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In the current issue:

Influence of Ovariectomy on Ventricular Myocyte Contraction under Simulated Diabetes

Estrogen deficiency has been associated with a dramatic increase in the incidence of heart disease, suggesting that estrogen may be protective against cardiac dysfunction [10]. Furthermore, a significant increase in mortality has been observed in diabetic women after menopause when compared to age-matched diabetic men [20]. Hintz et al. [13] observed that perfusion with diabetes-simulated high glucose in rat cardiomyocytes exerts diabetes-like contractile dysfunctions in cell shortening and other mechanical properties. These high glucose-induced mechanical alterations are significantly different in ovariectomized rats, indicating that ovarian hormones do indeed play a role in the regulation of cardiac contractile function.

Cardiovascular Risk in Obese and Nonobese Patients with Type 2 Diabetes in the West Indies

Cardiovascular disease, obesity and diabetes mellitus are the three most prevalent diseases in developed and developing countries. However, the relationship between these three diseases is still unclear. Ethnic factors among different populations make the situation even more complex. The World Health Organization has confirmed that in developing countries, the prevalence of obesity is higher in women than men [12]. An ethnicity-related risk of cardiovascular disease has been reported in Canadian subjects [2]. Ezenwaka and Offiah [9] confirmed the relationship between cardiovascular risk and obese patients with type 2 diabetes in a West Indies population. Although differences in risk factors among various populations exist, education appears to be the most important answer to controlling cardiovascular diseases.

Tumor Necrosis Factor Receptor 1 Is Related to Chronic Hepatitis B

Tumor necrosis factor (TNF) plays a role in the pathogenesis of chronic hepatitis B and C (CHB; CHC) [18, 19], two major etiologic agents of human chronic liver disease. The difference in cytokine responses between CHB and CHC viral infection may have implications in their respective pathogenesis. Tai et al. [21] showed that the soluble TNF receptor 1 (TNFR-1) level in samples from liver biopsy is elevated in patients with higher hepatic inflammatory activities. More importantly, the correlation between soluble TNFR-1 and liver inflammation was significantly stronger in the CHB than the CHC group. This suggests that the TNF-TNFR-1 signal transduction pathway may be modulated differently in hepatitis B virus- and hepatitis C virus-infected liver cells, and this difference may be relevant to the immunopathogenesis of CHB and CHC.

More Insights into Mitochondrial Disease

Respiratory defects due to mutations in mitochondrial DNA are important human diseases [15]. One particularly well-studied mitochondrial disease is the myopathy, encephalopathy, lactic acidosis and stroke-like episodes (MELAS) syndrome. In addition to the previously described A3243G mutation, Hsieh et al. [14] identified a novel C3093G mutation in a patient suffering from atypical MELAS. In addition, the respiratory functions in mitochondria with both mutations are compromised when compared to those from normal mitochondria. These findings provide further understanding of the molecular basis and complexity of the MELAS syndrome.

Aberrant c-fos Transcript and Neuronal Sensitivity

It has recently been shown [8, 16] that oxidative stress induces DNA fragmentation and oxidative DNA lesions, leading to phenotype alteration and neuronal death. Liu and Cui [17] reported a significant increase in *c-fos* mRNA in the ischemic brain which is sensitive to RNA protective assay (RPA). However, the *c-fos* transcript becomes resistant to RPA in the presence of 3-bromo-7-nitroindazole, a neuronal nitric oxide synthase inhibitor. These results suggest an important role for nitric oxide in oxidative stress-induced DNA damage.

Isolation and Partial Characterization of a 46-kD Allergen of Bermuda Grass Pollen

Bermuda grass pollen (BGP) is an aeroallergen in Taiwan, Australia and the USA [3, 4]. Wu et al. [25] isolated a novel 46-kD BGP allergen with terminal mannose and partially characterized its biologic nature. The carbohydrate moiety is demonstrated to be involved in its allergenicity. This finding will become important should the full-length sequence be defined and the allergic responses of patients investigated.

Association of Heterotrimeric Go Protein with Microtubules

Microtubules are filamentous polymers that extend throughout the cytoplasm and are involved in multiple cellular functions including mitosis, organelle transport and determination of cell morphology [11]. In addition to the regulation of membrane signal transduction, the heterotrimeric Go protein has recently been associated with the mitotic spindles [24]. Wu et al. [23] extended these findings by identifying Goα and Gβ proteins in the microtubular frac-

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tion of bovine brain. Western blot analysis further showed that only Goα-1 is associated with microtubules. The Goα subunit can be ADP ribosylated by pertussis toxin, and Go protein can be incorporated into, and interact with, the microtubules. These authors conclude that the Goα-1$\beta\gamma$ proteins associated with microtubules may play some role in regulating the assembly and disassembly of microtubules.

Inhibition of Glutamate Decarboxylase and Cysteine Sulfinic Acid Decarboxylase by Molecular Oxygen and Nitric Oxide

Glutamate decarboxylase (GAD) is suggested to be a likely target in oxygen-induced seizures [22]. A bacterial form of GAD with an oxygen-consuming side reaction has also been identified [1]. Davis et al. [7] showed that the human brain forms of GAD, GAD65 and GAD67 and the porcine brain form of cysteine sulfinic acid decarboxylase are inhibited by nitric oxide and oxygen. These results raise the possibility of direct interaction of the enzyme with molecular oxygen and provide a new molecular basis for hyperbaric oxygen-induced toxicity.

Lysosomal Protein and Apoptosis in Neural Cells

Some of the many pathways leading to apoptosis involve mitochondria, death receptors and endoplasmic reticulum [6]. Until now, the involvement of lysosomal proteins has not been significantly recognized in apoptosis. Chen et al. [5] reported that in glioblastoma cells, the induction of apoptosis correlates with upregulated expression of lysosome associated membrane protein 1. This provocative finding suggests a role for lysosomes, in addition to mitochondria and endoplasmic reticulum, in cell death.

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