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EFFECT OF TAURINE ON TOXICITY OF OXIDIZED FISH OIL IN RATS

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Attempt was made to study the effect of dietary taurine on the toxicity of oxidized fish oil in male Wistar rats. The rats were fed different diet with or without supplement of 5% taurine and oxidized fish oil (POV 100 meq/kg oil , AV 3.47 mg/g oil , TBA 3.15 mg/kg oil). After feeding diet with oxidized fish oil and 5 % taurine at the same time, taurine could alleviate the decrease of growth and glutathione (GSH) in liver and kidney, and it could also ameliorate the increase of hepatosomatic index, relative kidney weight and thiobarbituric acid-relative substances (TBARS) in the liver and kidney of rats caused by oxidized fish oil. It was also found that taurine lowered the activities of asparate transaminase (AST), alanine transaminase (ALT) and alkaline phosphatase (ALP) in the plasma of rats caused by oxidized fish oil. Judging from these data, it indicates that taurine may play an important role in antioxidation in reducing the toxic effect of oxidized fish oil in rats.

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BENEFICIAL REMEDY BY PROBUCOL BUT EXACERBATION BY ENDOTOXIN OF THE DIABETIC NEUROPATHY IN MICE

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Oxygen free radicals have been claimed to play an important role in pathogenesis of diabetic neuropathy. In the present study, attempted to address this working hypothesis by administration of an antioxidant probucol and/or endotoxin (lipopolysaccharide, LPS, an enhancer of free radical production) during the induction of diabetes by streptozotocin in mice. The results showed that probucol administration certainly, although not completely, reduced blood sugar, urine excretion, water intake and improved the complications of diabetic neuropathy (motor nerve conduction velocity, rotarod motor activity and balancing ability as well as high frequency stimulation-induced synaptic fatigue) . By contrast, LPS appears to exaggerate symptoms of the diabetic complications, but codministration with probucol still showed its effectiveness in the improvement of the illness. However, discontinuous administration of probucol for one week, the blood sugar gradually increased. These results suggest that free radical generation especially during bacterial infections appears to play a role in the pathogenesis of diabetic complications including neuropathy. Antioxidants such as probucol can be a beneficial remedy for the diabetic complications, but continuous administration is needed for this achievement.

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VANINOLOL AND EUGENOLOL: TWO NOVEL OCULAR HYPOTENSIVE AGENTS.

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The vaninolol was proved that possessed the β-adrnergic antagonist activity. In this study, two novel synthesized vanilloid compounds, vaninolol and eugenolol, were investigated in their effects on the intraocular pressure and the ocular blood flow. It was found that vaninolol and eugenolol delayed rabbit's intraocular pressure (IOP) recovery with IOP recovery model and reduced ocular hypertension in glucose infusion model, demonstrating that these two agents possessed an ocular hypotensive effect. In addition, the effects of vaninolol and eugenolol on the ocular blood flow were determined in ocular hypertensive rabbits which ocular pressure were raised to 40 mmHg using the colored microsphere technique. It was shown that both 0.5% of vaninolol and eugenolol improved the ocular blood flow in the iris, ciliary body, retina and choroid at 30, 60, 120 and 180 minutes afetr drugs instillation. The mechanism of both drugs induced the vasodilative effects in the ocular tissues also was investigated. Since cellular c-AMP concentration was increased by both drugs in cultured A7r5 smooth muscle cells, it indicates that both drugs may have beta-adrenergic agonist effect similar to isoproterenol which is capable of relaxing vascular smooth muscle by increasing cellular c-AMP concentration. These results indicate that vaninolol and eugenolol are potentially useful as antiglaucoma drugs.

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GENOMIC STRUCTURE OF THE HUMAN 6-PYRUVOYL-TETRAHYDROPTERIN SYNTHASE GENE

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A 23-bp deletion (ΔT^{164} to G^{186}) has been found to occur in the 6-pyruvoyl-tetrahydropterin synthase (PTPS) cDNA of lymphoblasts of the PTPS-deficient phenylketonuria as well as lymphoblasts of the normal subjects. This finding suggests that, instead of mutation, the 23-bp deletion is an exon skipped in the PTPS transcripts of lymphoblasts. The genomic structure of PTPS gene was characterized, starting from this 23-bp exon, by polymerase chain reaction (PCR) using human genomic DNA as template. Its coding region consists of six exons and is approximately 7.5 kb in length. Based on this genomic structure and sequence information, the PCR products amplified from the genomic DNA of the PTPS-deficient PKU revealed the same mutations characterized by RT-PCR. This result confirmed the deduced genomic structure of the coding region of human PTPS gene. In addition, based on sequence analysis of PCR product, a T- to -C substitution was found in intron 2 at 14 nt downstream of the 5'-splice donor site with heterozygosity of 14%. This polymorphic marker should provide an aid for linkage analysis.