

The uses of plants and herbs in medicine

Dr Charles J BOFFA

Various plants have been used thousands of years ago, in efforts to cure certain ailments in Mediterranean countries and elsewhere. As early as around the 4th and 5th century in Greece, Hippocrates was recommending asparagus and garlic for their diuretic and health aid qualities, willow leaves to relieve pain and headaches, poppies to help insomnia. In fact one of the ingredients of aspirin comes from the willow tree and some of the drugs used to treat certain heart problems come from the foxglove. Likewise in Sicily, Italy, France, Greece and Egypt, extensive use of certain plants were utilized in antiquity with a view to cure or allay diseases.

The use of certain plants and herbs, has a long tradition in our islands, even to a limited extent up to as recently as the 1800's and very early 1900's. Mr Carmelo Penza, botanist and curator of the herbarium at the Argotti Gardens, used to explain to us who attended the course for the B.Pharm, between 1948 and 1952, the uses of local wild and cultivated plants in past times, etc.

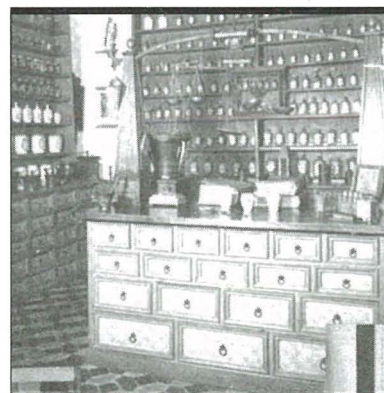
The various plants and brief notes by no means complete, which I am mentioning later, provide an insight into their medical and health uses and which were considered of value in varying degrees. I have paraphrased parts of the text because limits of space have necessitated condensation. Within limits several were useful for some conditions, but many had little if any positive effects and were based mainly on ancient thought or folklore. It must be borne in mind that the wide spectrum of modern medicines we are now familiar with, were non existent.

I am not in any way advocating or recommending their use. Furthermore one should not meddle with herbal medicine. Their use have receded in the mists of time, yet they offer interesting historical facets. The use of several of them leave various questions unanswered. Between the 16th and 18th centuries, various plants continued to be used and afforded promise, hope and pitfalls. The physicians, surgeons and staff at the Sacra Infermeria in Valletta and other hospitals, during the Knights of St. John Hospitallers, attached a lot of importance to the care of patients irrespective of creed - Maltese, slaves and foreigners. A considerable number of medical preparations were based on local herbs and they set up an extensive garden in which a number of plants that were needed were cultivated. Some medicines were imported from Sicily. Private doctors also prescribed a variety of herbs. Several plant based preparations, continued to be used after the Knights left Malta, but gradually over the years these decreased with the introduction of scientifically based ones.

"He causeth the grass to grow for the cattle and herbs for the service of humanity". Psalm, 104:14

The word 'Pharmacy' is derived from the Greek word 'Pharmakom' meaning remedy. In general it may be said that many things in life were not perfect. Some aspects of very early medicine may be considered strange but well intentioned. Customs, knowledge and perspectives were transmitted by elders to their young ones, as they faced the stark realities of life and disease. Since ancient times life had a precious meaning. Furthermore certain customs grew out of something innate in life which caused early Man to seek help from plants. The fact that household pets in our times instinctively eat certain types of grass when in physical distress and are sometimes somewhat relieved, is indeed significant. While many of the plant concoctions and some other substances in ancient times were probably therapeutically inert - that is without any active chemical or beneficial properties, at least several were of pharmacological or positive value healthwise. Some are still in use today, such as opium, acacia, camomile, sodium bicarbonate, etc.

At a professional conference which had been held in Athens, in 1968 Dr Paul Ghalioungui had referred to an ancient papyri which briefly indicates that the Egyptian physicians at times



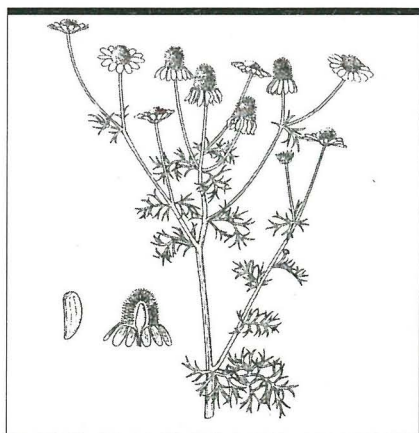
A typical pharmacy of past times with many drawers, bottles and utensils where prescriptions were prepared (via G. Agius)

treated wounds with a certain type of fungus - like mould plant. Although this is subject to conjecture, he asked, "Is it possible that this acted in some way, as penicillin does in our times? But this was far back in the past to the years around 2000 B.C. Not likely, but this gives food for some thought and one cannot exclude this remote possibility. The Greek philosopher Saphocles (495 - 406 B.C.) noted "Marvels are many but Man is the greatest" (liberal translation).

