Enhancing the effectiveness of health care for Ontarians through research

ICES Institute for Clinical Evaluative Sciences

At A Glance

November 2009

Monthly highlights of ICES research findings for stakeholders

Risk of abnormally slow heart rate twice as high in those taking drugs to slow dementia

Park-Wyllie L, Mamdani M, Li P, Gill S, Laupacis A, Juurlink D. Cholinesterase inhibitors and hospitalization for bradycardia: a population-based study. *PLoS Med.* 2009; 6(9):e1000157.

Issue Cholinesterase inhibitors (CIs) are a class of drugs commonly used to delay the worsening of symptoms of Alzheimer's disease. It is unknown if CIs increase the risk of bradycardia (an abnormally slow heart rate of below 60 beats a minute), which can cause fainting, palpitations, shortness of breath or even death.

Study Identified 161 patients aged 67 or older who were hospitalized for bradycardia in Ontario between January 2003 and March 2008 within nine months of using a CI. Each case was compared with up to three controls, who were not hospitalized for bradycardia but had received a CI.

Key Findings Among older patients, recent initiation of CI therapy was associated with a more than doubling of the risk of hospitalization for bradycardia. Despite hospitalization for bradycardia, 57% of the patients who survived to discharge subsequently resumed CI therapy, and 4% of these were readmitted to hospital or visited the emergency department.

Implications Physicians should weigh the potential risks and benefits in prescribing CIs for dementia patients, and should reassess the merits of continued therapy in patients who develop bradycardia while taking these drugs.

Study examines patterns of gynaecological cancer care in Ontario

Elit L, Schultz S, Simunovic M, Urbach D. Who are the providers of gynaecologic cancer surgical care in Ontario? *J Obstet Gynaecol Can*. 2009; 31(8):721–9.

Issue Who provides surgical care to women with gynaecologic cancer in Ontario?

Study Identified Ontario women aged 18 or older newly diagnosed with uterine, ovarian or cervical cancer (UC, OC or CC) from April 2003 to March 2004 and examined the rate and distribution of their procedures by hospital type, physician specialty and Local Health Integration Network (LHIN).

Key Findings Surgery, either diagnostic or therapeutic, was performed on 94.7% of women with UC, 72.7% with OC and 57.1% with CC. Community hospitals were responsible for the surgeries in 55.9% of UCs, 38% of OCs and 37% of CCs. Of all surgical procedures, gynaecologists performed 58.2%, gynaecologic oncologists 38.8% and general surgeons 3.1%. Some LHINs (Hamilton Niagara Haldimand Brant, Toronto Central and Champlain) provided surgery to a proportionately greater percentage of patients than would be expected based on the incidence of cancer in those regions.

Implications These findings provide physicians, administrators and policy makers with an understanding of the services available for the management of gynaecologic cancer and reveal patterns which should influence planning for health human resources and hospital resource requirements.

Blood pressure at hospital discharge a predictor of mortality in patients with heart failure

Lee D, Ghosh N, Floras J, Newton G, Austin P, Wang X, Liu P, Stukel T, Tu J. Association of blood pressure at hospital discharge with mortality in patients diagnosed with heart failure. *Circ Heart Fail*. 2009; 2(6):616–23.

Issue The relationship between blood pressure at the time of hospital discharge and survival in stabilized (non-acute) patients with heart failure (HF) has not been evaluated.

Study Performed long-term, population-based follow-up of 7,448 patients with HF discharged from Ontario hospitals from April 1999 to March 2001. Systolic and diastolic blood pressures (SBP, DBP) were measured at discharge. The study endpoint was death from any cause after discharge or March 31, 2007.

Key Findings The association of discharge SBP and mortality followed a U-shaped distribution—survival was shortened in those with reduced or increased values of SBP. In those with left ventricular ejection fraction (LVEF) of less than or equal to 40%, survival decreased by 17%, 23% and 25% when discharge SBP was less than 100, 110–119, and greater than or equal to 140mm Hg, respectively, compared with those in the midrange (120–139mm Hg). In those with LVEF greater than 40%, survival decreased by 31%, 17% and 24% when discharge SBP was less than 100, 100–119, and greater than or equal to 160mm Hg, respectively, compared with those in the midrange.

