Risk prediction in cardiovascular disease – current status and future challenges

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The 2008 *Canadian Journal of Cardiology* Symposium was held at the Canadian Cardiovascular Congress in Toronto on October 26, 2008, in collaboration with the Libin Cardiovascular Institute of Alberta. This annual Symposium is supported by the Pulsus Group Inc – the publisher of the *Journal* – and by the Canadian Cardiovascular Society. The subject of the 2008 Symposium was on recent advances in risk prediction, a subject of great importance to cardiovascular health and disease. We are pleased to make these excellent presentations available to readers of the *Journal*.

The ability to predict risk for and from cardiovascular disease is increasingly important for several reasons. Perhaps foremost among these is the need to determine individual risk to better plan investigation and management with the greatest accuracy and safety for patients and lowest costs for the health care system. This will be even more important as personalized medicine becomes more widespread. However, we also need the ability to predict risk for public health planning. In Canada, this will require improved information systems to provide the population profile so that risk can be predicted to better inform population health planning. And finally, we need new predictors of risk that are modifiable in response to therapy – such markers do not only serve to identify populations for inclusion in clinical trials of new therapies, but can also serve as surrogate outcomes to decrease the need for ever increasing clinical trial size and cost.

Our ability to predict risk is actually quite limited. Although risk scores are available to assess individual cardiovascular risk, these are neither very sensitive nor specific. Therefore, there is an urgent need for new and improved predictors. Ideally, these markers will be simple to measure, reproducible, highly sensitive and specific with excellent positive and negative predictive value. We have a significant way to go to achieve this goal.

But progress is being made with increasing numbers of genomic, proteomic and metabolomic markers being identified as potential markers of risk. Dr Bruce McManus (pages 9A-14A) provided an excellent summary of this subject at the Symposium and reviewed the rigorous process required to validate newly identified markers before they can be widely used.

One of the promising markers of risk for atherosclerosis is endothelial dysfunction. Dr Todd Anderson (pages 15A-20A) provided an objective overview of the current evidence that this marker will be useful to identify those likely to develop disease, but also pointed out the additional research needed to prove validity.

Perhaps one of the greatest challenges we face is predicting which patients with myocardial infarction are likely to go on to experience sudden death, a mechanism that causes the death of approximately 40,000 Canadians each year. Dr Derek Exner (pages 21A-27A) described recent work that utilizes various data extraction approaches from electrocardiographic recordings that, together, might prove useful in this regard. Dr Exner is heading a new clinical trial that will help determine whether such analyses can be useful in the selection of patients to receive an implanted defibrillator.

The final speaker at the Symposium was Dr Merril Knudtson (pages 29A-36A) who utilized his vast experience with the APPROACH database to assess risk for acute coronary events. This review emphasizes the value of explicit risk assessment particularly to identify the patient group most likely to benefit from a specific therapeutic approach.

Overall, this was an excellent Symposium, and was very well attended. It obviously addressed subjects of considerable interest to attendees. The papers in this Supplement will serve to bring the insights of the speakers and their colleagues to the readers of *The Canadian Journal of Cardiology*.

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