It may be said that in general, life is uncertain even under good conditions. The widespread belief in past centuries in the remedial qualities of various plants is indeed interesting. They offered a source of hope to a wide spectrum of people. Analysis of the time series in which they were utilized is not at all easy, because a number of them remained in use up to the 19th century or so, while others fell in disuse. Some of these parameters, for want of a better word, are well defined. One of these is **Camomile** (Kamumella). This plant which grows wild holds some fascination and has been in use since ancient times. It has tiny pretty white flowers and has a pleasant characteristic smell. In the past and until a few decades ago, including the period of the Second World War, this was collected, dried and used by families, the same way a cup of tea is brewed sometimes as a drink during daytime (when tea became rather scarce) and also before sleeping especially by tense people.

Independently of the WWII period, it was also used for tummy ache and indigestion in past times. Camomile has a mild tranquillising effect. At present it is still sometimes utilized and even marketed in some countries. In fairly recent times, a liquid camomile extract with additives was introduced in the pharmaceutical field - claimed as a relief to some extent, in minor aphthous stomatitis of the mouth. It is claimed that it has an element of anti-inflammatory, antiseptic properties and also some anti-bacterial effect against some gram-positive bacteria, bacteriodes gingivalis and anaerobes.

The spiny Chicory (Ċikwejra) is a rather small spherical plant with hard spinelike branches and sometimes referred to as 'qanfuda', because its spikes somewhat resemble those of a hedgehog. Between May and July it forms attractive blue flowers



*A flowering plant of Camomile -
Matricaria Chamomilla L.*

a little less than two centimeters in diameter. Its leaves were used over past centuries to help urination and in diabetes.

The Chicory, as distinct from the spiny one was more popular. It was considered a good tonic, helped the liver to function and the digestive tract and also used for patients suffering from gout. Strangely enough on rare occasions some mashed chicory was spread over pimples and bruises.

Gout effects mostly males and is not a single disease. It seems that it effected some Knights and mostly others on a rich diet. A mixture of cinnamon, nutmeg, ginger, cloves and sometimes honey was prescribed with a view to alley pain from gout and also colic. Primary gout, an inborn error of uric metabolism is characterized by hyperuricemia and recurrent attacks of acute arthritis, most often of the great toe and eventually by tophaceous deposit of urates. There is also secondary gout.

Castor oil (Żejt tar-Rieġnu), with its bad taste and very dangerous to life was used in small doses in the past as a purgative. This was obtained from the castor beans of the plant Ricinus Comunis. It is likely that it was introduced in Malta in past times, probably from Africa. Although the toxicity of Castor beans has long been known, the actual strong poison was only discovered in the 1880's. Suffice to say that in certain doses, it is almost twice as poisonous as cobra venom. Ricin is very potent because it is neurotoxic, cardiotoxic and hepatotoxic. Ricin halts protein synthesis and induces cellular death. When used as a purgative, it was given in rather small doses, yet it is very dangerous to human and animal life. Castor oil acts as a purgative after hydrolysis in the small intestine where the irritant ricinoleic acid is formed. The liquid contents of the small intestine pass rapidly onwards, resulting in a soft or fluid stool after about 2 to 4 hours. In early 1900's and later, medical practitioners in private practice and in hospitals were informed of the dangers of castor oil and advised not to prescribe it.

Cascara, together with senna, rhubarb and aloes are derived from plant extracts, and are classified in the anthraquinon group. Cascara which was obtained mostly from the Californian buckthorn was fairly popular as a purgative. Its mode of action is not fully clear, but in my time, it was believed that it stimulates Aurbach's Plexus in the large intestine and so provide physiological purgation.

Garlic (tewm) merits special mention. It was considered beneficial for patients with high blood pressure (and still is) although its dynamics were still unclear. Garlic is believed to protect to some extent against CHD. Researchers in the USA in the early 1980's (and around 1986 in Italy) had analysed five placebo controlled studies involving 400 people with high cholesterol levels. They found that a daily intake of as little as one-half to one clove of garlic consistently, reduces cholesterol by about 9%. (Medicine Digest, July/August 1994).

