Ischaemic heart disease (IHD) is the most important health care problem affecting adults in the working population of the Western World. For males in the age range 45–54 yr, almost 40% of all deaths in England and Wales result from IHD, whilst in females the prevalence is approximately 12%. In the age range 55–64 yr, the corresponding values are almost 40% for males and 22% for females. By means of questionnaires and ECG findings, it has been suggested from the British Regional Heart Study [1] that approximately one in five between the ages of 40 to 59 yr in England and Wales have severe ischaemic heart disease. Almost 60% of this number involve men who are in their 50s and, in this category one in four may be regarded as suffering from severe ischaemic heart disease.

In recent decades, the mortality rate from IHD for both sexes in the U.K. increased gradually until the second half of the 1970s. Since then, however, there has been a small decline in mortality rate. In the U.S.A. and Japan the reduction in deaths from IHD has been particularly dramatic [2].

For comparison of different populations, the age standardized mortality may be used as an index. In 1980 the rates per 100000 population for patients aged 40–69 yr were 482 (136) (male (female)) in the U.K. 398 (130) in the U.S.A., 314 (75) in West Germany, 386 (90) in Sweden and 65 (24) in Japan. These epidemiological data emphasize both the frequency and severity of IHD and stress that it is likely to feature very highly amongst anaesthesia-related morbidity and mortality in the perioperative period.

This Symposium Issue is designed to provide a recent review of the preoperative and perioperative problems presented by ischaemic heart disease, which represents not only one of the commonest major problems faced by the anaesthetist, but also a major socio-economic burden on the community.

There has been a great deal written in both the medical and the popular press on the cause of ischaemic heart disease. For the lay individual there should be little doubt that the principal risk factors for coronary heart disease are cigarette smoking, increased arterial pressure and increased serum concentrations of cholesterol. Established risk factors of less importance include concomitant diabetes and a family history of ischaemic heart disease and shortened life expectation. The greatest speculation and controversy have surrounded factors such as obesity, stress, personality type, hardness of tap water, and the extent of physical activity. Discussion of the aetiology of ischaemic heart disease is presented to open this Symposium Issue and this is followed by a review of recent advances in the drug therapy of acute and chronic ischaemic heart disease.

It is standard teaching that the incidence of postoperative myocardial infarction is increased when a patient has suffered a previous myocardial infarction and that the incidence is highest where the first infarction occurred within the 6-month period preceding surgery. This standard teaching is based upon large scale retrospective epidemiological reviews which were confounded somewhat by the appearance in 1981 of a study by Rao, Jacobs and El-Etr [3] which demonstrated that intensive invasive monitoring in the intra- and postoperative periods with treatment of haemodynamic instability could reduce the rate of postoperative re-infarction. These studies are described, with a discussion of the problems and pitfalls in interpretation of such data.

The high incidence of anaesthetic morbidity and mortality associated with ischaemic heart disease makes it essential to undertake a thorough preoperative assessment and investigation of the patient presenting for surgery. This area is considered in detail, with a discussion of the problems of proceeding to urgent surgery in patients with a myocardial infarction of less than 6 months duration.

In the early 1970s, there was great interest in
the effects of anaesthetic agents and techniques upon the coronary circulation. Within a decade, it was clear from data obtained by several laboratories throughout the world that anaesthetic agents produced profound changes in coronary blood flow. However, with few exceptions, these changes occurred secondary to alterations in myocardial metabolic activity and no currently available agent (with the exception of isoflurane) has direct effects on the coronary vasculature. These studies were a prelude to the development of laboratory models of myocardial ischaemia for investigation of anaesthetic agents and techniques.

In the past decade, a considerable body of information has accumulated, using a variety of models. On many occasions, apparently conflicting results have emerged; for example some studies have suggested that halothane has a beneficial effect on the ischaemic heart, whilst others have suggested a deleterious effect. In order to help the reader to resolve these conflicting data, this Issue contains a brief account of the different techniques which have been used for studying myocardial ischaemia, followed by a review of the effects of anaesthetic agents on these laboratory models. Whilst these studies have provided great insight into the pathophysiology and anaesthetic pharmacology of the ischaemic myocardium, they cannot provide quantitative guidelines on the clinical management of patients with myocardial ischaemia. Thus the remainder of our Symposium has been devoted to clinical studies of anaesthesia and myocardial ischaemia and a review of the anaesthetic management of patients for both cardiac and non-cardiac surgery.

Whilst the anaesthetist's major role in health care is the provision of a safe service for patients undergoing surgery, it is worth noting that he may also play a useful preventive role during his preoperative ward rounds by dispensing public health education, although this is thought usually to be the prerogative of the family doctor. There is good evidence for the effectiveness and economy of preventive interventions at the primary care level. For example, it has been calculated that the relative cost per “quality adjusted life year” (QALY) is £180 in terms of advice given by general practitioners to stop smoking, £1270 for coronary artery bypass graft (CABG) for severe angina with three vessel disease, £1700 for action by general practitioners to control hypertension, £2400 for CABG for moderate angina with three vessel disease, and £2400 for percutaneous transluminal coronary angioplasty for severe angina with one vessel disease and £8000 for heart transplantation [2].

G. Smith

REFERENCES