



MIXED BAG

PREDICTORS OF SUDDEN DEATH

Cardiac profiles and risk factors are generally thought of as predictors of premature mortality. However, there are often cases of apparently healthy people dropping dead during sporting events, such as the Argus cycle tour or during running races. A paper in the *New England Journal of Medicine* gives some insight into why this should happen. Xavier Jouven and colleagues point out that changes in heart rate during exercise and recovery from exercise are mediated by the balance between sympathetic and vagal activity. It is known that alterations in the neural control of cardiac function contribute to the risk of sudden death, so these authors tested the hypothesis that among apparently healthy people, sudden death was more likely to occur in the presence of abnormal heart-rate profiles during exercise and recovery.

They looked at 5 713 asymptomatic working men aged 42 - 53 years, none of whom had clinically detectable cardiac disease. They were given standardised graded exercise testing between 1967 and 1972. The authors examined data on the men's resting heart rates, the increase in rate from resting to peak exercise levels and the decrease in rate from peak to the level 1 minute after stopping exercise. During a 23-year follow-up period, 81 of the men died suddenly. The risk of sudden death from myocardial infarction was increased in those men whose resting heart rate was more than 75 beats per minute; in those with an increase in heart rate during exercise that was less than 89 beats per minute; and in those men with a decrease in heart rate of less than 25 beats per minute after stopping exercise. These 3 factors remained strongly associated with an increased risk of sudden death after adjusting for potentially confounding variables, and the conclusion was that heart-rate profile during exercise and recovery is a predictor of sudden death.

Extrapolating what we know about how cardiovascular fitness changes heart rate profile during exercise and recovery, as well as the changes to resting heart rate, it would seem to me that what this study has shown is that keeping fit is the key to avoiding sudden cardiac death. This of course does not explain the occurrence of sudden deaths during sporting events, unless the person concerned was either not fit enough for the exertion they were putting themselves through, or had underlying cardiac disease.

Jouven X *et al.* *NEJM* 2005; **352**: 1951-1958.

CABG V. STENT – WHAT ARE THE LONG-TERM OUTCOMES?

Staying on a cardiac theme, Edward Hannan and colleagues write in the *New England Journal of Medicine* that several studies

have compared outcomes for coronary artery bypass grafting (CABG) and percutaneous coronary intervention (PCI), but most of these were done before stenting was widely available.

They used New York's cardiac registries to identify 37 212 patients with multivessel disease who had CABG and compared them with 22 102 patient with multivessel disease who had PCI, from 1 January 1997 to 31 December 2000. They looked at the rates of death and subsequent revascularisation within 3 years of the procedure in patients who were grouped according to the number of diseased vessels and the presence or absence of involvement of the left anterior descending artery. They found that survival rates were significantly higher among patients who underwent CABG than among those who received a stent in all the subgroups studied. The 3-year rates of revascularisation were also considerably higher in the stenting group than in the CABG group.

The conclusions were that CABG still has better outcomes for patients with 2 or more diseased coronary arteries than does stenting.

Hannan EL *et al.* *NEJM* 2005; **352**: 2174-2183.

RADIOFREQUENCY ABLATION VERSUS ANTIARRHYTHMIC DRUGS IN FIRST-LINE TREATMENT OF ATRIAL FIBRILLATION

Atrial fibrillation (AF) is probably the most common arrhythmia encountered in practice and, untreated, is associated with considerable morbidity and mortality. Most people with this condition face a lifetime of antiarrhythmic drugs and anticoagulants. In the past decade or so, radiofrequency ablation techniques have shown promise in the treatment of this arrhythmia, but there is, as yet, little information on whether or not it is a feasible first-line approach to symptomatic AF.

The authors of a recent paper in the *Journal of the American Medical Association* set out to determine whether pulmonary vein isolation (PVI) with radiofrequency ablation may cure AF, preventing a lifetime of antiarrhythmics and anticoagulants. They conducted a multicentre prospective randomised study from 31 December 2001 to 1 July 2002, of 70 patients aged from 18 - 75 years who had experienced monthly symptomatic AF for at least 3 months and had not been treated with any drugs. Patients were randomised to receive either PVI using radiofrequency ablation or antiarrhythmic drug treatment. They were followed up for 1 year – 2 patients in the antiarrhythmic group and 1 in the PVI group were lost to follow up. At the end of 1 year, 22 (63%) of the 35 patients who received antiarrhythmic drugs had at least 1 recurrence of symptomatic AF compared with 4 (13%) of 32 patients who received PVI. Nineteen (54%) of the patients in the antiarrhythmic drug group were hospitalised during the year, compared with only 3 (9%) of those in the PVI group. Similar



trends were seen in the mean number of episodes of AF between the 2 groups. At 6 months of follow up, the improvement in quality of life of the patients in the PVI group was significantly greater than those in the antiarrhythmic group. There were no thromboembolic events in either group.

The authors conclude that PVI does seem to be a promising first-line treatment for symptomatic AF, but caution that larger studies are needed to confirm safety and efficacy.

Wazni OM *et al.* *JAMA* 2005; **293**: 2634-2640.

GIVING BIRTH AS A FORECAST OF DEATH

On a totally different note, but one that is important to us in a country where maternal death is far from unknown, an interesting paper in *The Lancet* reports on the incidence of maternal death in 4 districts of Afghanistan between 1999 and 2002.

Linda Bartlett and colleagues, including the Afghan Maternal Mortality Study Team, point out that maternal mortality in Afghanistan is uniformly identified as an important public health issue. They looked at the numbers, causes and preventable factors associated with maternal deaths among women in 4 districts as part of a study to guide the implementation of reproductive health services.

The authors carried out a retrospective cohort study of women aged 15 - 49 years who died between 21 March 1999

and 21 March 2002 in Kabul province (urban); Alisheng district, Laghman province (semi-rural); Maywand, Kandahar province (rural); and Ragh, Badakshan province (rural, mostly remote). A survey of households was carried out in randomly selected villages using verbal autopsy interviews of family members.

The authors found that in a population of 90 816 women, 357 women of reproductive age died – 154 of these deaths were related to complications during pregnancy, childbirth or the puerperal period. Most maternal deaths were caused by antepartum haemorrhage, except in the remote district of Ragh, where more women died of obstructed labour. All measures of maternal risk were high, particularly in the more remote areas. The maternal mortality rate was 418 per 100 000 livebirths in Kabul, 774 in Alisheng, 2 182 in Maywand and 6 507 in Ragh. The women who died in the 2 most remote areas were not attended by skilled birth attendants.

After more than 20 years of international and civil conflicts, drought, famine and epidemics, health infrastructure in Afghanistan is poor. In 2002, 60% of Afghans had no access to basic health services, with services for women being particularly scarce. In 2002, two-thirds of Afghanistan's districts lacked maternal and child health services and only 10% of hospitals were adequately equipped for caesarean deliveries – a poor state of affairs in the 21st century.

Bartlett LA *et al.* *Lancet* 2005; **365**: 864-870.

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