

Feature Health

High Blood Pressure or Hypertension

THE SILENT KILLER

by Prof Habibur Zaman

MRS. H. H., 79, a widow of a well-known Muslim family of Bangladesh, although a widow for over 10 years, has lived a full and comfortable life. Today she lies unconscious in deep coma, unable to recognise any of her kith and kin. Since she fell ill more than three months ago, her sons and daughters and numerous grand-children have gathered around her, and waited in anticipation for a sign of recognition from her, constantly praying for a change in her status. But alas! this has not happened. Thanks to the concern and loving care of her children, Mrs. H. H. has had the best of medical care that Dhaka could offer. Yet no improvement has been evident in her condition. She cannot speak; she is unable to move; she cannot swallow any food or drink; she has a vacant look, but cannot recognise even her near and dear ones. She has lost control over her bowels and bladder.

This terrible illness from which Mrs. H. H. has not recovered is commonly referred to as a stroke. This is the result of a diseased state of the blood vessels of the brain — a cerebrovascular accident. One of two things could have happened. There may have occurred a blowout (rupture) of one of the cerebral arteries in the base of the brain or a complete blockage of one of these arteries. As a consequence, some of the substance of the brain has been damaged.

Mrs. H. H. has been specially prone to disease of the cerebral arteries, since she has suffered from high blood pressure for many years; in addition her diabetes has not been well controlled. Not unexpectedly, she has been especially fond of good food. She had been a great cook of Mughlai as well as Bengali dishes and also a connoisseur of numerous achar (pickles), halwas and murabbas. Many of her arteries must have been thickened and narrowed with calcified cholesterol plaques. She had suffered several attacks of precordial pain (in front of her heart), for which she had been hospitalised on at least one occasion. Because of her love for rich food and the almost total lack of exercise, not unlike many well-to-do Bangladeshi Muslim women, no doubt Mrs. H. H. was pleasantly plump (quite

obese). Thus she had almost all of the risk factors for developing a stroke: high blood pressure, high cholesterol, over-weight, lack of exercise and poorly controlled diabetes in addition.

Hypertension of High Blood Pressure

Although an increase of tension (or stress) probably plays an important role in causing high blood pressure, hypertension is not synonymous with an increased tension. Blood pressure is the force of pressure exerted on the walls of blood vessels by the blood as it travels through the body. Blood is the medium or vehicle by which oxygen and various nutrients reach the tissues of the body from the head to the toe. The body of an average 70 kg adult individual contains approximately five quarts or 5.6 liters of blood. This entire volume of blood must be pumped by the heart every living minute, after the oxygenated blood is returned to the heart from the lungs, where the carbon dioxide of the used or venous blood is exchanged with oxygen from the inhaled air. Approximately half a cup of blood is pumped out of the heart with each heart beat, 70 beats a minute, 60 minutes an hour, 24 hours a day. Each beat represents a contraction of the heart, when the blood is pumped into the arteries. It is estimated that the heart moves approximately 9 to 10 tons of blood during a 24 hour period!

If the blood vessel wall is healthy and elastic, less pressure is required by the heart to push the blood through the vascular system into the tissues of the body. On the other hand, narrowing and inelasticity of the arteries and arterioles, caused by deposition of cholesterol, and calcium and the process of fibrosis, call for a greater force or pressure on the part of the heart to push the blood into and through the arteries, arterioles and capillaries into the tissues and organs of the body. Thus the blood pressure is increased. Since the heart has to work harder, under these circumstances, to perform its task of providing oxygen, and nutrients to every nook and corner of the body, it gets thicker and thicker (known in medical terminology as hypertrophied) until it fails to do any more and

then dilates and goes into failure. Thus the heart increases in size and bulk — a circumstance in which the heart itself requires a larger supply of blood in order to maintain its own nutrition. Should enough blood and therefore oxygen not be available to the heart muscle, certain changes may develop in the electro-cardiogram. These changes are referred to as ischaemic changes of the myocardium. When pronounced a heart attack may occur. Thus high blood pressure is indeed an important risk factor for heart

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• High blood pressure is indeed an important risk factor for heart attacks, stroke and kidney failure.

• Healthy young adults have blood pressures of 120 by 80 or lower.

• The important risk factors for hypertension are heredity including the family environment (in terms of food habits and emotional make-up); overweight, high blood cholesterol levels; smoking, diabetes, Type A Personality and stress.

attack, and eventually of heart failure.

