In This Issue

Obesity and autonomic function

Two articles and an editorial focus on cardiac autonomic function and obesity. Quilliot et al. (p. 79) report decreased heart rate and blood pressure variability in adult obese subjects. The investigators showed that normalized low-frequency spectra of heart rate and blood pressure variability were negatively correlated to body mass index. Insulin sensitivity contributed 21% of the variance of the low-frequency spectral components of heart rate variability (HRV). The authors suggest that reduced HRV and blood pressure variability could contribute to the higher risk of cardiovascular disease and sudden death in older obese subjects. Martini et al. (p. 87) report that obese children had significantly higher blood pressure, lower 24-hour and nighttime high-frequency spectra of HRV, and lower time-domain measures of vagal activity. The investigators suggest that obesity in children is accompanied by a sympathovagal imbalance as a result of a decrease in parasympathetic activity and hypothesize that this may be relevant in the mechanisms of obesity-associated hypertension. The editorial by Beske and Taylor (p. 61) emphasizes the increased resting heart rate found in obese children and adults as the most compelling evidence of reduced vagal function in obesity and critically reviews the limitations and pitfalls of spectral analysis techniques.

Laser Doppler measurements of cutaneous adrenergic vasoconstriction

The intensity of cutaneous adrenergic vasoconstriction could provide important clues about the pathophysiology of neurologic and vascular diseases such as complex regional pain syndrome and hypertension. However, it is difficult to measure this response accurately in poorly perfused cutaneous regions, such as the arms and legs. Lipnicki and Drummond (p. 93) report that noradrenaline produced dose-dependent vasoconstriction in the forearm heated to 42°C. Therefore, increasing blood flow by warming the skin overcomes “floor effects” that prevent the accurate measurement of adrenergic vasoconstriction.

Genetic polymorphisms of adrenergic receptors

Garland and Biaggioni (p. 67) review recent advances in molecular biology of adrenergic receptors and highlight the importance of seemingly minor variant forms, or polymorphisms, of the genes encoding for these receptors. The polymorphisms may result in functional differences in the receptors they encode (and may become markers of incidence and progression of disease processes) and differential response to drug treatment (pharmacogenomics). As is often the case in a rapidly growing field, initial studies have reached contradictory conclusions. Sealfon (p. 59), in an accompanying editorial, reminds us that “our uniqueness as individuals results predominantly from the aggregate effect of our particular set of polymorphisms.”

Anti-Hu antibody–related paraneoplastic syndrome presenting with progressive dysautonomia

Two patients with an anti-Hu–related paraneoplastic syndrome occurring concomitantly with progressive autonomic neuropathy are described by Winkler et al. (p. 115). In one patient, the disease showed an acute onset; in the other, the neurologic symptoms had a more insidious course.

Normal ranges of cardiovascular autonomic function tests, including time–domain and frequency–domain indices

Interpretation of heart rate variability (HRV) data must take into account age, gender, and resting heart rate. Agelink et al. (p. 99) provide age- and gender- dependent normal values for time– and frequency–domain HRV indices measured during a 5-minute resting study, a deep respiration study, and an orthostatic maneuver. Kremaker (p. 65), in an accompanying editorial, “The riddles of heart rate variability,” reviews the physiologic basis of HRV and the “difficulties of interpretation when recordings of cardiovascular reflex phenomena are restricted to the easily obtainable heart rate.”

Carotid sinus “irritability” rather than hypersensitivity?

Carotid sinus “hypersensitivity” is the term applied to patients who have profound bradycardia or hypotension, or both, in response to pressure on the neck, often leading to syncope. Cole et al. (p. 109) used a neck chamber to describe the operating characteristics of the carotid-cardiac baroreflex in such patients, and found no significant differences compared with age-matched controls. They suggest that carotid sinus hypersensitivity may not be a “hypersensitive” reflex per se, but rather an inappropriate response, or “irritability,” of the baroreflex system to nonphysiologic deformation of the carotid sinus or surrounding tissues.

Peripheral neuropathy and multiple system atrophy

Rodolico et al. (p. 119) describe a 55-year-old man with a mixed axonal and demyelinating polyneuropathy in whom parkinsonian and cerebellar features later develop, typical of multiple system atrophy (MSA), suggesting that peripheral neuropathy may be part of the MSA disease process. Wenning and Diem (p. 63), in an accompanying editorial, discuss this possibility.

Abstracts of the CARS meeting