The late Giuseppe Agius, Ph.C. - a very competent and humane pharmacist who qualified in 1922 and served throughout his working life in his pharmacy in Paola gave me a lot of

information about local herbs, which I acknowledge with thanks. Until around the mid thirties, farmers used to supply him with some plants and herbs which he and some local doctors sometimes utilized for patients. This went on also at times during the Second World War when stocks of various pharmaceutical items became scarce or ran out, and a few plants came in useful.

The following were used fairly extensively in past centuries.

Squill (Ghansar). Two varieties - red and white were sometimes used for certain cardiac conditions, perhaps because they contain Ilycosides.

Onions (Basal) were used as a diuretic and also (but probably did not) to eliminate intestinal worms, including the dreaded tapeworm.

During late 1941 and 1942, when cases of subclinical scurvy appeared in Cottonera and Valletta, **Carrots** (zunnarija) were recommended because they contain Vitamins A, B and C, mixed with honey. Carrots were also recommended, together with apples for laryngitis and cough. Because of unsatisfactory nutrition, pilots were offered some shredded carrots with their breakfast.

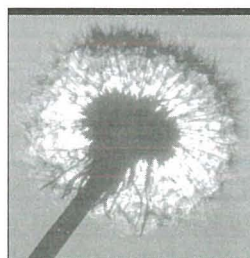
Vitamins C, E, selenium and betacarotene help to strengthen the body when frequent stress effects it negatively.

The use of certain herbs/plants was indeed strange. For example, decoctions of the horsetail plant and of the wall-pellitory were sometimes utilized among adults for the relief of difficult micturition. For diuresis and the expulsion of urinary particles and aiding stones to be eliminated.

Another peculiar use was that of the **Hêlebore species**, which included the Christmas rose. This was supposed to partly alleviate madness or mental strain!

A decoction of **mashed apples** was administered 3 times a day for tonsillitis and ulcers.

Lentisk, Pistacia lentiscus (Deru). This shrub which has a special odour produces small red berries. In some Mediterranean islands, in the past, a type of oil was extracted from berries and sometimes used in oil lamps. Its resin was chewed, because it was thought that somehow it neutralized bad breath and helped in oral hygiene. Although it seems that Lentisk was somewhat used as such, I think that it was not popular and very limited in use. However, it is surmised that at one time, it was sometimes used by members of the crew of galleys of the Knights.



Many Plants were utilised in medicinal preparations and as health aids

Malva sylvestris (Hubbejża) was used as a gargle for inflamed gums and mouth ulcers; also given to children during painful tooth eruption.

Common Mallow (rich in mucilage) was believed to be useful in helping to eliminate to some extent catarrh in the bronchi and act in a way as a mild antihistamine is used today.

White Migonette (Demb il-Haruf): Its roots were boiled and the extract used as a gargle for inflamed gums. At times used as a mild laxative.

Opium Poppy (Ix-Xaħxieh): As a sedative, a mild pain reliever in headaches due to fever, carious teeth or growing children. It was generally administered as a tincture made with wine or honey. Headache was supposed to be relieved by smelling rose-petals steeped in vinegar or by placing slices of raw potato over the forehead and keeping them in place by a bandage!

Walnuts (Ġewż): In late medieval times and later years, walnuts were considered of value health wise and in moderation of benefit to the heart, to boost the intellect and stabilize emotions. Fairly recent research indicates that omega-3 polyunsaturated fatty acids, like those found in walnuts can have a positive effect (in persons of normal weight) on certain heart health risk factors, such as LDL or high cholesterol, inflammation and perhaps to a limited extent even diabetes. (Wollongong Univ. Australia).

Pennyroyal (Plejju): It has nice flowers. This plant seems to keep away mosquitoes to some extent and was used for this purpose. It was also boiled and drunk to relieve stomach discomfort and considered of benefit during colds. In recent times, some manufacturers incorporated it in certain toothpastes.

And now a reference to the once known as **Zerriegha I-Brieghed** which at some point in time were used with a view to thwart off fleas and lice. The institution previously known as the Asylum for the Aged and Incurables or Poor House (now the Residence for the Elderly) was opened in 1892. In early 1900, with a view to control these pests, a quantity of these seeds was ordered for its use at the Poor House. I cannot say what effect these seeds had. Obviously at that time, DDT and the insecticides in use today were not available.