Hypertension or high blood pressure is not regarded as a disease entity by itself, but as a reflection of an underlying disease and also as a very important risk factor for the causation of heart attacks, stroke and kidney failure.

Most individuals with raised blood pressure may not be aware of any symptoms for many many years. High blood

pressure may be detected in individuals on routine medical examinations just by chance. In other words, it usually takes a long time for hypertension of cause symptoms. Not infrequently the first evidence of hypertension may come to light following an attack of stroke, heart attack or renal failure. Thus hypertension has been referred to as a silent killer. This perception regarding this condition can be altered if a way could be found to detect the condition at an early stage before serious damage has occurred. This is the basis for the community approach to the control of hypertension. Before we examine this approach let us review how blood pressure is measured and also understand what is meant by normal, and low blood pressure and also how mild, moderate and severe hypertension are defined.

The Measurement of Blood Pressure:

A simple equipment, having a column of mercury connected to an inflatable cuff, is used. The cuff is wrapped around the arm above the elbow joint and air is pumped until the pressure in the cuff stops the pressure in the brachial artery, as noted by a stethoscope. Pressure in the cuff is then released and blood again flows into the artery. The force of blood at this point is the systolic pressure — the upper figure in the blood pressure reading. As more blood continues to flow, the artery relaxes. The recording at this point is the diastolic or the lower of the blood pressure readings. Both of these readings are important: if either of them is high, you have hypertension. Healthy adults have pressures of 120 over 80 or lower. If either of these two figures is higher, the finding may be abnormal. These figures are closely related and go up and down together. Some physicians therefore find it convenient to deal with one of these figures. Here is what the abnormal diastolic finding indicate:

- 115 and above: severe hypertension
- 105 to 114: moderate hypertension
- 90 to 104: mild hypertension
- 90 to 94: borderline hypertension. Along with cases of mild hypertension, two-

thirds of individuals with high blood pressure fall into these categories.

80 to 89: generally within normal range; but advisable for individuals with these recordings to have regular follow-ups, especially for those in the high risk groups for hypertension.

How about Low Blood Pressure?

According to many experts there is no need to be worried about diastolic readings as low as 60, unless the individual suffers from such symptoms as feeling tired all the time, or one gets dizzy on changing positions from lying to sitting or sitting to standing. If so, one should consult a physician. If symptomsless, individuals with low diastolic pressures may look forward to living to a rich ripe old age.

Abnormal Systolic Figures:

Generally high systolic figures go along with high diastolic. However, in some of the elderly, occasionally the systolic may be elevated alone. This is known as systolic hypertension. Generally high systolic pressures respond to the same measures as those used to control high diastolic pressures. In the past, a general rule was applied that the sum of hundred plus the age of the individual would correspond to the upper limit of normal for the systolic for that individual. However, today a systolic of 165 for a 65-year-old would be considered abnormally high.

