At A Glance

May 2011

Monthly highlights of ICES research findings for stakeholders

One in 25 patients has complications after implanted cardioverter-defibrillator replacement

Krahn AD, Lee DS, Simpson CS, Khaykin Y, Cameron D, Janmohamed J, Yee R. Austin PC, Chen Z, Hardy J, Tu JV. Predictors of short-term complications after implantable cardioverter-defibrillator replacement: results from the Ontario ICD Database. *Circ. Arrhythm Electrophysiol.* 2011; 4(2):136–42.

Issue
Implantable cardioverter-defibrillators (ICDs) help to maintain normal heart rhythm. Complications after ICD replacement are often clinically devastating. What factors contribute to these complications?

Study
Examined 45-day major and minor complication rates and all-cause mortality rates in 1,081 patients who underwent ICD replacement in Ontario between February 2007 and August 2009.

Key Findings
Forty-seven patients (4.3%) experienced a complication within 45 days. There were 47 major complications in 28 patients; most commonly infection, lead revision, electrical storm and pulmonary edema. The complication rate increased with the increasing number of device leads (found in more complex devices). Minor complications occurred in 2.3% of patients, most commonly surgical site infection and pocket hematoma. Variables associated with major or any complication included angina class, multiple previous ICD procedures, low implanter volume and the use of anti-arrhythmic therapy, such as beta blockers and calcium channel blockers. Mechanical complications directly related to the ICD procedure were associated with a 4.4%, 8.7% and 8.7% rate of mortality at 45, 90 and 180 days, respectively.

Implications
Identifying factors contributing to complications after ICD replacement may permit identification of high-risk individuals who warrant incremental monitoring and therapy to attenuate risk.

Statin use before major elective surgery may prevent kidney injury in older patients

Molnar AO, Coca SG, Devereaux PJ, Jain AK, Kitchlu A, Luo J, Parikh CR, Paterson JM, Siddiqui N, Wald R, Walsh M, Garg AX. Statin use associates with a lower incidence of acute kidney injury after major elective surgery. *J Am Soc Nephrol.* 2011; 22(5):939–46.

Issue
Many patients who undergo major elective surgery develop serious kidney complications soon after. Do patients taking statins prior to surgery have improved renal outcomes?

Study
Analyzed 213,347 Ontario Drug Benefits Plan recipients aged 66 and older who underwent major elective surgery in Ontario between January 1995 and November 2008. Patients were deemed to be statin users if there was evidence of at least one statin prescription in the 90 days before surgery. Outcomes examined were acute kidney injury, acute dialysis and 30-day mortality.

Key Findings
In the two weeks after surgery, 1.9% of patients developed acute kidney injury and 0.5% required acute dialysis. The 30-day mortality rate was 2.8%. Prior to surgery, 32% of patients were taking a statin. Statin use was associated with 16% lower odds of acute kidney injury, 17% lower odds of acute dialysis and 21% lower odds of death. Statins were beneficial whether they were started more than 90 days or less than 30 days before surgery.

Implications
These findings are the results of an observational study with a reliance on data (diagnostic codes) lacking in sensitivity and specificity. Further investigation with more rigorous studies is warranted.

Patients with incidental abdominal aneurysms not receiving appropriate follow-up

van Walraven C, Wong J, Morant K, Jennings A. Austin PC, Jetty P, Forster AJ. Radiographic monitoring of incidental abdominal aortic aneurysms: a retrospective population-based cohort study. *Open Med.* 2011; 5(2):e67.

Issue
An abdominal aortic aneurysm (AAA) that is identified when the abdomen is imaged for some other reason is known as an incidental AAA. Are patients with incidental AAAs receiving appropriate follow-up?

Study
Identified 191 patients at The Ottawa Hospital whose AAA was found incidentally between January 1996 and September 2008 and followed them to elective repair or rupture of the aneurysm, death for any reason or March 31, 2009. The radiographic monitoring frequency of each incidental AAA was calculated.

Key Findings
Almost one-third of the patients (29.3%) received no further radiographic monitoring of the incidental AAA. Factors associated with lack of adequate follow-up included older age, large size of aneurysm at detection, and detection while the patient was in hospital or the emergency department. Comorbidities were not associated with monitoring.

Implications
Health system innovations are recommended to ensure timely, reliable and proactive follow-up. Interventions, such as automated patient and physician notification procedures, should be implemented to improve the monitoring of incidental AAAs.

Ontario women with depression less likely to seek screening for breast, cervical cancer

Issue
Previous studies examining the association between depression and screening for breast and cervical cancer present conflicting results. Is depression a risk factor for reduced preventive care screening for breast and cervical cancer in Ontario?

Study
Identified Ontario female respondents to the 2002 Canadian Community Health Survey, Mental Health and Well Being component with either Major Depressive Disorder (MDD; based on the World Mental Health Composite International Diagnostic Interview) or clinically significant depressive symptoms (based on the Kessler 6-Item Distress Scale, K6≥8). Determined if they had a screening mammogram within two years or a screening Pap test within three years of the survey administration date. Their screening rates were compared with those of non-depressed women participating in the survey.

Key Findings
Women with MDD and women with K6≥8 made significantly more primary care visits than non-depressed women. Both women with MDD and K6≥8 were less likely to receive breast cancer screening than their non-depressed counterparts (46.1% vs. 61.5% for MDD, and 49.9% vs. 61.9% for K6≥8). Neither MDD nor K6≥8 was found to be associated with cervical cancer screening in the full population, but women over age 40 with K6≥8 were less likely to receive cervical cancer screening than their non-depressed counterparts.

Implications
Attention to the uptake of preventive services in women is warranted at both the psychiatric specialist and primary care levels.

Assessment tools track symptoms and performance status for end-of-life cancer care

Issue
To improve end-of-life care, providers need systematic and standardized ways to manage symptoms. Ontario's cancer system is unique because it has implemented two such assessment tools: the Edmonton Symptom Assessment System (ESAS), a patient-reported tool that measures the severity of nine symptoms (scale 0 to 10; 10 indicating the worst), and the Palliative Performance Scale (PPS), a provider-reported tool that measures patient performance status (scale 0 to 100; 0 indicating death). What is the trajectory of ESAS and PPS scores in the six months before death?

Study
From a cohort of 45,118 adults with cancer in Ontario between January 2007 and March 2009, identified patients who had at least one ESAS or PPS assessment in the six months before death. The decedents' average ESAS and PPS scores each week before death were analyzed.

Key Findings
- The study included 10,752 decedents with ESAS assessments and 7,882 with PPS assessments.
- For ESAS symptoms, average pain, nausea, anxiety and depression scores remained relatively stable over the six months. Conversely, shortness of breath, drowsiness, well-being, lack of appetite and tiredness increased in severity over time, particularly in the month before death. More than one-third of the cohort reported moderate to severe scores (4 to 10) for most symptoms in the last month of life. Trajectories of mean ESAS scores followed two patterns: increasing vs. generally flat.
- The average PPS score declined slowly over the six months before death, starting at approximately 70 and ending at 40, and declining more rapidly in the last month.

Implications
Further research is needed to determine how to use the prevalence of and changes in symptom scores to predict time to death in an outpatient cancer population. The high proportion of moderate to severe symptom scores in the final weeks of life represents opportunities for improved patient care at end of life.