Coral weed- Corallina elongata (Korallina) which grows profusely on rocks near the surface and is common along some Maltese shores also deserves mention, although its effectiveness is subject to conjecture. This weed and a few other red algae were in the past, before the introduction of effective medicines, collected, dried and used as remedy, sometimes in conjunction with raw onions, for the treatment of intestinal worms, including tapeworm which brought so much anguish and discomfort and were difficult to eradicate.

Barley (Xghir) was used in a variety of conditions such as a food supplement-nutrient and was believed to calm nerves. It contains minute amounts of Vit E, phosphorus, calcium and iodine. Given to patients suffering from anaemias, bronchial catarrh, enteritis, dyspepsia, dysentery and cystitis. Also used as a poultice (ġbara).

Hawthorn (L-anzalur is similar). Its fruit which has some astringent property for diarrhea; but was also considered of some benefit for certain heart conditions, high blood pressure, diabetes and as a mild sedative.

Narcis: As a laxative and to lessen vomiting.

Tassel Hyacinth (Basal il-hnieżer): For kidneys and squashed for skin rashes.

Wild Carrot (Zunnarija Selvaġġa): as a nutrient and believed to aid circulation of blood.

Rocket (Eruka): To help kidneys in passing of water and liquids, and strangely enough thought to move off stones and fragments.

Sponges (Sponoz): belong to the species Phylum Porifera - which mean porebearers. At some point during the period of the Knights, these were used sometimes during certain surgical procedures. Old fishermen maintain that a type of bath sponge used to be collected from the environs of Filfla. However, years back, when diving near Filfla, we never came across any.

Cape Sorel (Qarsu): It contains a small amount of vitamin C. During the French occupation (1798-1800) and also during late 1941 and 1942, people used to collect its tiny bulbs and roots and eat them, sometimes after cleaned in fresh water or after roasting. These have a rather sweet taste.

Cumin was used in past centuries, in connection with tummy ache and certain stomach upsets.

The dreaded dysentery which was a very common condition, often leading to dehydration and death, especially in babies and young children, was treated with a decoction of quince (**L-isfrageł**).

Vit A (retinol) is an anti-infection vitamin and is vital for well-being. Retinol shortage over a fairly long period, in some cases of about six weeks, sometimes less, interferes with one's ability to see satisfactorily in the dark, resulting in night blindness. This condition affected many French sentries on the bastions and look-out posts during 1798-1800.

Fig-tree (Siġra tat-Tin): Strangely enough, the acrid milky juice exuding from the branches of the fig-tree which is common in the countryside, was used in an effort to remove warts and certain skin excrescences!

Plantain (Biżbula): It was surmised that it had some astringent property and was at times used to lessen bleeding and encourage healing; also topically for ulcers and hemorrhoids. Crushed leaves were sometimes incorporated in poultices.

The Rosemary (Klin) is a bush, recognized by its rather small fleshy leaves, small pale blue flowers and aromatic smell. In the Maltese Islands, it grew in such places as Wied Babu, near Fiddien, Wied il-Qoton, Wied Garnaw and Wied il-Ghasel. It was considered a good stimulant, antispasmodic and a positive tonic for the heart and the nervous system. The leaves were boiled and given three times a day or less, to weak or convalescing patients for general health purposes - especially to elderly persons who had suffered from heart attacks and also from mild

depression. It was also used as a mouth wash for gingivitis. It was surmised that it helps and acts positively on memory, and at times hard pressed students were advised to have it, during exam periods.

The Friar's cowl, also referred to as small lords and ladies (Garni) which grows in moderate and subtropical climates, including the Mediterranean region, belongs to the Arum group. It is called the Friar's cowl, because part of it resembles somewhat that used by friars. It flowers between December and January. Extract from boiled leaves was used to relieve coughs and for rheumatic discomfort. Also occasionally put on small wounds.

Olives (Żebbuġ): Over the centuries, is one of the most cultivated trees in our islands and is of wide use. Apart from its good nutritive value, used also as a purgative and was thought (not likely) to lessen intermittent fever. There is substance in the old saying that Olives help Man in various ways.

Basil (Habaq): is known as an aromatic plant, however it was considered somehow, to be beneficial for congested bronchi.

