Enhancing the effectiveness of health care for Ontarians through research

ICES Institute for Clinical Evaluative Sciences

At A Glance

April 2006

Monthly highlights of ICES research findings for stakeholders

Common antibiotic can cause potentially fatal blood sugar abnormalities

Park-Wyllie L, Juurlink D, Kopp A, Shah B, Stukel T, Stumpo C, Dresser L, Low D, Mamdani M. Outpatient gatifloxacin therapy and dysglycemia in older adults. *N Engl J Med*. 2006; 354 (13): 1352-1361.

Issue Several previous reports have suggested that the commonly-prescribed antibiotic gatifloxacin is particularly prone to influence blood glucose levels.

Study Examined the association between antibiotic use and subsequent hospital visits for high and low blood sugar levels, in Ontario residents aged 66 years and older between April 2002 and March 2004.

Key Findings Patients treated for low blood sugar levels were more than four times more likely to have received gatifloxacin in the preceding 30 days, compared to other antibiotics. Patients hospitalized with high blood sugar levels were almost 17 times more likely to have recently been treated with gatifloxacin in the preceding 30 days, than with other antibiotics. The risk of glucose abnormalities was not restricted to patients with diabetes, who have more issues with blood sugar levels than the general population.

Implications Patients taking gatifloxacin need to recognize the symptoms of high and low blood sugar levels so that they can seek medical attention immediately if these develop. Physicians and pharmacists should also be aware of the increased risk of potentially life-threatening blood sugar abnormalities with gatifloxacin therapy. Clinicians should carefully weigh the risks of prescribing gatifloxacin because many other antibiotics are available that have little or no risk of dangerous effects on blood sugar levels.

Spironolactone often prescribed to inappropriate heart failure patients

Ko D, Juurlink D, Mamdani M, You J, Wang J, Donovan L, Tu J. Appropriateness of spironolactone prescribing in heart failure patients: a population-based study. *J Card Fail*. 2006; 12 (3): 205-210.

Issue The Randomized Aldactone Evaluation Study (RALES) established the safety and benefit of spironolactone for heart failure patients. However, recent data have raised concerns regarding high potassium levels (hyperkalemia) following spironolactone use.

Study Examined the appropriateness of spironolactone use in heart failure patients by exploring factors potentially associated with high potassium levels from spironolactone therapy in a population-based group of 9,165 heart failure patients hospitalized in Ontario between 1999 and 2001.

Key Findings Of the 1,502 patients prescribed spironolactone at discharge, 18% had elevated serum potassium levels during hospitalization and 23% were discharged on concurrent potassium supplements. As well, many patients had stage III, stage IV, or stage V chronic renal insufficiency.

Implications Spironolactone was often prescribed inappropriately to heart failure patients. This highlights the need for more careful patient selection when prescribing spironolactone to minimize the potential of life-threatening hyperkalemia.

Low-risk chest pain patients may not benefit from electrocardiographic monitoring

Atzema C, Schull M, Borgundvaag B, Slaughter G, Lee C. ALARMED: adverse events in low-risk patients with chest pain receiving continuous electrocardiographic monitoring in the emergency department. A pilot study. *Am J Emerg Med*. 2006; 24 (1): 62-67.

Issue Current guidelines suggest that most patients who come to an emergency department (ED) with chest pain should be put on a continuous electrocardiographic monitoring (CEM) device. However, no study has evaluated the usefulness of standard CEM in ED patients with chest pain.

Study Patients who presented with chest pains to a single Ontario hospital ED from June to August 2003 and were placed on CEM were classified according to risk of poor outcome. Investigators then recorded the number of monitored hours, alarms, changes in management, and monitor-detected adverse events.

Key Findings Of the 72 patients followed during the study period, were categorized as low-risk. During the 371 monitored hours, 1,762 alarms were recorded. While there were 11 adverse events, only three of these resulted in a change in management. None of these three patients were in the low-risk group.

Implications The value of CEM for low-risk chest pain patients may be limited, and given that 99.4% of the alarms were false, current CEM technology needs to be improved.

New cervical cancer treatment recommendations have changed practice in Ontario

Barbera L, Paszat L, Thomas G, Covens A, Fyles A, Elit L, Qiu F. The rapid uptake of concurrent chemotherapy for cervix cancer patients treated with curative radiation. *Int J Radiat Oncol Biol Phys*. 2006; 64 (5): 1389-1394.

Issue In 1999, the results of a series of clinical trials published in the *New England Journal of Medicine* along with a clinical announcement from the *National Cancer Institute (NCI)* suggested that chemotherapy should be used concurrently with pelvic radiation in the management of cervical cancer. However, the extent to which these recommendations have been implemented in Ontario has not been examined.

Study Using the Ontario Cancer Registry, the study tracked new cervical cancer cases diagnosed between January 1, 1995 and March 31, 2001 where patients received radiation within six months of diagnosis. Scientists then compared the number of patients who received at least one injection of chemotherapy prior to radiation before and after publication of the new cervical cancer treatment recommendations.

Key Findings Prior to the new cervical cancer treatment recommendations, 9.4% of patients received chemotherapy versus 67.4% of patients after the recommendations were made. This change occurred abruptly in the first quarter of 1999.

Implications This change in practice likely resulted from a combination of factors including ease of implementation, familiarity with treatment, a small clinician community that works in a regionalized setting, a cluster of articles published in a leading medical journal, and a public statement from a credible organization. These factors should be considered when looking at increasing the uptake of evidence into practice.

Pregestational diabetes becoming more common in Ontario women

Feig D, Razzaq A, Sykora K, Hux J, Anderson G. Trends in deliveries, prenatal care, and obstetrical complications in women with pregestational diabetes: a population-based study in Ontario, Canada, 1996-2001. *Diabetes Care*. 2006; 29 (2): 232-235.

Issue In light of the challenge issued by the World Health Organization (WHO) and the International Diabetes Federation (IDF) to “achieve pregnancy outcomes in the diabetic woman that approximate that of the nondiabetic woman”, more research is needed to explore recent trends in the proportion of deliveries in women with pregestational diabetes (PGD), their use of health services, and diabetes-related obstetrical complications.

Study Identified all women who gave birth in an Ontario hospital from 1996 to 2001 to examine differences in maternal complications and interventions, and use of prenatal services, over time and between women with and without PGD.

Key Findings The proportion of deliveries in women with PGD rose steadily between 1996 and 2001 with an overall 41% rate increase. In 2001, women with PGD were more likely to be diagnosed with shoulder dystocia, hypertension and preeclampsia/eclampsia, and were more likely to have higher rates of inductions and caesarean sections than women without PGD. In 2001, 50% of the women with PGD visited a diabetes specialist during pregnancy and only 30% had a prenatal retinal examination. Both of these rates decreased over the study period.

Implications As diabetes in pregnancy becomes more common, there is a growing need to define effective interventions and policies to ensure that women have access to these interventions to meet the challenge issued by the WHO and IDF.

For more information contact:
Paula McColgan, Vice-President, Policy and External Relations, ICES
(416) 480-6190 or paula.mccolgan@ices.on.ca