Implications The time of hospital discharge represents a window of opportunity to identify patients with BPs that reside in a high-risk range. Patients with low discharge BP may need more frequent assessments and BP monitoring, whereas those with high discharge BP may benefit from additional antihypertensive medications.

Suboptimal medication adherence linked to increased mortality in patients with stents

Ko D, Chiu M, Guo H, Austin P, Marquis J, Tu J. Patterns of use of thienopyridine therapy after percutaneous coronary interventions with drug-eluting stents and bare-metal stents. *Am Heart J.* 2009; 158(4):592–598.e1.

Issue

Since the approval of drug-eluting stents (DES) in Ontario in 2003, patients aged 65 and older who were treated with DES or bare-metal stents (BMS) were recommended to receive 12 months of thienopyridine therapy. Nonadherence or premature discontinuation of this antiplatelet therapy increases the risk of stent thrombosis (resulting in myocardial infarction and/or death).To what extent do patients adhere to this therapy? What factors are associated with suboptimal adherence?

Study

Evaluated 5,263 older patients who received DES and 6,081 older patients who received BMS from December 2003 to March 2006. Prescription filling after hospital discharge was assessed by evaluating the proportion of days covered (PDC)—the total number of days supplied with thienopyridine divided by the total time for which the patient was at risk and under observation. Failure to fill the initial prescription within a year of implantation was termed primary nonadherence.

Key Findings

- Most patients in both the DES group (83.8%) and the BMS group (84.3%) filled their first prescription within a week of hospital discharge.
- Primary nonadherence was observed in 6.9% of DES patients and 7.1% of BMS patients.
- In the DES group, the average PDC was 84% within a year of stent implantation.
- Primary nonadherence, suboptimal adherence and early discontinuation of thienopyridine therapy were all associated with increased mortality after DES implantation.
- Chronic obstructive pulmonary disease, heart failure, hemodialysis and a history of cancer were significantly associated with worse medication adherence.
- Under the Ontario Drug Benefit Plan, low-income residents are eligible to have the annual deductible fee waived and the dispensing fees per prescription reduced. These patients were nearly 70% more likely to fill the initial thienopyridine prescription.

Implications

Policy makers should consider eliminating added costs for thienopyridine therapy as a potential strategy to increase compliance that can possibly lead to improved clinical outcomes after treatment with a stent.

Study sets targets to make Ontario Canada's healthiest province

Manuel D, Creatore M, Rosella L, Henry D. *What Does It Take to Make a Healthy Province? A Benchmark Study of Jurisdictions in Canada and Around the World with the Highest Levels of Health and Best Health Behaviours.* ICES Investigative Report. Toronto: Institute for Clinical Evaluative Sciences; 2009.

Issue

What can Ontario learn from other provinces and countries who lead the way in encouraging and maintaining good health among their citizens?

Study

Reviewed the scientific literature, consulted experts across Canada and abroad, and examined health strategies and programs from leading jurisdictions.

Key Findings

- Compared to the leading provinces—British Columbia (BC) is in the top spot—Ontario's health behaviour is worse, health targets are lower and fewer resources are allocated to improving health behaviours related to smoking, physical activity, diet and obesity.
- Ontario ranks 4th for physical activity (53% of the population is active); 21% of Ontarians are daily or occasional smokers (compared to 18% in BC) and 14.6% are obese (compared with 12.6% in BC).
- Ontario has the 2nd highest life expectancy at 80.7 years (behind BC at 81.2 years).
- Government must pay attention to societal attitudes about health and make efforts to understand the prevailing political and social structures.
- Leading jurisdictions do not necessarily wait for conclusive scientific evidence and are often the first to implement innovative interventions, such as those supporting physical activity and healthier weights.

Implications

Ontario should become a leader in introducing innovative strategies aimed at achieving improvements in health behaviours. The Ontario government should allocate more resources toward improving health behaviours related to smoking, physical activity, diet and obesity. By 2015, fewer than 15% of Ontarians should use tobacco, more than 73% of Ontarians should be physically active (more than 30 minutes of daily physical activity), and fewer than 32% of Ontarians should be either overweight or obese. Interventions should ensure that people in disadvantaged groups—whose health tends to be poorer—make the first and greatest gains in these areas.