



Canadian Cardiovascular Congress

Edmonton, Alberta / October 24-28, 2009

Regional Case Studies with Global Implications: An Exciting Future

Edmonton - It is perhaps fitting that one of the last accredited symposia to be held at this year's CCC promises to be the most unusual. Firstly, internationally renowned faculty will address important elemental technologies and systems that are either already advancing cardiovascular care or which are poised to do so in the near future. Then, faculty representing many different countries, including the UK, Sweden, Thailand, Australia, Kenya as well as Canada, will discuss how different cases would be managed in their own country. International and regional differences in case-based approaches to cardiovascular care should prove highly informative and useful for Canadian delegates.

Edmonton – Il est peut-être de mise que l'un des derniers symposiums agréés du CCSC de cette année s'annonce comme celui qui s'écartera le plus des sentiers battus. D'abord, des conférenciers de renom international discuteront de techniques et de systèmes fondamentaux qui ont déjà fait progresser les soins cardiovasculaires ou le feront dans un avenir rapproché. Ensuite, des conférenciers représentant plusieurs pays, dont le Royaume-Uni, la Suède, la Thaïlande, l'Australie, le Kenya et le Canada, expliqueront comment divers cas seraient pris en charge dans leur propre pays. Les différences d'un pays à l'autre et d'une région à l'autre dans les soins cardiovasculaires – qui seront mises en évidence dans la discussion sur les cas présentés – devraient se révéler fort éclairantes et utiles pour les congressistes du Canada.

By Pam Harrison

Dr. Michael Chan, Associate Professor of Medicine, University of Alberta, Edmonton, and his colleague at the Royal Alexandra Hospital's C.K. Hui Heart Centre, Dr. Po Kee Cheung, will be chairing Tuesday's symposium on global treatment strategies of cardiovascular disease (CVD).

As will be discussed during this session by Dr. Matthew Budoff, Los Angeles Biomedical Research Institute at Harbor-UCLA, Torrance, California, cardiac computed tomography (CT) is a rapidly evolving imaging modality that could transform certain aspects of cardiology in the near future. As he writes in the *Texas Heart Institute Journal* (2006;33:197-200), cardiac CT offers unique applications distinct from other imaging modalities in broad use today. "The first is in the measurement of calcium scores for screening patients with an intermediate Framingham risk."

Current guidelines cite six different target levels for LDL-C depending on the patient's level of CV risk. Cardiac CT can more precisely risk-stratify patients in the intermediate risk range, as Dr. Budoff indicates. For example, a score of 0 indicates no detectable coronary calcium, and reassures patients who do not have advanced plaque that they are at very low risk of CV events. However, as the calcium score rises to over 100, "we start to move into what is considered a National Cholesterol Education Program high risk of 2% per year or a 20%, 10-year-risk," Dr. Budoff states. A recent study indicated that patients were 10 times more likely to have a myocardial infarction (MI) if they had a calcium score of over 100, suggesting that the calcium score significantly adds to the predictability of patients having a future MI.

Cardiac CT can also help identify patients who may not require further diagnostic evaluation after an equivocal test result, such as might be obtained on treadmill testing. Because

the negative predictive value of the calcium score is high, it is unlikely a patient has obstructive coronary artery disease (CAD) if the score is negative. "Another potential application for CT is monitoring the progression of disease over time," Dr. Budoff observes. More studies indicate that patients whose calcium scores did not increase over time had no cardiac events, whereas among those whose scores continued to rise, CV event rates were very high.

Most encouraging of all, the use of cardiac CT for non-invasive angiography may eventually replace invasive angiography under certain circumstances. "Non-invasive angiography is quite straight-forward and it allows visualization of both the stenoses of the arteries as well as arterial plaque, so we can better identify those patients who may need either invasive procedures or aggressive medical therapy," Dr. Budoff told *INFO-Cardio*, "so I think there is a lot of interest among cardiologists and radiologists in this modality and that it will catch on quite rapidly when physicians are familiar with it."