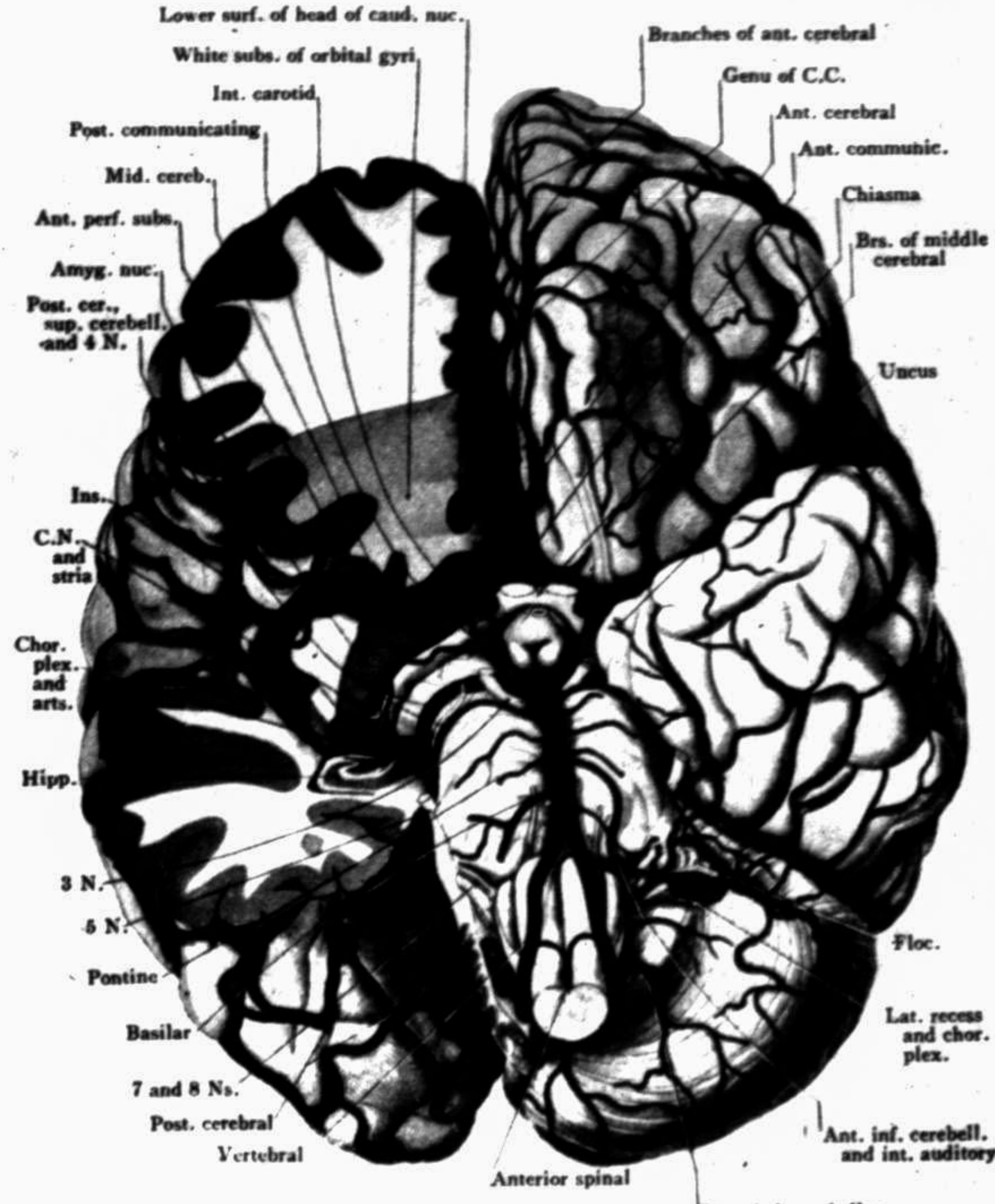
Predisposing Factors for Hypertension

A certain difference in the incidence of hypertension is observed between the two sexes. Women in the pre-menopausal age group seem to have some kind of a protection. This is explained on the basis of the hormonal makeup of these women. Older age groups of women tend to have a higher incidence of this condition.

High blood pressure generally begins to affect people above the age of 30. If one is free of hypertension until age 50, one may never get it. Some children may develop hypertension secondary to disease of the heart or the kidneys. The pressure may revert to normal when the primary disease is successfully treated. Very infrequently a child develops the disease. It is therefore good paediatric practice for paediatricians to take the blood pressure readings when examining a child.

Risk Factors for Hypertension

If any of your parents or siblings (brothers or sisters) suffer from hypertension, you



are more likely to get it too. However, as suggested by Dr. Pickering of the Hypertension Centre of the New York Hospital Cornell University Medical Centre, hypertension is a "graded" inheritance. This implies that your hypertension may not necessarily be as high as that of either of your parents. Apart from inheriting genes and chromosomes from our parents, the environment in a family is also a part and parcel of our inheritance — the kinds of food we eat, the way our emotions are shaped, and the intensity of our reactions to happenings and people around us. Indeed, having shared the stresses, couples (husbands and wives) are known to develop high blood pressure and migraine (a form of severe and recurring headaches) at about the same time.

Over-weight is a serious risk factor for hypertension. The heart has to keep pumping blood to a larger mass to tissue. This strain may cause the blood pressure to rise. The heart also gets larger in size (hypertrophies), so that its own blood supply through the coronary arteries may be impaired and compromised, leading to a heart attack.

We know that diabetics are apt to undergo an accelerated process of arteriosclerosis, a thickening and hardening of the walls of blood vessels. Many diabetics are also overweight, which leads to hypertension. Thus the co-existence of diabetes and hypertension compounds the danger from each one of these conditions.

High levels of cholesterol (over 200mg per 100ml blood) predisposes to the deposition of fatty plaques in the inner walls of blood vessels, narrowing and clogging them, thereby raising the blood pressure. Hypertension and high cholesterol in

combination make individuals specially vulnerable to heart attacks and stroke.

