capacity (31 ± 14% vs. 40 ± 14%, p = 0.02).We found a statistically no significant difference for the other functional features or HDL properties between the groups. Conclusions: Small HDL particles, low HDL phospholipid content and decreased cholesterol efflux capacity were related to magnitude of subclinical atherosclerosis and hypoalphalipoproteinemia in a primary care population.

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A40880

Peri/epicellular protein disulfide isomerase reshapes vascular architecture to counteracts constrictive remodeling

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Whole-vessel remodeling critically determines lumen caliber in vascular (patho)physiology and is reportedly redox-dependent. We hypothesized that cell-surface pool of the endoplasmic reticulum (ER) redox chaperone Protein Disulfide Isomerase-A1 (peri/epicellular = pecPDI), known to support thrombosis, also regulates disease-associated vascular architecture. In human coronary atheromas, PDI expression inversely correlated with constrictive remodeling and plaque stability. In rabbit iliac artery overdistension model, there was unusually high PDI upregulation (~25-fold vs. basal 14 days post-injury), involving both intracellular and pecPDI. Silencing PDI by siRNA in vitro induced ER stress markers upregulation and apoptosis (assessed by TUNEL assay). PDI knockdown also upregulated proliferation marker PCNA and decreased differentiation marker calponin-C. In contrast, pecPDI neutralization with anti-PDI antibodies (PDIAb) did not enhance ER stress or apoptosis. In vivo pecPDI neutralization with PDIAb-containing perivascular gel from days 12–14 post-injury promoted ca. 25% decrease in maximally dilated arteriographic vascular caliber and corresponding whole-vessel circumference loss at optical coherence tomography, without changing neointima, suggesting constrictive remodeling. This was accompanied by decreased oxidant generation and nitrogen oxide production. Constrictive remodeling was corroborated by marked changes in collagen organization, switching from circumferential to radial fiber orientation and to more rigid fiber type. Cytoskeleton architecture was also disrupted, with loss of stress fiber coherent organization and switch from thin to medium-thickness actin fibers, all leading to impaired viscoelastic ductility. Total and PDI-associated expressions of beta1-integrin, as well as cell-surface reduced beta1-integrin levels, were diminished after PDIAb treatment, implicating beta1-integrin as a likely pecPDI target during vessel repair. Integrin signaling is a master regulator of mechanobiology connecting the extracellular matrix environment to focal adhesion and actin-cytoskeleton. Indeed, FAK phosphorylation, a downstream beta1-integrin effector, was decreased by PDIAb. Thus, PDI is highly upregulated after injury and reshapes matrix and cytoskeleton architecture to support an anticonstrictive remodeling effect. Such findings suggest an important role for PDI in lumen maintenance during vascular remodeling by regulation of mechano-adaptive mechanisms.

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A40897

Biochemical and histopathological parameters analyzed in rabbits fed a diet enriched with fat/sucrose/cholesterol and treated with vitamin D

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Introduction: Low levels of Vitamin D increase risk of cardiovascular diseases. This study aims to assess the effects of vitamin D in an experimental model of rabbits fed a diet enriched with fat/sucrose/cholesterol (FSC). Methods: The rabbits were fed a chow enriched with fat 10%/sucrose 40%/cholesterol 0.5% for three months and thereafter, the chow were substituted for FSC with cholesterol 0.1% or standard chow for more 3 months. The following groups were formed: I – FSC 0.5/0.1%; GII – FSC 0.5/0.1% + Vit D 1000 IU/day; GIII – FSC 0.5%/ standard chow (SC) and GIV – FSC 0.5%/ standard chow + 1000 IU of Vit D/day. In periods of 0, 3 and 6 months the following parameters were evaluated: weight, lipid profile and serum glucose. After 6 months the animals were euthanized and the aortas were removed for atheroma plaques analysis. Statistical analysis was performed by Kruskal–Wallis non-parametric tests followed by Dunn's test. Results: After 6 months, the following values were observed, respectively, in groups I, II, III and IV: total cholesterol (mg/dL):420 ± 128; 363 ± 119; 149 ± 136; 162 ± 132. Triglycerides(mg/dL): 172 ± 58; 202 ± 79; 74 ± 24; 63 ± 13. Glucose (mg/dL):97 ± 5; 92 ± 13; 100 ± 18; 106 ± 11. Plaques in aorta(%): 83 ± 24,62; 84,64 ± 23,22; 15,38 ± 5,95; 24,11 ± 8,81. Intima/media ratio in arch aorta: 2.98 ± 2.16; 2.57 ± 1.06; 2.74 ± 1.22; 1.35 ± 0.39*. Thoracic aorta: 2.13 ± 1.15; 1.80 ± 1.05; 1.54 ± 0.52; 1.48 ± 0.42. Abdominal aorta: 1.73 ± 0.55; 2.06 ± 1.23; 1.59 ± 0.41; 1.15 ± 0.47. The histopathological aspects of aortas in groups III and IV were more fibrous than in groups I and II, independently of vitamin D treatment, however, lower intima/media rate was observed in the group IV that had received the standard diet and vitamin D. Conclusion: The normalization of the diet improved the lipid profile and atherosclerotic plaques in aorta, with beneficial effect of vitamin D.

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A40924

Comparison of coenzyme Q10 and herbal *Withania somnifera* supplements on fatigue parameters and biochemical profile in dyslipidemic patients with statin in chronic use

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Introduction: The statin class of drugs is the first choice in dyslipidemic patients, to reduction of plasma cholesterol levels, especially LDL (low density lipoprotein) for the prevention of cardiovascular disease (CVD). However, fatigue is a side effect in some patients, possibly by inhibiting melovanato conversion to coenzyme Q10 (CoQ10), a cofactor in the electron transport chain for the energy formation, in the same cascade of cholesterol formation. CoQ10 supplementation helps reduce the effects caused by continuous use of statins. In traditional Chinese Medicine, the *Withania somnifera* (or Ashwagandha), is considered an adaptogen herbal and indicated for fatigue and hipocholesterolemic use. Methods: In this