Reducing CVD Disability, Death

Dr. Robert Califf, Vice Chancellor for Clinical Research, Duke University, Durham, North Carolina, will apply his considerable academic knowledge to discussing health systems that could lower death and disability from CVD. Historically, systems designed to track how well physicians were dispensing evidence-based care have been based on clinical trials, after which guidelines are usually created and their implementation tracked. "The higher the implementation rate, the lower the rate of CV death and disability," as Dr. Califf told *INFO-Cardio*. However, the best evidence supporting whether this particular model works comes from "provider-

driven medical care systems”—in other words, physician-based—and not from models based on the neighbourhood, the community, the workplace or schools where patients at risk for CVD really function. For example, a school may keep a record of a child’s health status but physicians are not usually privy to school information and may impose a regimen that is at variance with how the school is caring for the child.

Similarly, it is not unusual for an elderly patient to be seeing four or five different physicians, all of whom may be prescribing different or the same medications without knowingly overlapping others’ efforts. With the development of electronic health records, however, the whole picture could shift, as Dr. Califf predicts, because that record could then belong to the family and the family would be responsible for sharing it with all providers, enabling everyone to be on the same “page,” so to speak. From there, it should be easier to organize support at a local level and encourage patients to follow a prescribed regimen, improve adherence and optimize their care rather than leaving patients to their own devices once they leave the caregiver’s office. “We will add 500 million life-years between now and 2015 if we reduce mortality from chronic disease in the global population by just 2%,” Dr. Califf writes in the *Texas Heart Institute Journal* (2006;33:192-6). “But this will require a different way of doing business than our current fractured, somewhat dysfunctional system and it will be up to us to figure out how to do it.”

Expanding Biomarker Capabilities

As will be discussed by Dr. Bruce McManus, Director, Providence Heart & Lung Institute, and Professor of Pathology and Laboratory Medicine, University of British Columbia, Vancouver, the search is on to develop more accurate, precise, sensitive and specific biomarkers that will better discriminate between the presence or absence of different heart and blood vessel disease as well as more accurately predict individual risk of disease, its progression and response to different treatment modalities.

Some cardiac biomarkers have already proven useful—C-reactive protein, for example, in the setting of atherosclerosis; cardiac troponins in the setting of acute MI and brain natriuretic peptide in the setting of heart failure. Yet over the past number of decades, “the process for identifying useful clinical biomarkers has been very slow and unpredictable,” Dr. McManus said in an earlier interview. That process, however, has recently been fast-forwarded, thanks to the explosion of high-performance “omic” technologies including genomics, proteomics and metabolomics. Just how these technologies and layered computational approaches have affected and will continue to contribute to the development of new “signature molecules” will be discussed in more detail by Dr. McManus during his presentation.

The notion of being able to track patients anywhere along the “life cycle” of their illness using reliable, easily retrievable biomarkers is inherently revolutionary, as Dr. McManus suggested, because they could dramatically alter how physicians advise and treat a patient. “Much of current biomarker development efforts are... aimed at identifying non-invasive ways of monitoring progression and diagnosing clinical events in relation to current or new therapeutic agents,” Dr. McManus writes in the *Canadian Journal of Cardiology* (2009;25 (Suppl A):9A-14A). But “upstream” biomarkers of early disease and even risk of disease could prove much more beneficial for patients—and most cost-effective—if physicians could anticipate disease risk and modify that risk before disease onset. Dr. McManus also predicts the same “omic” technologies will give a much-needed boost to pharmaceutical development, where effective surrogate biomarkers would allow for shorter clinical trials, more cost-effective drug discovery and more rapid implementation of beneficial therapies.

“The promise of improvements in clinical care and accelerated drug development offered by successful biomarkers, juxtaposed with the catastrophic consequences of their failures, brings into clear focus the need for well-designed and rigorously executed assessment for biomarker identification, validation, qualification and implementation,” concludes Dr. McManus in his article. □

Please plan to attend:

TUESDAY, October 27

“A Global Perspective of Cardiovascular Disease Burden and Treatment.” 18:30-21:30, Hall D, Pedway Level.

These symposia are accredited and co-developed as an Accredited Group Learning Activity under Section 1 of the framework of Continuing Professional Development options as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada (RCPSC).

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