Enhancing the effectiveness of health care for Ontarians through research

ICES Institute for Clinical Evaluative Sciences

At A Glance

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Monthly highlights of ICES research findings for stakeholders

Almost one in five methadone patients filling prescriptions for other opioids

Kurdyak P, Gomes T, Yao Z, Mamdani M, Hellings C, Fischer B, Rehm J, Bayoumi A, Juurlink DN. Use of other opioids during methadone therapy: a population-based study. *Addiction*. 2011 Nov 2 [Epub ahead of print].

Issue Methadone is a long-acting opioid used to treat patients with opioid dependence. To what extent are individuals receiving methadone maintenance therapy (MMT) also receiving prescriptions for other opioids? Do these prescriptions originate from the same physicians or pharmacies involved in MMT?

Study Used the Ontario Drug Benefit database to identify 18,759 Ontarians aged 15–64 who received at least 30 days of continuous MMT between April 2003 and March 2010. Determined the proportion who filled at least one prescription for more than seven days of a non-methadone opioid.

Key Findings In total, 18% of the patients on MMT were prescribed non-methadone opioids concurrently, averaging about 12 prescriptions a year, including oxycodone, codeine and Fentanyl. Of these prescriptions, 68% were from non-MMT prescribing physicians and 46% were from non-MMT dispensing pharmacies.

Implications Comprehensive, real-time access to prescription claims data may curtail the extent to which other opioids are co-prescribed with methadone. Patients on MMT needing pain management should be prescribed short-acting opioids for short periods of time by their methadone prescriber. Ontario's recently enacted *Narcotics Safety and Awareness Act* is meant to reduce the abuse and misuse of opioids.

Multiple factors influence choice of cardiac procedures across Ontario hospitals

Tu JV, Ko DT, Guo H, Richards JA, Walton N, Natarajan MK, Wijeysundera HC, So D, Latter DA, Feindel CM, Kingsbury K, Cohen EA, for the Cardiac Care Network of Ontario VRPO Working Group. Determinants of variations in coronary revascularization practices. *CMAJ*. 2011 Dec 12 [Epub ahead of print].

Issue Percutaneous coronary intervention (PCI) is a safe alternative to coronary artery bypass graft (CABG) surgery for selected patients with coronary artery obstructions. The ratio of PCI to CABG surgery has increased in Ontario, as has its variation across hospitals. What factors are linked to these changes?

Study Analyzed the medical charts of 8,972 patients who underwent a cardiac catheterization in 17 Ontario hospitals between April 2006 and March 2007. Grouped the hospitals into four categories according to their PCI:CABG ratio: low (less than 2.0), low-medium (2.0–2.7), medium-high (2.8–3.2) or high (more than 3.2). Explored the relative contribution of patient, physician and hospital factors to variations in the likelihood of patients receiving PCI or CABG surgery within 90 days of the catheterization.

Key Findings There was a threefold variation in ratios across the four hospital groups, ranging from a mean of 1.6 in the lowest-ratio group to 4.6 in the highest-ratio group. Coronary anatomy was the strongest predictor for PCI, followed by clinical indication for the procedure and treating hospital. Among patients with single-vessel disease, the revascularization mode was typically PCI. Those with left main artery disease usually underwent CABG. Most of the variation in ratios was among patients with non-emergent multi-vessel disease, who could potentially undergo either PCI or CABG. Patients were 40% more likely to get a PCI if their angiogram was performed by an interventional cardiologist. Only 4% of cases were discussed in cardiologist-surgeon case conferences.

Implications Patient-centred care with full disclosure of the benefits and harms associated with the two modes of revascularization is essential, as are consistency in decision-making and a multi-disciplinary team approach.

Older drivers taking antidepressants with other drugs at higher risk of car crashes

Rapoport MJ, Zagorski B, Seitz D, Herrmann N, Molnar F, Redelmeier DA. At-fault motor vehicle crash risk in elderly patients treated with antidepressants. *Am J Geriatr Psychiatry*. 2011; 19(12):998–1006.

Issue About one in 10 seniors take antidepressants, and about one in six motor vehicle crashes involve drivers over age 65. Is there a relationship between antidepressant use and crash risk in older drivers?

Study Tracked Ontario adults who were aged 65 or older between January 2000 and October 2007 to determine how many had an at-fault crash while receiving an antidepressant alone or an anti-depressant with another psychotropic drug (either a benzodiazepine or a strong anticholinergic).