Smoking cannot cause an increase of blood pressure, but the habit does cause serious adverse effects on the heart. The combined effects of smoking and hypertension are multiplied rather than added.

The Type A Personality: These are ambitious, hard working individuals, who strive hard to achieve their objectives. Hypertensives with Type A Personality have a greater risk of heart attacks.

Stress: There seems to be a link between stress and high blood pressure. The feeling of stress itself is bad enough. It is important that levels of both stress and also blood pressure be brought down.

Next week we will discuss the prevention and control of hypertension.

(Dr Zaman is a former Regional Advisor, World Health Organization.)

Osteoporosis: Scientists Turn Their Attention from Preventing the Bone Thinning Disease to Treatment

THE considerable attention given to the bone-wasting disease osteoporosis has so far concentrated on prevention. Little has been said about treatment, and even less about cure.

The reason is that once the disease strikes and bones start to lose their density, there's not much that doctors can do.

Even a diet rich in calcium — bone's main chemical ingredient — will make little difference once osteoporosis begins its slow course. Scientists estimate that then bone will lose about 1 per cent of its mass per year.

And up till now there has been no established drug treatment to ease the epidemic of brittle bones. However, following reports from the USA this month, there may well be some hope for those old bones.

For three years scientists studied 66 women aged be-

tween 56 and 75 all of whom were suffering from osteoporosis. The women were split into two groups — one given non-active dummy tablets, and the other a well established drug which has so far been used in another bone disorder called Paget's disease.

The drug showed promise in reversing the process of osteoporosis — by increasing bone mass by about 5 per cent. The women given the dummy pills continued to lose bone mass.

This group of drugs (called bisphosphonates) is now the second shown to increase the volume of the skeleton. Studies from Belgium have already shown that anabolic steroids — used illicitly by athletes to increase muscle mass — can also increase bone density by about 5 per cent per year when used properly in osteoporosis.

Doctors, however, are being cautious about this latest find-

ing, and are playing down claims that women who have lost height — or suffered the bowed spine of "dowager's hump" — can expect to rejuvenate their bones.

"We can't resurrect the skeleton in a woman who has already lost four or five inches of height," said specialist Charles H. Chesnut.

This means that the mainstream of drug treatment in osteoporosis remains directed towards prevention, in the form of hormone replacement therapy, or HRT. The treatment can be in the form of tablets, a sticking plaster patch which releases drug through the skin, or a tiny pellet implanted beneath the surface of the skin.

Commenting on the new treatments, the top medical journal The Lancet said: "Hormone replacement prevents bone loss, and hence osteoporotic fracture, in the long

term."

The Lancet went on to say that HRT is "suitable for most women", but stressed that a second hormone — progesterone — must be added to the oestrogen of HRT to protect the lining of the womb (endometrium) against the early stages of cancer.

Prevention of bone loss seems to be most effective in the early stages of the disease — when victims will have no idea they have got it. This is usually just after the menopause, when the ovaries have stopped their production of oestrogen, vital for the maintenance of normal bone tissue.

HRT puts back the oestrogen which the menopause is taking away. And the reason why prevention is so important is the toll of misery and expense which osteoporosis exacts on the community.

Estimates are that one in

four women suffers a broken wrist or hip, or experiences a crush fracture of the spine. Mortality after a hip fracture is high — as are the costs of treating these fractures in hospital.

There are now about 45,000 hip fractures a year, costing the NHS about £150 million to treat.

With a population which is expected to include ever more elderly people, the epidemic of osteoporosis is set to take an even greater toll.

And that's why doctors are anxious to find treatments which can actually restore bone mass — as well as prevent bone loss. Just a tiny increase in the strength of the skeleton might mean that bone remains above its fracture threshold, and just strong enough to take the strain of a fall which otherwise would leave its victim in a hospital orthopaedic bed with a hip fracture. — F.H.

MEDICAL TIDBITS

**\* A hot appendix**  
With acute appendicitis, it's not always easy for a doctor to make a firm diagnosis. So many different symptoms and signs have to be weighed up. But a young specialist doctor in the Royal Air Force has discovered an interesting fact.

