POEMs

Patient-Oriented Evidence that Matters

We have chosen four POEMs for April. The first of these reassures us that more judicious prescribing of antibiotics for respiratory infections in children has not led to an increase in more serious complications. The second POEM describes a study that shows an association between elevated fasting and two hour post-prandial glucose levels and mortality but the common factor might be increased insulin resistance rather than the glucose levels per se. The third study shows that homeopathy is no more effective than placebo and the final POEM throws doubt on the benefits of intensively lowering LDL levels in patients with stable CAD. Editor.

Clinical question

Does more cautious prescribing of antibiotics for sore throat increase the number of children with serious complications?

Bottom line

More judicious prescribing of antibiotics for childhood respiratory infections has not increased the number of episodes of peritonsillar abscess or rheumatic fever. The effect on mastoidectomy is unclear, but a clinically important increase appears unlikely.
(LOE = 2c)

Reference

Sharland M, Kendall H, Yeates D, et al. Antibiotic prescribing in general practice and hospital admissions for peritonsillar abscess, mastoiditis, and rheumatic fever in children: time trend analysis. BMJ 2006; 331:328-29.

Study Design

Ecologic

Funding

Self-funded or unfunded

Setting

Population-based

Synopsis

In the United Kingdom, as in the United States, physicians are prescribing fewer antibiotics for acute respiratory conditions in children. This is a laudable trend, but some researchers have speculated that the use of fewer antibiotics may increase the risk of very rare but serious problems, such as mastoiditis, peritonsillar abscess, and rheumatic fever. The authors used data from a national database of drugs dispensed by pharmacists, a primary care database for 130 practices, and a database of hospital admissions. They found that antibiotic prescribing by physicians declined by approximately 35% between 1993 and 1999 and then levelled off; the number of prescriptions filled continued to decline by another 9% in four years, probably because of increased use of delayed prescriptions as a strategy to reduce inappropriate antibiotic usage. During the same period (1993 to 2003), there was no change in the rate of hospital admissions for peritonsillar abscess or rheumatic fever, but a small rise in the rate of admission (19%) for mastoidectomy. However, there was a trend toward a declining number of episodes of mastoidectomy in general practices. Also, most of the increase in hospital episodes of mastoidectomy were in children younger than age four, an age when otitis media is most common.

** Patient-Oriented Evidence that Matters. See editorial (NZFP 2003; 30:150)*

Clinical question

Does a higher fasting glucose level or a higher two-hour postprandial glucose level in men predict mortality?

Bottom line

Higher fasting blood glucose levels or two-hour postprandial blood glucose levels in middle-aged men are predictive of subsequent mortality. However, that doesn't necessarily mean that lowering their blood glucose with therapy reduces that mortality; this was not demonstrated in the United Kingdom Prospective Diabetes Study (UK Prospective Diabetes Study [UKPDS] Group. Lancet 1998;352:837-53). (LOE = 1b)

Reference

Sorkin JD, Fleg JL, Muller DC, Andres R. The relation of fasting and 2-h postchallenge plasma glucose concentrations to mortality. Diabetes Care 2005; 28:2626-32.

Study Design

Cohort (prospective)

Funding

Government

Setting

Population-based

Synopsis

The researchers, starting back in 1963, enrolled 1236 men in a longitudinal study of ageing. None of the men had diabetes at the time of enrolment. At enrolment, the men were tested for fasting blood glucose levels and, later, also for two-hour postprandial glucose levels. They were followed up for an average of 13.4 years; follow-up was almost 100%. The mean age of the men at enrollment was 53 years, and 35% died during their follow-up period. Risk of mortality increased with a fasting glucose level greater than 110mg/dL (6.1mmol/l). At a glucose level of 110mg/dL to 125mg/dL (6.1–6.9mmol/l), the relative risk was 1.41 (95% CI, 1.01–1.97); at a glucose level of 126mg/dL to 139 mg/dL (7.0–7.7mmol/l), the relative risk was 2.02 (1.09–3.73). Similarly, a two-hour postprandial glucose greater than 140 mg/dL (7.8mmol/L) also predicted mortality. One important caveat: This type of study shows a relationship, which may or not be a cause. In other words, even though higher glucose levels were associated with higher mortality, it doesn't necessarily mean that lowering blood glucose levels will reverse this risk; the increased glucose levels could simply be a marker and not a cause of mortality.

Clinical question

Are the effects of homeopathy merely placebo effect?

Bottom line

High-quality studies demonstrate that homeopathy are no more effective than placebo. (LOE = 1a-)

Reference

Shang A, Huwiler-Muntener K, Nartey L, et al. Are the clinical effects of homoeopathy placebo effects? Comparative study of placebo-controlled trials of homoeopathy and allopathy. Lancet 2005; 366:726-32.

