30 days in medicine

The J-curve: Blood pressure and cardiovascular disease

An analysis of data from 22 672 patients with stable coronary artery disease who were treated for the condition showed that reducing blood pressure to too low a level had poor outcomes. In patients with hypertension and coronary artery disease from routine clinical practice, systolic blood pressure of <120 mmHg and diastolic blood pressure of <70 mmHg were both associated with adverse cardiovascular outcomes, including mortality. This supports the idea of a J-curve in optimal blood pressure, since very low diastolic blood pressure leads to poor myocardial perfusion, causing problems.

Vidal-Petiot E, Ford I, Greenlaw N, et al. Cardiovascular event rates and mortality according to achieved systolic and diastolic blood pressure in patients with stable coronary artery disease: An international cohort study. Lancet 2016;388(10056):2142-2152. http://dx.doi.org/10.1016/S0140-6736(16)31326-5

Treatment, not screening, cause of reduction in breast cancer deaths

A recent study in the *New England Journal of Medicine* shows that improved systemic therapy and not early detection of tumours was the cause of the fall in breast cancer deaths seen after the introduction of widespread mammography in the USA. Assuming that the underlying pattern of breast cancer progression was stable, the researchers calculated that only 30 of the additional 162 small tumours per 100 000 women that were diagnosed on screening would have progressed to become large. This implied that the remaining 132 cases of cancer per 100 000 women were 'overdiagnosed' by screening and would never have led to clinical symptoms.

Welch HG, Prorok PC, O'Malley AJ, Kramer BS. Breast cancer tumor size, overdiagnosis, and mammography screening effectiveness. N Engl J Med 2016;375:1438-1447. http://dx.doi.org/10.1056/NEJMoa1600249

Maternal and newborn mortality directly affected by quality of care at health facilities

Global efforts to increase the number of births at healthcare facilities will only reduce maternal or newborn mortality if the quality of care in these facilities is sufficient, according to Margaret Kruk and colleagues. They analysed nationally representative health system surveys with data for volume of deliveries and quality of delivery care from Kenya, Namibia, Rwanda, Tanzania and Uganda. They used an index of 12 indicators of structure and processes of care, including infrastructure and use of evidence-based routine and emergency care interventions, completing national surveys between April 2006 and May 2010. They found that >40% of facility deliveries in these five African countries occurred in primary care facilities, which scored poorly on basic measures of maternal care quality. Facilities with caesarean section capacity, particularly those that managed >500 births per year, had higher scores for maternal care quality. The authors recommend systematic assessment of maternal care quality in low- and middle-income countries to accelerate reduction of maternal and newborn deaths.

Kruk ME, Leslie HH, Verguet S, Mbaruku GM, Adanu RMK, Langer A. Quality of basic maternal care functions in health facilities of five African countries: An analysis of national health system surveys. Lancet Glob Health 2016;4(11):e845-e855. http://dx.doi.org/10.1016/S2214-109X(16)30180-2

Can we reach the 2025 WHO global tuberculosis targets?

Post-2015, the End TB Strategy proposes targets of a 50% reduction in tuberculosis (TB) incidence and a 75% reduction in TB-related mortality by 2025. Using 11 independently developed mathematical models of TB transmission, the authors of this article projected the epidemiological impact of currently available TB interventions for prevention, diagnosis and treatment in China, India and South Africa (SA). Country-specific intervention scenarios were provided by representatives from national TB programmes and the advocacy community. Aggressive scale-up of any single intervention, which includes symptom screening, active case finding and prevention therapy, could not achieve the targets in any country. However, the models projected that, in the SA national TB programme scenario, a combination of continuous isoniazid preventive therapy for individuals on antiretroviral therapy, expanded facility-based symptom screening and improved TB care could achieve a 55% reduction in incidence and a 72% reduction in mortality compared with 2015 levels. For India and particularly for China, full scale-up of all interventions in TB programme performance fell short of the 2015 targets, despite preventing a cumulative 3.4 million cases.

Houben RMG, Menzies NA, Sumner T, et al. Feasibility of achieving the 2025 WHO global tuberculosis targets in South Africa, China, and India: A combined analysis of 11 mathematical models. Lancet Glob Health 2016;4(11):e806-e815. http://dx.doi.org/10.1016/S2214-109X(16)30199-1

No more cranberry juice for urinary tract infections

Cranberry juice is commonly thought of as a natural way of treating urinary tract infections, but a recent study published in *Journal of the American Medical Association* suggests that it is little better than placebo. The authors tested the effect of two oral cranberry capsules daily on the presence of bacteriuria plus pyuria among 185 women aged >65 years with or without bacteriuria plus pyuria living in nursing homes using a double-blind, randomised, placebo-controlled efficacy trial over 1 year. The two oral cranberry capsules each contained 36 mg of the active ingredient proanthocyanidin, equivalent to 72 mL of cranberry juice. They found no significant difference in the presence of bacteriuria plus pyuria and placebo during the year of administration.

Juthani-Mehta M, van Ness PH, Bianco L. Effect of cranberry capsules on bacteriuria plus pyuria among older women in nursing homes: A randomized clinical trial. JAMA 2016;316(18):1879-1887. http://dx.doi.org/10.1001/jama.2016.16141

Little difference in outcome between treated and monitored prostate cancer

A study comparing active monitoring, radical prostatectomy and external beam radiotherapy for treatment of clinically localised prostate cancer found no significant difference between treatments, and 10-year prostate cancer-specific mortality was generally low. Between 1999 and 2009, a total of 82 429 men aged 50 - 69 years received a prostate-specific antigen test; 2 664 received a diagnosis of localised prostate cancer, and 1 643 agreed to undergo randomisation to active monitoring (545 men), surgery (553) or

radiotherapy (545). There were 17 prostate cancer-specific deaths overall – 8 in the active monitoring group, 5 in the surgery group and 4 in the radiotherapy group. Higher rates of disease progression were seen in the active monitoring group than in the surgery or the radiotherapy groups.

Hamdy FC, Donovan JL, Lane JA, et al. 10-year outcomes after monitoring, surgery, or radiotherapy for localized prostate cancer. N Engl J Med 2016;375(15):1415-1424. http://dx.doi.org/10.1056/NEJMoa1606220

Industry-funded studies find no link between sugary drinks and diabetes and obesity

Research studies funded by the sugary drinks industry are significantly less likely than those without such ties to find links between sugary drink consumption and diabetes and obesity, according to a literature review published recently in *Annals of Internal Medicine*. The introduction of initiatives such as taxes to limit consumption of sugary drinks in order to reduce levels of diabetes and obesity has resulted in the industry disputing any evidence of causation. However, a systematic review investigating whether studies that found no link between sugary drinks and diabetes or obesity were more likely to be funded by industry than studies that found a link, found that all (100%) of the 26 studies that found no association had funding ties to industry. On the other hand, only one of the 34 studies that found an association between diabetes and obesity and drinking sugary beverages was supported by industry (2.9%). This would appear to be another example of industry manipulating science to advance their business interests.

Schillinger D, Tran J, Mangurian C, Kearns C. Do sugar-sweetened beverages cause obesity and diabetes? Industry and the manufacture of scientific controversy. Ann Intern Med 2016. http://dx.doi.org/10.7326/L16-0534 (published online 1 November 2016).

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