL[+]AD[+] (vs. FL[-]AD[-]). Ocular hypertonia was present in 13%, and its prevalence was also markedly lower (−31%) in FL[+]. Cataract frequency was 29%, also lesser in FL[+] (24% vs. 39%), irrespective of AD. Conclusions: Multi-level eye protection in diabetes is linked to non-alcoholic fatty liver independently of atherogenic dyslipidemia. © 2022 Diabetes India

Author Keywords
Atherogenic dyslipidemia; Coronary artery disease; Diabetes mellitus; Fatty liver; Microangiopathy; Retinopathy

Index Keywords
antilipemic agent, dipeptidyl carboxypeptidase inhibitor, ezetimibe, fenofibrate, glucose, hemoglobin A1c, high density lipoprotein cholesterol, hydroxymethylglutaryl coenzyme A reductase inhibitor, incretin, insulin, lipoprotein A, low density lipoprotein cholesterol, metformin, sodium glucose cotransporter 2 inhibitor, sulfonylurea, triacylglycerol; aged, albuminuria, alcohol consumption, Article, atherogenesis, cardiometabolic risk, cataract, cerebrovascular accident, cohort analysis, comorbidity, coronary artery disease, cross-sectional study, current smoker, diabetic complication, diabetic microangiopathy, diabetic patient, diabetic retinopathy, dyslipidemia, echography, ex-smoker, eye protection, factor analysis, fat mass, female, glucose blood level, glycemic control, high density lipoprotein cholesterol level, human, hyperglycemia, insulin blood level, insulin sensitivity, intra-abdominal fat, leukocyte count, low density lipoprotein cholesterol level, major clinical study, male, metabolic syndrome X, microalbuminuria, muscle hypertonia, non insulin dependent diabetes mellitus, nonalcoholic fatty liver, prevalence, sleep disordered breathing, smoking, triacylglycerol blood level, waist circumference, cataract, complication, coronary artery disease, diabetic angiopathy, dyslipidemia, non insulin dependent diabetes mellitus, nonalcoholic fatty liver, retina disease; Cataract, Coronary Artery Disease, Cross-Sectional Studies, Diabetes Mellitus, Type 2, Diabetic Angiopathies, Dyslipidemias, Humans, Muscle Hypertonia, Non-alcoholic Fatty Liver Disease, Retinal Diseases

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