Masala

Working night shifts and the risk of developing diabetes
Researchers from Harvard University combined data from two large cohorts: 69 269 women aged 42–67 years in the Nurses' Health Study I (NHS I) and 107 915 women aged 25–42 years in NHS II without diabetes at baseline. Duration of working rotating night shifts (defined as at least 3 nights/month) was determined at baseline and updated every 2–4 years in NHS II. Self-reported incident diabetes was found in 6165 (NHS I) and 3961 (NHS II) participants during the 18–20 years of follow up. The duration of shift work was consistently associated with an increased risk of type 2 diabetes. Compared with women who reported no shift work, the pooled hazard ratios for participants with 1–2, 3–9, 10–19, and ≥20 years of shift work were 1.05, 1.20, 1.40 and 1.58, respectively. This risk was partly accounted for by weight gain associated with shift work (*PLoS Med* 2011;**8:**e1001141).

Intensive glycaemic control and glomerular filtration rate (GFR) in type 1 diabetes
The Diabetes Control and Complications Trial (DCCT) randomly assigned 1441 patients with type 1 diabetes to 6.5 years of either intensive glycaemic control (targeting near normal blood glucose levels) or conventional glycaemic control (preventing hyperglycaemic symptoms). Of these, 1375 patients were subsequently followed up in the observational Epidemiology of Diabetes Interventions and Complications (EDIC) study. Over a median follow-up of 22 years, impairment of GFR (defined as two consecutive values <60 ml/minute/1.73 m^2) occurred twice as often in the conventional therapy group (*n*=46) as in the intensive therapy group (*n*=24). End-stage renal disease developed in 16 participants in the conventional therapy group but only in 8 of those in the intensive therapy group. Intensive glycaemic control, though associated with higher incidence of hypoglycaemia, retards the decline in GFR seen in type 1 diabetes (*N Engl J Med* 2011;**365:**2366–76).

Neurostimulators for refractory partial epilepsy
The use of a neurostimulator to detect and abort seizure activity was tested by investigators in a multicentre, double-blind, randomized controlled trial. A programmable neurostimulator was surgically implanted into the cranium of 191 adults with partial seizures refractory to medical treatment with at least two anti-epileptic drugs. The neurostimulator constantly sensed electocorticographic activity and delivered a stimulus whenever abnormal activity was detected. Sham programming of the stimulator was done for patients in the control group. Anti-epileptic drugs were continued throughout the study. Following a blinded evaluation period of 12 weeks, the stimulator was activated in an open-label manner for all participants. Seizure frequency decreased by 38% and 17% in the intervention and control groups, respectively. Following open-label treatment, at one year 43% of patients had a 50% or greater reduction in seizure frequency. However, this was accompanied by intracranial bleeding in 4.7% and infection at the surgical site in 5.2% of patients (*Neurology* 2011;**77:**1295–304).

Gene therapy for haemophilia B
In an attempt to correct the genetic defect responsible for the disease, investigators infused a single dose of an adenovirus-associated virus (AAV) vector expressing a codon-optimized human factor IX (FIX) transgene in a peripheral vein in 6 patients with severe haemophilia B. Participants were given one of three doses of the vector—high, intermediate and low, with 2 participants in each group. No immunosuppressive therapy was given and follow-up ranged from 6 to 16 months. AAV-mediated expression of FIX at 2% to 11% of normal levels was observed in all participants. The increase in FIX levels was dose-dependent. Four patients no longer required FIX prophylaxis and remained free of spontaneous haemorrhage; the other 2 patients required FIX infusions at longer intervals (*N Engl J Med* 2011;**365:**2357–65).

Niacin for raising high-density lipoprotein (HDL) cholesterol
Residual cardiovascular risk persists in patients with established coronary artery disease even after reaching optimal low-density lipoprotein (LDL) cholesterol goals using statins. Can this risk be lowered by raising the HDL cholesterol? A total of 3414 patients with coronary artery disease were treated with simvastatin (40 or 80 mg daily) with ezetimibe, 10 mg daily, if required, to maintain an LDL cholesterol level between 40 and 80 mg/dl. They were randomly assigned to receive 1500 to 2000 mg of extended-release niacin daily (*n*=1718) or placebo (*n*=1696). Although niacin therapy significantly increased median levels of HDL cholesterol at 2 years from 35 mg/dl to 42 mg/dl, the trial was stopped at 3 years since the primary composite cardiovascular/cerebrovascular end-point was reached in roughly 16% of patients in both groups. Pharmacologically, raising HDL cholesterol does not seem to add to the effect achieved with statin therapy (*N Engl J Med* 2011;**365:**2255–67).

Utility of clinical assessment in the diagnosis of heart failure
In a cross-sectional diagnostic accuracy study, 721 consecutive patients suspected to have new-onset heart failure underwent chest X-ray, spirometry, electrocardiography (ECG), N-terminal pro-B-type natriuretic peptide (NT-proBNP) measurement and echocardiography. The diagnosis of heart failure was made by an outcome panel using the initial clinical data and 6-month follow-up data. Of the 721 patients, 207 (28.7%) had heart failure. Parameters which showed independent diagnostic value included the combination of three items from history (age, coronary artery disease and loop diuretic use) and six from physical examination (pulse rate and regularity, displaced apex beat, rales, heart murmur and increased jugular vein pressure). NT-proBNP was the most powerful supplementary diagnostic test (*Circulation* 2011;**124:**2865–73).

Bariatric surgery reduces cardiovascular events
The long-term effects of bariatric surgery on cardiovascular events were assessed in the SOS (Swedish Obese Subjects) study—a prospective, controlled study in Sweden which included 2010 obese adults who underwent bariatric surgery and 2037 matched obese controls who received usual care. Participants had a body mass index of at least 34 kg/m^2 in men and 38 kg/m^2 in women. Surgical procedures included gastric bypass (13.2%), banding (18.7%) or vertical banded gastroplasty (68.1%). Median follow-up was 14.7 years. Surgically treated patients had fewer cardiovascular deaths (hazard ratio [HR] 0.47) and fewer first-time cardiovascular events (HR 0.67) suggesting that cardio-vascular benefits of bariatric surgery are sustained in the long term (*JAMA* 2012;**307:**56–65).

VIVEK ARYA