Key Findings A total of 159,678 older adults had a crash during the study period, of whom 5% received an anti-depressant in the month prior to the crash. Antidepressants alone did not lead to an increased risk of a crash. Patients co-prescribed an antidepressant and a benzodiazepine had a 23% increased crash risk; those taking an antidepressant and an anticholinergic drug had a 63% increased crash risk.

Implications Physicians and pharmacists should warn patients of the risks of driving while taking an antidepressant concurrently with other psychotropic medications that can impair cognition.

ICES study examines health system use of frail Ontario seniors

Bronskill SE, Camacho X, Gruneir A, Ho MM (editors). *Health System Use by Frail Ontario Seniors: An In-Depth Examination of Four Representative Cohorts*. Toronto: Institute for Clinical Evaluative Sciences; 2011.

Issue

In 2009, 14% of Canada's population was aged 65 or older; it has been projected that by 2036 this group will account for 24% of the population. While many older adults will require only minimal support as they age, a significant number will have health conditions that require greater care across a broader range of health services and will be most susceptible to long-term care admission.

Study

Examined four vulnerable populations of Ontario seniors with heavy health care needs or inadequate support: older women, individuals with dementia living in the community, home care clients with complex medical needs, and individuals waiting for placement in long-term care homes. Each group's health and functional status, health service use, and access to caregiver support were compared in the year prior to and the year following the baseline date of April 1, 2007.

Key Findings

- Older men and women used hospital and physician services at similar levels; however, older women were more likely to use long-term care services, accounting for 65.6% of placements in long-term care facilities.
- Older adults with dementia were twice as likely to experience a hospital stay as those without dementia and to have a longer average length of stay—14.2 days compared to 8.6 days for adults without dementia.
- Medically complex home care clients discharged from acute care had high rates of multi-morbidity and high rates of readmission. In total, 63.7% of these patients had 10 or more diagnosed conditions, and 56.5% were readmitted to acute care within one year of discharge.
- Among older adults receiving long-stay home care services, a larger proportion of women lived alone and relied on their children for support, while men also relied on a spouse.
- While waiting for placement in long-term care, older adults made frequent contact with the health care system. Of those waiting more than 205 days for placement, 63.5% had emergency department visits and 43.6% had acute care hospital admissions during their wait.

Implications

To alleviate some of the challenges faced by frail older adults living with chronic conditions and to reduce pressure on Ontario's health care system, more responsive care options are needed at home and in the community.

Drug combination may lead to hyperkalaemia in the elderly

Antoniou T, Gomes T, Mamdani MM, Yao Z, Hellings C, Garg AX, Weir M, Juurlink DN. Trimethoprim-sulfamethoxazole induced hyperkalaemia in elderly patients receiving spironolactone: nested case-control study. *BMJ*. 2011; 343:d5228.

Issue

The drug spironolactone—used to treat heart failure, hypertension and kidney disease—is a diuretic that works by helping the body excrete excess water and salt. It also reduces the excretion of potassium. Trimethoprim-sulfamethoxazole (TMP-SMX), an antibiotic commonly used for the treatment of urinary tract infection, also reduces potassium excretion. Are older patients taking spironolactone and TMP-SMX concurrently at increased risk of hospitalization for hyperkalaemia (high blood potassium)?

Study

Identified Ontarians aged 66 and older receiving long-term treatment with spironolactone who were admitted to hospital for hyperkalaemia within 14 days of being prescribed TMP-SMX, amoxicillin, norfloxacin or nitrofurantoin between April 1992 and March 2010. The odds of hospitalization with hyperkalaemia were calculated.

Key Findings

During the 18-year study period, 6,903 admissions for hyperkalaemia were identified, 306 of which occurred within 14 days of antibiotic use. Overall, 10.8% of spironolactone users received at least one prescription for TMP-SMX. Compared with amoxicillin, TMP-SMX was associated with a 12.4% increased risk of hospital admission for hyperkalaemia. Norfloxacin and nitrofurantoin were associated, respectively, with a lower risk and no risk of hyperkalaemia. Approximately 60% of hyperkalaemia cases in older patients taking spironolactone and treated with an antibiotic could have been avoided if TMP-SMX was not prescribed.

Implications

Increased awareness of this drug interaction among pharmacists and physicians is needed to ensure that the potential for life threatening hyperkalaemia is minimized, either by selection of alternative antibiotics when appropriate or by close monitoring of patients treated with both drugs.