Study Design

Systematic review

Funding

Government

Setting

Various (meta-analysis)

Synopsis

The authors combed 19 databases, including some that specialise in complementary and homeopathic registries. They used a sensible and systematic approach to searching for clinical trials of homeopathy and conventional medicine. They enhanced the search by consulting the reference lists of included articles and by contacting experts in homeopathy. Additionally, they searched the Cochrane Controlled Trials Register to identify trials of conventional therapies. They only included studies that had a parallel group design with placebo control, used a random or quasi-random assignment to treatment and placebo groups, and had a written report with sufficient data to allow calculating the effects of the intervention. The authors do not report on measures that allow us to determine the quality and objectivity of the application of their inclusion and exclusion criteria. Two investigators extracted the data independently using a tested

data collection method. They resolved any discrepancies by consensus. The investigators also assessed the methodologic quality of each study, but don't describe any steps to insure the reliability and accuracy of these assessments. They ended up with 110 trials of homeopathy and 110 matching trials of conventional therapies. The trials covered a spectrum of conditions including: respiratory-tract infections, pollinosis and asthma, obstetrics and gynaecology, surgery and anesthesia, gastroenterology, musculoskeletal disorders, and neurology. The homeopathic trials were less likely to be published in English (53% vs 85%) or in MEDLINE-referenced journals (41% vs 86%) and were more likely to be described as double blind (92% vs 87%) and to report concealed allocation (45% vs 19%). Only 19% of the homeopathy papers and 8% of the conventional papers were of high quality (double-blind, randomized, with concealed allocation). In both homeopathy and conventional trials, smaller and lower-quality studies were more likely to show benefit of the intervention. When looking at only the higher-quality studies, the trials of homeopathy were no more effective than placebo (odds ration [OR] = 0.88; 95% CI, 0.65-1.19); the matched conventional therapy trials were more effective (OR = 0.58; 95% CI, 0.39-0.85). Ideally, the authors would have evaluated studies directly comparing conventional and homeopathic therapies.

Clinical question

Is intensive lowering of serum lipids with statin drugs beneficial in patients with stable coronary artery disease?

Bottom line

The intensive reduction of low-density lipoprotein (LDL) levels to well below 100mg/dL (2.5mmol/L) did not result in a significant reduction in the recurrence of major coronary events or all-cause mortality among patients with stable coronary artery disease. Intensive lowering is associated with an increased risk of discontinuing medication because of adverse events and significant drug costs. Aiming for an LDL of approximately 100mg/dL (2.5mmol/L) seems optimal for the majority of patients with stable disease.
(LOE = 1b-)

Reference

Pedersen TR, Faergeman O, Kastelein JJ, et al, for the Incremental Decrease in End Points Through Aggressive Lipid Lowering (IDEAL) Study Group. High-dose atorvastatin vs usual-dose simvastatin for secondary prevention after myocardial infarction. The IDEAL study: A randomized controlled trial. JAMA 2005; 294:2437-45.

Study Design

Randomised controlled trial (single-blinded)

Funding

Industry

Allocation

Uncertain

Setting

Outpatient (specialty)

Synopsis

Intensive lowering of LDL to well below 100mg/dL (2.5 mmol/L) is beneficial for patients with acute coronary syndromes. It is uncertain, however, if similar treatment provides further benefit in stable coronary artery disease. These investigators enrolled 8888 adults from 190 ambulatory cardiology care and specialist practices in northern Europe. The patients were 80 years or younger, with a history of a definite myocardial infarction, and were randomly assigned (uncertain allocation concealment) to receive a high dose of atorvastatin (80mg/d) or usual-dose simvastatin (20mg/d). If, at 24 weeks of follow-up, plasma total cholesterol level was higher than 190mg/dL (5.0mmol/L), the dose of simvastatin could be increased to 40mg/d. Follow-up occurred for nearly 100% of patients for 4.8 years. Individuals assessing outcomes were blinded to treatment group assignment. The primary outcome was recurrence of a major coronary event, defined as coronary death, hospitalisation for nonfatal acute myocardial infarction, or cardiac arrest with resuscitation. During treatment, mean LDL levels were 104mg/dL (2.7mmol/L) in the simvastatin group and 81mg/dL (2.1mmol/L) in the atorvastatin group. Using intention-to-treat analysis, there was no statistical difference in the reoccurrence of a major coronary event between the two groups. The risk of death from any cause, including noncardiovascular causes, is also similar in both groups. The investigators report a number of different post hoc secondary outcomes showing benefit to intensive lipid lowering, but the important patient-oriented outcomes of living better and living longer are improved little, if at all, with intensive lowering. Discontinuation rates were higher in the atorvastatin group because of adverse events.