2016 CSCC Award for Innovation in Laboratory Medicine
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Juravinski Cancer Centre, Hamilton ON

All of us in the Medical Laboratory world are proud when we participate in an effort that will help a simple blood test save lives. When the first fully automated troponin T assay was introduced in 1998, ten years after the original description of troponin T, this assay could hardly be considered a "simple" blood test. Even after the introduction of the high sensitivity assays 6 years ago, it still needed the meticulous research and bench work of highly dedicated laboratory professionals to make such an assay precise and reliable enough to convince clinicians to use it with confidence. Even though troponin levels were included in the definition of myocardial infarct sixteen years ago, use in non-cardiac patients is relatively recent and largely based on the work of the Hamilton group.

The CSCC is pleased to announce that the 2016 Award for Innovation in Laboratory Medicine will go to the Juravinski Hospital and Cancer Center (JHCC) in Hamilton for the collaborative project, entitled "Cardiac Troponin measurements in the noncardiac surgical population". This project, which was submitted by Dr. Pete Kavsak, with letters of support from other CSCC members including Drs. McQueen and Hill, is based on the outstanding vision and work of Dr. PJ Devereaux and colleagues to improve perioperative care and distinguishes itself through outstanding contributions to all three focus areas of this award, including:

- Innovation in strategic planning and implementation of laboratory services based on best practices.
- Innovation in development of new laboratory programs.
- Promotion of positive public image for laboratory medicine

The number of patients undergoing non-cardiac surgery is growing, with more than 200 million adults worldwide (25% for cancer) requiring hospital admission annually. In 2012, results of the VISION study headed by Dr. PJ Devereaux, Head of Cardiology at JHCC showed that an elevated troponin after non-cardiac surgery (MINS), irrespective of the presence of an ischemic feature, independently predicted 30-day mortality. Over 8% of patients undergoing non-cardiac surgery suffered such myocardial ischemia. Among the patients that suffered significant myocardial ischemia, close to 60% did not experience an ischemic feature and thus would not have fulfilled the universal definition of myocardial infarction. Nevertheless, 1 in 13 died within 30 days. Based largely on this publication, the third Universal Definition of MI (October 2012) recommended "routine monitoring of cardiac biomarkers in high-risk patients, both prior to and 48-72 h after major surgery".

All clinical and medical biochemists should realize that a "simple" clinical chemistry test and a dedicated group of laboratory professionals acted as a catalyst for the following achievements:

- Vision Study (**V**ascular events **I**n noncardiac **S**urgery pat**I**ents c**O**hort evaluatio**N**) **–** involving over 40,000 patients from North and South America, Asia, Australia and Europe
- MANAGE study for Management of Myocardial injury after Noncardiac Surgery Trial - a large, international, randomized, placebo-controlled trial to assess the impact of Dabigratan and Omeprazole in patients suffering myocardial injury after non-cardiac surgery

- Development of a Perioperative Cardiovascular Service (PCS) at JHCC- a multidisciplinary group that includes surgeons, anesthetists, internal medicine physicians and laboratory medicine. The PCS takes responsibility for assessment and ordering of CV medications, ordering and follow-up of further cardiovascular testing postoperatively, provides discharge prescriptions for CV medications and organizes appropriate cardiology follow-up after discharge.
- Publication (Clin Biochem, Clin Chem, Clin Chim Acta) of high quality best practices/clinical guidelines for measuring troponin, including evidence-based troponin order sets and even the manufacture of custom "normal/healthy concentration" troponin QC material, useful for monitoring lot-to-lot variations and possibly identifying low-risk individuals.
- Development of the Cardio-Oncology Research Program-based on the observation that 25% of non-cardiac surgery patients have cancer. A strong team of researchers has been assembled and has already secured four grants assessing and evaluating cardiovascular disease in patients with cancer.
- Development of a Perioperative Vascular Medicine Training program in Hamilton – a comprehensive 3 to 12 month perioperative vascular clinical, educational and research program tailored to meet trainees' individual interests and the Royal College Perioperative Medicine learning objectives.

The CSCC recognizes the positive profile that the efforts of Pete Kavsak and colleagues Stephen Hill, Matthew McQueen and Andrew Don-Wauchoppe in Hamilton bring to laboratory medicine in Canada and the direct impact on patient care.