

# Heart failure—a growing epidemic in Asia

In Asia, rapid economic development, increasing industrialisation and urbanisation, and improving living standards have led to a marked change in lifestyle—namely, reduced levels of exercise; increased intake of calories, fat, and salt; and increased cigarette smoking. The consequence has been an increased incidence in obesity, high blood pressure, diabetes mellitus, and vascular disease particularly affecting the coronary and cerebrovascular circulations. The resulting coronary artery disease and hypertension lead to accumulated myocardial damage and eventually heart failure, which is now a global disease with an increasing incidence.<sup>1</sup> Hypertension is a common cause of heart failure in Asia (often with diabetes) and probably accounts for the high proportion (about 50%) of cases of heart failure that have a relatively normal left ventricular ejection fraction—a condition labelled ‘diastolic heart failure’.<sup>2</sup> Coronary artery disease, however, is soon likely to become the major cause of heart failure in South Asia and China, where more than half the world’s population lives. In addition, death from coronary heart disease will have risen by an estimated 115% to 127% in India and by 81% to 110% in China between 1990 and 2020.<sup>3</sup> These estimates are based on demographic changes alone and do not take into account the expected major increases in effects from risk factors.

In nearly all parts of the world, heart failure is now a common clinical condition and a frequent cause for hospital admissions. A Hong Kong study of admissions to a teaching hospital serving a large community found that the annual incidence rate of heart failure was 3.0 to 3.8 per 1000 overall, rising to 20 per 1000 among women older than 85 years.<sup>4</sup> The overall incidence rate is comparable to that in western countries, at 1 to 5 cases per 1000 per year.<sup>5</sup> And in Hong Kong, there has been a 10% annual increase in hospital admissions due to heart failure during the past 5 years (unpublished data). Similar findings are now available for Turkey.<sup>6</sup> In a study of 192 patients with heart failure who received treatment for 536 episodes of acute decompensation of heart failure, Erk<sup>6</sup> found that 71% of patients had systolic heart failure and the remainder (29%) had ‘diastolic heart failure’. The latter figure is much lower than the proportion found in most other series from the United States and also in our own study in Hong Kong, which shows that nearly half of patients with heart failure have a left ventricular ejection fraction within normal limits on echocardiography and will thus receive a diagnosis of diastolic heart failure.<sup>2</sup> Surprisingly, Erk<sup>6</sup> included patients with rheumatic heart disease in the category of diastolic heart failure. The definition of diastolic heart failure has recently been questioned,<sup>7</sup> and our own work suggests that there is not a clear distinction between systolic and diastolic heart failure: diastolic dysfunction is integral to systolic heart failure, and recent data show that many patients with so-called ‘diastolic heart failure’ also have abnormal systolic function, especially when it is measured in the long axis.<sup>8</sup> The reasons

that precipitate a hospital admission for heart failure are commonly arrhythmia (particularly atrial fibrillation), infection, uncontrolled hypertension, and ischaemia. Similar findings were seen in a study from Turkey.<sup>6</sup> However, a dedicated heart failure clinic run by an experienced nurse can do much to reduce repeated admissions and probably also to cut mortality.<sup>9</sup>

For a previously dismal disease, treatment has improved considerably. The standard triple therapy of an angiotensin-converting enzyme inhibitor (or angiotensin receptor antagonist if there is cough),  $\beta$ -blocker, and spironolactone has been proven in large-scale trials to significantly reduce mortality. Furthermore, this treatment is not expensive. But mortality still remains high (about 10% per year), and further options are needed. Resynchronisation of ventricular activity with bi-ventricular pacing definitely helps to some extent.<sup>10</sup> Ultimately, if the potential problem of arrhythmias can be circumvented, then stem cell therapy may provide the answer for a few, or adult cardiac myocytes could be induced to divide so that the heart can repair itself. These developments may not be too far away.

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