Masala

Micropacemaker for foetal heart block
Researchers at the University of Southern California and the Children’s hospital at Los Angeles have come up with a novel device—a micropacemaker for treating the foetus with a heart block. Earlier attempts at deploying a pacemaker for foetuses had used leads from adult pacemakers implanted in the foetal heart with the device being outside the foetus. This design had failed, possibly due to repeated lead dislodgement. The new device is placed in utero and is kept entirely within the foetus with no harm to the mother or the baby. This device is expected to be used soon in the clinical setting (Heart Rhythm 2015;12:1683–90).

Device to help the visually impaired avoid collisions
Patients with impaired peripheral vision have problems avoiding collisions. Researchers at the Harvard Medical School created and tested a pocket-sized collision warning device equipped with a video camera. A high-density obstacle course was used to evaluate the effectiveness of the device. The 41-metre-long loop-shaped obstacle course consisted of 46 stationary obstacles from floor to head level and oncoming pedestrians. Twenty-five patients with tunnel vision (n=13) or hemianopia (n=12) completed four consecutive loops with and without the device, without using any other habitual mobility aid. On comparing results for each patient with and without the device, collisions were reduced significantly by nearly 37% with the use of the device. This device could add much needed ‘sight’ to such patients (Invest Ophthalmol Vis Sci 2015;56:2571–9).

Statins safe in pregnancy
Researchers at the Harvard Medical School assessed the teratogenic potential of statins. They studied a cohort of 886 996 completed pregnancies linked to live-born infants of women enrolled in Medicaid from 2000 to 2007. Propensity score-based methods were used to control for potential confounders. A total of 1152 (0.13%) women used a statin during the first trimester. Of 1152 (0.13%) women used a statin during the first trimester. Of these women, 6.34% compared with 3.55% in those of women who did not use a statin (relative risk [RR] 1.79). However, this excess risk was accounted for by confounders, particularly pre-existing diabetes; controlling for these removed the excess risk (RR 1.07). There were no statistically significant increases in organ-specific malformations after accounting for confounders. Although the number of women taking statins was small, these results are reassuring (BMJ 2015;350:h1035).

New guidelines on unprovoked first seizure
The American Academy of Neurology and the American Epilepsy Society have released evidence-based recommendations on the management of adult patients with an unprovoked first seizure. Key observations include: the risk of seizure recurrence is greatest within the first 2 years (21%–45%); clinical variables associated with increased risk may include a prior brain insult, an electroencephalogram (EEG) with epileptiform abnormalities, a significant brain-imaging abnormality, and a nocturnal seizure. Immediate antiepileptic drug (AED) therapy, as compared with delay of treatment pending a second seizure, is likely to reduce the risk of recurrence within the first 2 years by 35% but may not lead to an improved quality of life. Sustained long-term remission of seizure is not better with immediate treatment. The risk of AED-related adverse events (AEs), predominantly mild and reversible, may range from 7% to 31% (Neurology 2015;84:1705–13).

Preventive antibiotics do not improve outcomes in stroke
Conflicting evidence exists regarding the effectiveness of preventive antibiotics in reducing infections following stroke and in improving patient outcomes. The Preventive Antibiotics in Stroke Study (PASS) was a multicentre, open-label trial that randomized patients with stroke to receive either usual stroke unit care (n=1275) or usual care with intravenous ceftriaxone 2 g daily for 4 days (n=1275) within 24 hours of onset of symptoms of stroke. At 3 months of follow-up, 99% of patients were assessed. The primary end-point of functional outcome defined by the modified Rankin scale at this time did not differ between the two groups. The use of ceftriaxone led to fewer infections especially those of the urinary tract but it did not improve functional outcomes at 3 months (Lancet 2015;385:1519–26).

Folate supplementation reduces risk of stroke in hypertension
The China Stroke Primary Prevention Trial was a randomized, double-blind trial conducted in two large provinces in China. The researchers randomized 20 702 adults with hypertension without a history of stroke or myocardial infarction (MI) to receive either enalapril 10 mg with folic acid 0.8 mg (n=10 348) or enalapril 10 mg alone (n=10 354). With a median treatment duration of 4.5 years, the primary outcome of a first stroke was reached in 2.7% of patients in the enalapril–folic acid group v. 3.4% in the enalapril alone group; hazard ratio [HR] 0.79. The rates of first ischaemic stroke (2.2% with enalapril–folic acid v. 2.8% with enalapril alone; HR 0.76) and composite cardiovascular events consisting of cardiovascular death, MI and stroke (3.1% with enalapril–folic acid v. 3.9% with enalapril alone; HR 0.80) were significantly lower in the enalapril–folic acid group. The risks of haemorrhagic stroke, MI and all-cause deaths did not differ significantly between the two treatment groups. These are compelling data to use folate supplements for stroke prevention in patients with hypertension (JAMA 2015; published online 15 Mar 2015; doi:10.1001/jama.2015.2274).

Successful phase 1 trial of Ebola vaccine
From the Beijing Institute of Biotechnology comes some encouraging news in the fight against the Ebola virus. Researchers report the results of a phase 1 trial of a novel recombinant adenovirus type-5 vector-based Ebola vaccine expressing the glycoprotein of the 2014 epidemic strain. This double-blind, placebo-controlled trial randomized healthy adults to receive placebo (n=40), low-dose adenovirus type-5 vector-based Ebola vaccine (n=40) or high-dose vaccine (n=40). Participants were followed up for 4 weeks. The only significant adverse effect in the vaccinated groups was mild pain at the injection site. Glycoprotein-specific antibody titres were significantly increased in participants in both vaccine groups at days 14 and 28. T-cell responses peaked at day 14. This trial confirmed the safety and efficacy of the candidate vaccine in healthy adults (Lancet 2015; published online 25 Mar 2015; dx.doi.org/10.1016/S0140-6736(15)60553-0).

VIVEK ARYA