inflammation, it has become object of research to study its interaction with the endothelium. The aim of this study is to compare the levels of vitamin D in diabetic and hypertension patients. Methods: It is a cross sectional study involving patients with diabetes and hypertension. They will be divided in 2 groups. According the levels of vitamin D, group 1 with usual levels (equal or above 30 ng/mL) and group 2 with insufficiency (levels below 30 ng/mL). Vitamin D will be measured by chemiluminescence essay by Randox Laboratories and cut-off points were determined according kit information. Hypertensive patients with diabetes who were at least 21 years old at admission were included. Patients with cancer, AIDS and patients in chronic use of corticosteroids and in hemodialysis were excluded. Variables were tested depending on their distribution and parametric or non-parametric tests were chosen according Shapiro–Wilk test result. Linear and logistic models were tested. The level of significance used was 5%. Results: Thirty-eight men and forty women were analyzed. The mean age was 62.1 years and the average of BMI was 30.3. The average level of vitamin D was 17.25 ng/mL. Vitamin D was correlated with inflammatory biomarkers like interleukin-6 and homocysteine. Conclusion: The present study clearly states the occurrence of lower levels of vitamin D in a general population.

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A40984
Concordance between plasma apolipoprotein B levels and cholesterol indices among patients receiving statins treatment
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Introduction: Apolipoprotein B (apoB) has been considered a better predictor of cardiovascular risk as compared to the low density lipoprotein (LDL). In addition, evidence has shown low correlation and discordance between serum apoB and LDL cholesterol (LDLc) in patients not receiving lipid-lowering therapy. In those under lipid-lowering therapy, the association between lipid parameters and apolipoproteins is not yet defined. The objective of the present study was to evaluate the effect of treatment with simvastatin 20 mg on serum levels of apoB, LDLc, non-HDLc and the correlation between these analytes before and after therapy. Methods: We selected 101 hypercholesterolemic individuals, non-smokers and non-diabetics with age between 30–70 years, from primary care centers in Ouro Preto, MG. Total cholesterol (TC), LDL-c, HDL-c, triglycerides, apoA and apoB were measured in blood samples taken after 12–14 h fast. Patients were treated by simvastatin 20 mg for 60 days. Results: A significant reduction was found in the concentration of LDL_C, TC, apoB, non-HDLc, triglycerides, apoB/apoA-I, CT/LDLc, LDLc/HDLc and non-HDLc/HDLc (p < 0.05) after treatment with simvastatin. Spearman's correlation coefficients between apoB, LDLc, non-HDLc was higher after treatment with simvastatin than before. Kappa analysis showed very low agreement between apoB and LDLc levels (κ = 0.168). Conclusion: ApoB and the apoB/apoA-I ratio were the markers with greater reduction after therapy with simvastatin 20 mg. Correlation and concordance of serum levels of apoB, LDLc and non-HDLc was increased after 60 days of treatment with simvastatin 20 mg.

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A40995
Stroke risk: Assessment by cutaneous thermography with infrared radiation
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Background: Cerebrovascular accident can be based on pathophysiological endothelial dysfunction, sometimes being evaluated by methods that examine the vascular tone in the face of maneuvers that induce ischemia and reperfusion. The thermoregulation is mediated by autonomic nervous system whose sympathetic motor fibers produce vasodilation or vasoconstriction in the microcirculation, depending of activation degree. Objective: The aim of this study was to assess whether infrared thermography is capable of evaluating the risk of stroke using the phenomenon of ischemia–reperfusion as endothelial function assessment model. Materials and methods: We evaluated 55 subjects through analytical cross-sectional design and they were evaluated by Framingham score (FS) for stroke. Infrared thermography of distal phalanges of right and left hands was performed, before and after supra-systolic compression of the arm maneuver for 5 min. Results: There were statistically significant for all thermal variables. The FS increased 1.14% for each point on the maximum rate of ischemia and 1.18% for each point on the maximum temperature obtained between 6 and 15 min in the right hand, less the maximum ischemia temperature. The altered neurovascular reactivity was able to distinguish those at higher risk of stroke (4.9 vs 8.8, p = 0.02). Conclusion: Infrared thermography variables showed good correlations with the FS in 10 years. This result suggests that the method may be used in the future to stratify stroke risk.

