

Masala

Leadless pacemaker tested successfully

To avoid complications associated with the subcutaneous generator and transvenous leads of a conventional pacemaker system, engineers at Medtronic have designed Micra—a leadless, transcatheter pacemaker. This device is a single-chamber ventricular pacemaker self-contained in a hermetically enclosed capsule weighing 2 g. The pacemaker is inserted using a steerable catheter delivery system through a femoral vein. The catheter is advanced into the right ventricle, and the device is affixed to the myocardium. The safety and efficacy of the device were assessed in the multicentric Micra Transcatheter Pacing study. The device was successfully implanted in 719 of 725 patients; the primary safety end-point was reached in 96% of patients at 6 months and the primary efficacy end-point in 98.3%—figures which compare favourably with historical controls in whom transvenous pacing was used (*N Engl J Med* 2016;**374**:533–41).

Proton pump inhibitors and the risk of chronic kidney disease

The association between the use of proton pump inhibitors (PPIs) and incident chronic kidney disease (CKD) was assessed in a population-based cohort of 10 482 participants (mean age 63 years; 43.9% men) from the Atherosclerosis Risk in Communities (ARC) study. Patients with a baseline estimated glomerular filtration rate of at least 60 ml/minute/1.73 m² were followed from 1996 to 2011. The findings were replicated in a cohort of 248 751 patients from the Geisinger Health System. Patients using a histamine (H₂) receptor antagonist were used as an active comparator. The use of PPIs was associated with a 50% increase in the incidence of CKD after adjusting for confounders. The association persisted when baseline PPI users were compared directly with H₂ receptor antagonist users (*JAMA Intern Med* 2016;**176**: doi:10.1001/jamainternmed.2015.7193).

Outcomes of incidentally detected gallstones

Researchers in Denmark studied three randomly selected groups in the general population of urban Copenhagen (age 30–70 years) from participants in a cardiovascular risk factor study. Of 6037 participants, 664 with ultrasonographically detected gallstones were followed up using the Danish National Patient registry. With a median follow-up of 17.4 years, clinical events developed in 19.6% of patients (8% complicated and 11.6% uncomplicated). Calculi >10 mm were associated with all events, acute cholecystitis and uncomplicated events including cholecystectomy. Multiple stones were associated with all events, complicated events and common bile duct stones. Gallstones older than 5 years were associated with acute cholecystitis. Compared with men with a single stone of 10 mm or smaller (reference), women with multiple stones >10 mm had the highest risk for events (*Gastroenterology* 2016;**150**:156–67).

Treating hypertension in patients with diabetes mellitus

A systematic review and meta-analysis assessed the effect of treating hypertension to different target levels in patients with diabetes mellitus. Forty-nine trials, which included 73 738 patients, were included. In patients with a baseline systolic blood pressure (SBP) >150 mmHg, anti-hypertensive treatment reduced the risk of all-cause mortality by 11%, cardiovascular mortality by 24%, myocardial infarction by

26%, stroke by 23% and end-stage renal disease by 28%. Results remained similar in patients with a baseline SBP of 140–150 mmHg. Paradoxically, treating patients with a baseline SBP of <140 mmHg increased the risk of cardiovascular mortality by 15%. It seems prudent to use anti-hypertensive drugs only in those patients with type 2 diabetes whose SBP exceeds 140 mmHg (*BMJ* 2016;**352**:i717).

Sepsis-3: New definition for an old problem

The Society of Critical Care Medicine and the European Society of Intensive Care Medicine recently released the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). Sepsis has been defined as ‘life-threatening organ dysfunction caused by a dysregulated host response to infection’. Organ dysfunction is said to be present when there is an increase in the sequential organ failure assessment (SOFA) score of two or more points. For rapid identification of sepsis at the bedside, the new guidelines suggest the use of at least two of the following clinical criteria that together constitute a new bedside clinical score termed quickSOFA (qSOFA): respiratory rate of ≥ 22 /minute, altered mentation or systolic blood pressure of ≤ 100 mmHg. Clinical identification of septic shock should be based on a vasopressor requirement to maintain a mean arterial pressure of ≥ 65 mmHg and serum lactate level > 2 mmol/L (> 18 mg/dl) in the absence of hypovolaemia. This combination is associated with hospital mortality rates of $> 40\%$ (*JAMA* 2016;**315**:801–10).

Warning signs before sudden cardiac arrest

In a prospective, population-based study, researchers in the US studied 839 adults (mean age 52.6 years; 75% men), 35–65 years of age who had had a sudden cardiac arrest. Information about symptoms during the 4 weeks preceding the cardiac arrest for both survivors ($n=96$; 11.4%) and non-survivors ($n=743$; 88.6%) was obtained from survivors, friends, family members, medical records and emergency medical personnel. A history of such symptoms, mainly chest pain and dyspnoea, was found in 51% of patients. In 93% of symptomatic patients, symptoms had recurred during the 24 hours preceding the cardiac arrest. Most patients had ignored these symptoms; only 19% had contacted emergency medical services. Survival among those who called emergency service providers was 32.1% compared to 6% in those who ignored their symptoms (*Ann Intern Med* 2016;**164**:23–9).

Lactation and the risk of type 2 diabetes

The SWIFT (Study of Women, Infant Feeding and Type 2 diabetes after gestational diabetes mellitus [GDM] pregnancy) trial included 1010 women who had GDM and had delivered a singleton at 35 weeks’ gestation or later. Three in-person research examinations were performed at baseline with annual follow-up for 2 years including a 2-hour, 75 g oral glucose tolerance test, anthropometry and interviews. Of 959 women who completed follow-up, 113 (11.8%) developed diabetes. There was a graded inverse association between lactation and the incidence of diabetes with a reduction of 54% in the incidence between exclusive lactation versus exclusive formula feeding; breastfeeding for > 10 months cut the incidence by 57% (*Ann Intern Med* 2015; **163**:889–98).

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