Honey: The honey produced in Malta and Gozo deserves special mention. It was renowned in ancient times and still is. Cicero had mentioned it as being superior to that of the other countries. It is possible that the name Melita was connected with this produce. Classical writers of the Renaissance and later periods have praised Maltese honey and its delicate aroma which comes from the nectar of the thyme, etc. The life long story of honey is intriguing. It has played a part in Man's life since ancient times because it was then the main source of sweetening. Indeed it is mentioned also together with almond and a few other substances, in a list that Jacob had sent to Pharaoh. (Genesis 43:II). In antiquity, honey was reckoned as a very good digestive. Honey continued to be used for a very long period of years, even during the period of the Knights, both in their hospitals and in country districts in various ways, such as a poultice for wounds and whitlows which were fairly common in the past, before the use of antibiotics. It continued to be used as a medicinal ingredient over the years, at least up to the mid 19th century. It was and is still used as a relief in throat conditions - it is claimed that it has also a very mild limited antiseptic and/or anti-bacterial element. Honey is still fairly popular nowadays. When sugar became available in due course during the period of Knight Hospitallers, sugar was used in medicines, to turn them into a more palatable syrup.

Lettuce (Hass): A concoction was used topically with the purpose of aiding healing and regenerating new tissue, in areas of pimples, such as the face. Also incorporated in the diet.

Wine: The drinking of wine is steeped in history, since time immemorial. The issue of good wine by the Knights at the Malta hospitals offers some interesting insights. The positive effect of a small amount of wine was realized by the physicians of those times and earlier. Research and analysis show that wine contains a minute amount of vitamins C, B and A; and also iodine, zinc, potassium and magnesium.

In recent years, we have been reading in medical literature that in very moderate amounts - such as a daily glass of genuine wine helps in heart care and somewhat reduces the risk of heart attack and thrombosis. The health giving properties of good wine was appreciated by a wide spectrum of ancient physicians: Sicilians, Italians, Spaniards, Jews, Maltese, Greeks, French, and Germans etc. Furthermore the Romans, Greeks and Egyptians sometimes used wine as an antiseptic. Laboratory analysis has shown that the malvoside contained in wine, has a limited short term antiseptic effect.

Cotton: And now some reference to cotton. Since Phoenician days and down to a little more than one hundred years ago, large areas of agricultural land were still being utilized for the cultivation of cotton, for local needs and for export. A limited amount of cotton, the white variety - a form of *Gossypium herbaceum* which comes from the hairs covering the seed, and also sheep's wool - after being boiled, were sometimes utilized as dressings and in surgery procedures.

Beeswax dissolved in olive oil was sometimes used in the treatment of superficial cuts and minor wounds. Sprains were washed with an infusion of extract of oat grass (*il-hafura*); and swellings by the application of a liquid from boiled leaves of the common elder.

Oil of cloves: About a century ago, oil of cloves, mixed with grains of chalk or limestone and/or pumice was occasionally placed in carious teeth to allay mild pain and also as a sort of temporary filling. Up to the recent past, it was still being used as part of a dental preparation and used as a lining in temporary fillings. It is still a useful ingredient.

Cloves come from the dried flower-buds of the aromatic plant *Eugenia aromatic* Linn. In my histological analysis, I had noticed that the petals contain straight-walled epidermal cells without papillae or stomata; and also numerous cluster crystals of calcium oxalate and oil glands.

Propolis: Hippocrates, the famous Greek physician encouraged the use of Propolis for various conditions. This consisted of a resin collected from certain plants, oils and pollen mixed with bees' salivary secretions. It is surmised that it has

been used since time immemorial and does help health wise, because of the antibacterial effect (?), gives some resistance against colds, alleviates sore throat and mouth ulcers and helps promote healing of minor cuts.

Hippocrates also advocated the importance of exercise and varied nutrition. At present a type of Propolis is being marketed as a health aid. Hippocrates is synonymous with the Hippocratic Oath which is taken by newly qualified doctors in most of the medical schools in Europe. The original version of the Oath dating from about 400 BC is of historical importance, but is not now considered fully appropriate for today's practice of medicine. The oath was modified repeatedly over the centuries to better reflect the times and circumstances. But the important principles and ethical behaviour embodied in the original oath are still relevant today as they were in the days of Hippocrates of Kos, the most eminent physician of ancient Greece.

References

- | | |
|--|--|
| L. De Boisgelin. Ancient and Modern Malta (1605) | Sir T. Zammit. The Inhabitants of the Maltese Islands, <i>Archivum Melitense</i> (1913) |
| Dr M. A. Grima. Della Medicina Traumatica (1760, 1773) | C. Fedeli. L'Ordine di Malta e le Scienze Mediche (1913) |
| Dr J. Hennen. Sketches of Medical Topography of the Mediterranean (1830) | Dr J. Borg. <i>Archivum Melitense</i> (1922) |
| F. La Croix. Article in L'Univers - Histoire et Description de tous les Peuples - Iles de L'Afrique (1848) | G. Garbini. The Ancient World (1966) |
| A. Caruana Gatto. The Fungus Melitensis (1892) | Dr C.J. Boffa. <i>Hagret il-General - An Islet with past medical links, Mediscope</i> (1991) |
| P. Carlo Giacino. Saggio di Agricoltura per le Isole di Malta e Gozo (1911) | Dr C. J. Boffa. The Saga of the French Occupation, Malta 1798-1800 (1998) |

Dr Charles J Boffa BChD, BPharm, FICD, PhD.

