

## Coronary care: a response

While therapies in cardiology have their limitations, they also save many lives,  
writes **Shekhar Ambardekar**

**M**L Kothari et al have highlighted some important facts about heart disease and its treatment. Despite the constant advances in medical science, there are many lacunae in our knowledge of this condition. High-technology methods of diagnosis and treatment have not solved questions related to the causes of heart disease. They have also failed to alter the course of disease in many heart patients. Physicians who forget this and advise patients to undergo tests and procedures which will not be beneficial to them are indeed unethical, and the authors should be complimented for reminding cardiologists of the inadequacies in their field.

However, I am afraid that not everything mentioned in the article is true. Many observations are based on inadequate information, making the article too one-sided. The average reader is likely to get the impression that everything done by cardiologists today — from giving aspirin tablets to subjecting patients to bypass surgery — is wrong. The article could also make a patient with heart disease believe that his situation is hopeless, and that nothing his doctor prescribes will help. This is very misleading.

The authors state, "Much of cardiology practice is concentrated on ... coronary artery disease (CAD)." Congenital heart disease, rheumatic heart disease, hypertensive heart disease and cardiomyopathy are other common heart conditions, and they are not neglected by cardiologists. These conditions have specific treatments, which are advancing as in any other field of medicine.

However, CAD is more frequently seen in the general population. It

affects more people, and it is associated with an overall higher burden of morbidity and mortality. For this reason, CAD is more often discussed in medical journals and the lay press.

It is true that the exact cause of CAD is not known. However, various risk factors - hypertension (high blood pressure) diabetes, high blood cholesterol, obesity, smoking or any tobacco use, physical inactivity and mental stress - are known to accelerate the process of CAD (atherosclerosis). Their role in the development of CAD has been proven beyond doubt. It has also been shown that controlling these risk factors significantly alters the course of CAD.

### Drugs for CAD

It is true that Clofibrate, a drug used earlier for lowering cholesterol, showed higher mortality. For this reason, it is not used any more. The drugs used now (Lovastatin, Simvastatin, Pravastatin) all have been proved by large studies to significantly reduce coronary events (angina, heart attacks) and mortality (1-5). These drugs also have fewer side effects and are tolerated well by the majority of people who are prescribed them. There are very clear-cut guidelines for the use of these drugs (6). They are prescribed only when diet and exercise fail to reduce cholesterol to the desirable level. The patient's age and the presence of CAD as well as risk factors are taken into account before these drugs are considered.

Cardiologists' staunch faith in aspirin is not baseless. In all the clinical subsets of CAD - stable angina (7,8) unstable angina (9, 10), myocardial infarction (11, 12), post-angioplasty (13) and post-bypass (13) situations - aspirin has shown a remarkable difference in the outcome in terms of heart attacks and death.

These benefits certainly outweigh uncommon, even rare side-effects such as gastrointestinal bleeding (5 per cent of patients) blood in stools (1 per cent per year) and vomiting blood (0.1 per cent per year) (14). Gastric irritation in the form of nausea or dyspepsia is reduced by the use of buffered or enteric-coated aspirin, or by taking aspirin with food. Clinicians will agree that these problems are not major issues in their practice. Regarding the mechanism by which aspirin works, though it simultaneously reduces the synthesis of both thromboxane A2 (clotting factor) and prostacyclins (helpful prostaglandin), the anti-clotting effect predominates, since the effect on thromboxane A2 is irreversible whereas prostacyclin immediately resynthesises (14). In fact, Harrison's textbook of medicine, which the authors quote, strongly recommends the use of aspirin in all patients with CAD (15).

Other drugs like beta blockers (16, 17), calcium blockers (18) and nitrates are of proven clinical benefit in all types of CAD. Like any other medicine given systemically, these drugs can cause some undesired side effects. One has to individualise drug therapy for every patient and continue only those drugs which have more benefit than side effect for the particular patient.

### Surgery reduces mortality

Coronary interventions like coronary angioplasty and bypass surgery have definite indications. It is true that a person with single- or two-vessel disease with good heart functioning need not be subjected to bypass surgery, since the outcome may be the same as medical therapy, unless drug therapy has failed to control symptoms. However, Harrison's textbook of medicine clearly mentions

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that surgery reduces mortality in patients with blocks in the left main coronary artery as well as in patients with three-vessel disease (19). In fact, in the world-famous CAS study (20), the difference in outcome of medically and surgically treated patients of such subsets was found to be so large that continuing with the trial was considered unethical and surgery was recommended for all patients with these specific conditions.

It is also not correct to claim, as the authors do, that bypass surgery alleviates pain only in three ways. Harrison's clearly states that abolition of pain is associated with graft patency and restoration of blood flow (19), while also mentioning other mechanisms which could explain pain relief. It is possible to identify the mechanism in any particular case through stress ECGs or stress thallium tests before and after bypass surgery. Similarly, clinical experience shows that patients returning with symptoms are found to have blocked grafts. If the their symptoms had been relieved by the placebo effect, sensory neurectomy or infarction, the new blockage would not have resulted in the return of symptoms.

## The death rate from CAD is dropping

Finally, I take serious objection to the statement made in the beginning of the article: "The fact is that despite all the developments over decades of research and treatment, the death rate attributable to coronary heart disease remains unchanged." This is far from true. Braunwald's textbook of heart disease reports "an encouraging downward trend in CAD death rates in the United States which began in the early 1960s and has continued." The CAD mortality rate fell by 54 per cent between 1963 and 1990 (21).

This change is attributable not to angioplasty or bypass surgery but to a better understanding of the disease. It has come about because smoking, blood pressure and cholesterol levels

have all been reduced in the American population (21).

No cardiologist or cardiac surgeon will claim that interventional therapy can make any major impact on the overall mortality of CAD in the general population. However, these procedures will continue to help individuals and therefore have their place in therapy for CAD. The alteration of risk factors, with drugs and non-drug therapy and lifestyle changes will certainly alter the course of this disease (22).

## Limitations, not bankruptcy

It cannot be claimed that we know everything about the disease. But research is moving in the right direction. In cardiology as in any other branch of medicine, we will continue to learn and correct our mistakes as we progress. We will fight the disease with the knowledge and experience available. The gaps in our knowledge do not represent our "intellectual bankruptcy" but the limitations of available data.

Cardiologists must keep their minds open, not make tall claims, and work to alleviate patients' distress with a scientific approach. The ethical doctor will advise: monitoring risk factors, a healthy lifestyle, and the use of drugs or interventional therapy (angioplasty or bypass surgery) for patients when it is indicated. This approach will not only give symptomatic relief to those in distress but also lead to reduced mortality.

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