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A40599
Arterial tissue and plasma concentration of enzymatic-derived oxysterols are associated with atherosclerotic disease and systemic inflammatory activity
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Introduction: Oxysterols are end-products of cholesterol metabolism and undergoes oxidation via both enzymatic and free radical-mediated mechanisms, generating a wide range of oxidized derivatives of cholesterol. In contrast with oxidative stress-driven metabolites, enzymatic-derived oxysterols are scarcely studied in their association with atherosclerotic disease in humans. The objective of this study was to quantitatively assess the enzymatic-derived oxysterols in plasma and arterial tissue from individuals with or without atherosclerotic disease. Methods: 24S-hydroxycholesterol (24S-HC), 25-hydroxycholesterol (25-HC), and 27-hydroxycholesterol (27-HC) were quantified in plasma and arterial tissue from individuals with or without atherosclerotic disease. The presence of atherosclerotic lesions was confirmed by microscopy. Results: Plasma 25-HC was higher in PAD individuals than in
controls (6.3 [2] vs. 3.9 [1.9] ng/mg Cholesterol; p = 0.004). 24S-HC and 27-HC levels were respectively five and 20-fold higher in the arterial tissue of PAD individuals than in those of the controls (p = 0.016 and p = 0.001). Plasma C-reactive protein correlated with plasma 24S-HC (r = 0.51; p = 0.010), 25-HC (r = 0.75; p < 0.001), 27-HC (r = 0.48; p = 0.015), and with tissue 24S-HC (r = 0.40; p = 0.041) and 27-HC (r = 0.46; p = 0.023). Conclusion: The accumulation in the arterial intima of oxysterols originated enzymatically, and not by the action of free radicals, is associated with the severity of atherosclerotic disease and of the systemic inflammatory activity in individuals with severe PAD.

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A40768
HDL size is more accurate than HDL cholesterol to predict carotid subclinical atherosclerosis in individuals classified as low cardiovascular risk
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Background: Misclassification of patients as low cardiovascular risk (LCR) remains a major concern and challenges the efficacy of traditional risk markers. Due to its strong association with cholesterol acceptor capacity, high-density lipoprotein (HDL) size has been appointed as a potential risk marker. Hence, we investigate whether HDL size improves the predictive value of HDL-cholesterol in the identification of carotid atherosclerotic burden in individuals stratified to be at LCR. Methods: 284 individuals (40–75 years) classified as LCR by the current US guidelines were selected in a three-step procedure from primary care centers of the cities of Campinas and Americana, SP, Brazil. Apolipoprotein B-containing lipoproteins were precipitated by polyethylene glycol and HDL size was measured by dynamic light scattering (DLS) technique. Participants were classified in tertiles of HDL size (≤7.57; 7.57–8.22; >8.22 nm). Carotid intima–media thickness (cIMT) <0.90 mm (80th percentile) was determined by high resolution ultrasonography and multivariate ordinal regression models were used to assess the association between cIMT across HDL size and levels of lipid parameters. Results: HDL-cholesterol was not associated with cIMT. In contrast, HDL size >8.22 nm was independently associated with low cIMT in either unadjusted and adjusted models for age, gender and Homeostasis Model Assessment 2 index for insulin sensitivity, ethnicity and body mass index (odds ratio 0.23; 95% confidence interval 0.07–0.74, p = 0.013). Conclusion: The mean HDL size estimated with DLS constitutes a better predictor for subclinical carotid atherosclerosis than the conventional measurements of plasma HDL-cholesterol in individuals classified as LCR.

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A40770
Green synthesis of gold nanoparticles with aminolevulinic acid of: A novel theranostic agent for atherosclerosis
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Introduction: In this study, ALA gold nanoparticles (ALA:AuNPs) functionalized with polyethylene glycol (PEG) were synthesized and administered to rabbits to evaluate its use in clinical practice as theranostic agent for atherosclerosis. This was done by measuring the porphyrin fluorescence extracted for the rabbit’s blood and feces. An increase in the blood and feces porphyrin emission after ALA:AuNPs administration suggests that ALA was incorporated by the gold nanoparticles, its structure was preserved, and a rapid conversion into endogenous porphyrins occurred, overloading the synthetic pathway that lead to the PPix accumulation. Results: The results show that the functionalized gold nanoparticles reached atheromatous plaques and its ALA was converted to PPix. The selective accumulation of PPix in plaques provides a contrast between control animals and those with atherosclerosis. Conclusions: An increase in the blood and feces porphyrin emission after ALA:AuNPs administration suggests that ALA was incorporated by the gold nanoparticles, its structure was preserved, and a rapid conversion into endogenous porphyrins occurred, overloading the synthetic pathway that lead to the PPix accumulation. The high accumulation of PPix in tissues is thought to be the result of uncontrolled cell proliferation that accompanied the growth of atheromatous plaques. This finding indicated that ALA:AuNPs can aid in the early diagnosis and therapy of atherosclerosis with high sensitivity.

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