*Formerly Consultant Dental Surgeon & Lecturer,
Department of Health*

Certificate of Specialist in Family Medicine

The College's SAC subcommittee has processed and presented all applications to the SAC office. It is regretted that the SAC is taking so long to issue the certificates and the college is doing its utmost to solicit the SAC to complete its admittedly, strenuous exercise.

Answers to questions on Page 13

1. Hypertension is known to be the most common risk factor for congestive heart failure (CHF). Although systolic function is usually preserved in hypertensive heart disease, diastolic function soon becomes abnormal causing pressure overload. The deterioration from left ventricular hypertrophy (LVH) with compensated cardiac function, to symptomatic CHF may be imperceptible, but diastolic filling is usually impaired. End stage hypertensive heart disease is characterized by systolic dysfunction, with dramatic worsening of symptoms. Reduction of BP often results in dramatic improvement in clinical symptoms. One must always rule out other causes of CHF such as occlusive coronary artery disease, hence the need for an angiogram in this case (apart from the fact that presence of a LBBB renders ECG interpretation of ischaemic changes dubious).

2. Identification of hypertensive heart disease rests on proper clinical assessment and non invasive diagnostic investigations. One may suspect LV dilatation and systolic dysfunction by finding lateral displacement of the apical impulse (from the 5th intercostal space, 8-9cm from the mid-line) and the presence of a third heart sound. A sustained apical impulse and a fourth heart sound may suggest LVH.

Some experience with ECG interpretation may be rewarding by finding evidence of LVH and left atrial enlargement, the latter is a good sign reflecting diastolic dysfunction. The ECG also provides good information on arrhythmias, defective conduction and ischemic changes. Echocardiography is an excellent tool to diagnose hypertensive heart disease. It gives good information about the structure of the LV and determines the presence of LVH and its geometric model, whether it is concentric or eccentric. Concentric LVH is the predominant form in the elderly and middle-aged patients whereas eccentric LVH is uncommon in those under 50 years

but can occur in up to 30% of patients over 60. CT scanning and magnetic resonance imaging provide high definition measurements of cardiac function and size but are not indicated for routine use.

3. Results of clinical trials done in the 1990s show that adding an ACE inhibitor to standard treatment decreases the high risk of hospitalizations and mortality related to CHF. The CONSENSUS trial in patients with severe heart failure demonstrated a 12 month mortality rate of 52% in the placebo group compared to 36% in the enalapril group (RR31%). Mortality rates in patients NYHA class II or III in the placebo and enalapril groups of the SOLVD trial were 39.7% and 35.2% respectively.

Recently, blockers and spironolactone have also been shown to reduce mortality when added to ACE inhibitors, digoxin and diuretics. More recently still, ARBs have been marketed to replace ACE inhibitors in those patients with cough problems. Although we have a vast array of treatments which have evolved over the recent years allowing a better quality of life to our patients with CHF, the morbidity and mortality rates of patients with CHF remain still exceedingly high.

References and Further Reading

Aeschbacher BC, Hutter D, Fuhrer J, et al. Diastolic dysfunction precedes myocardial hypertrophy in the development of hypertension. *Am J Hypertension*. 2001;14:106-113.

Packer M, Bristow MR, Cohn JN, et al. The effect of carvedilol on morbidity and mortality in patients with chronic heart failure. U.S. Carvedilol Heart Failure Study Group. *New England J Med*. 1996;334:1349-1355.

Pitt B, Zannad F, Remme WJ, et al. The effect of spironolactone on morbidity and mortality in patients with severe heart failure. *New England J Med*. 1999;341:709-717.

Frohlich ED, Apstein C, Chobanian AV, et al. The heart in hypertension. *New England J Med*. 1992;327:998-1008.

CME in future editions

In accordance with the mission statement of this journal, the CME section is intended to offer an opportunity to discuss issues encountered in the daily practice of family medicine. It is hoped that in the future this section will be developed further allowing one to assess and challenge his/her own level of knowledge.