He measured the skin temperature just above the right groin, directly over that part of the body where the appendix is found. He then compared this temperature with that found on the equivalent spot on the left side of the body. He carried out his investigations on people who were already admitted to hospital, had been firmly diagnosed as having acute appendicitis, and were just about to be taken down to the theatre for their appendix operation. Those with a raised temperature over the appendix were all later found to have an inflamed appendix. However, there were also some who didn't have a raised temperature on the right who also turned out to have an inflamed appendix.

Nevertheless, what this study could help doctors with in the future is that his market temperature difference between the two sides could just be the extra piece of evidence needed to tip the balance in favour of making a firm diagnosis.

**\* Urinary infections and breastfeeding**  
Potentially harmful germs are everywhere, but fortunately our body's defences overcome them most of the time. Researchers have now found that germs are less able to clump together in the urine of babies that are breastfed — as well as in the urine of mothers who are doing breastfeeding.

One conclusion drawn from this research in the medical journal The Lancet is that breastfeeding mothers and their babies are less likely to suffer a urinary infection. This commonly causes cystitis in women, but in a baby can cause

a rare though potentially more serious condition with high fever and general signs of illness.

So this then is yet another reason why, whenever possible, I believe breast is best.

**\* Can coffee stir your sex life?**  
A survey reported in the doctors' magazine Pulse illustrates some benefits of coffee, for a change. It suggests that coffee drinkers are sexually active for longer than non-coffee drinkers — in a ratio of three to two. The Pulse article also points out that caffeine (found in tea and coffee) can help relieve asthma, seems to have a beneficial effect upon diseases of the bowel, and may improve the mood of those who are depressed.

But it also points out the potentially harmful effects of coffee on the heart, upon sleep, and in raising the cholesterol level in blood. An excess amount is considered to be more than seven cups a day — which I think is a little too high. It's more than I drink — is also the way I measure how much alcohol is too much.

As ever, my conclusion with coffee as with most pleasures is that a little of what you fancy does indeed do you good.

**\* Water pills and stronger bones**  
Thousands of people, especially the elderly, take diuretic tablets — commonly called water pills. The reason that these are regularly and routinely prescribed is to control a mildly raised blood pressure — so people will usually need to take them for a long time, perhaps for ever.

And some of these pills have recently been shown to have another extremely worthwhile advantage.

Research published in America's leading medical journal regularly take the most commonly prescribed water

tablets, a "thiazide diuretic", suffer far fewer fractures of the hip.

The study showed that these were reduced by one third.

Thiazide diuretics are now one of the oldest ways of controlling blood pressure. But in the light of this research it seems likely that doctors will continue to consider them favourably, especially for the elderly.

Because, it is amongst the elderly that hip fractures due to osteoporosis are so common — and often so tragic.

So any extra protection is to be welcomed. In recent years many women already seek help to keep their bones strong by taking HRT from the time of the menopause, knowing that for women in particular a lack of their own internal hormone oestrogen after this time makes them especially vulnerable to osteoporosis.

**\* Do-it-yourself earplugs**  
If, like me, you like swimming but the water causes an irritation in your ears from time to time, earplugs might be the answer. I always use the one I buy in the local chemist. They're a blend of cotton wool and petroleum jelly, and seem ideal.

But if you use a new pair each time you swim, and if you swim every day, they can be expensive. If you continue to use the same pair, they can become mildly infected and, smelly, and small pieces of dust and grit will soon embed in them.

The specialist ear, nose and throat journal has some good advice for overcoming the problem. Make your own — and use ordinary cotton wool mixed with petroleum jelly. This will make simple and cheap, earplugs, which you won't mind throwing away after only one use. — Family Health.

The Chances of Becoming Pregnant: Age and What You Eat Might Affect the Odds

DOCTORS working in the skin unit of a London hospital were surprised to find that seven women in a group of 113 being treated for hair loss became pregnant within six months of starting treatment.

What was even more surprising was that three of the seven women had been previously diagnosed as infertile, and the other four had failed to become pregnant despite using no birth control for the past 30 months.

The treatment the women were getting for their hair loss was daily iron supplements and vitamin C, a conventional cocktail when scalp hair is shedding. But how the supplements might affect fertility was a mystery to the doctors.

In a bid to solve the puzzle, they found that all but one of the seven women had very low natural levels of iron, and that daily supplements restored

these levels to normal. This, the doctors now report in the medical journal The Lancet, was the key to their new found fertility.

"These findings suggest that conception is prevented in women with depleted iron stores," they write, "and that this failure to conceive is a natural response against further losses that would be induced by the preferential demands of foetal development."

Their theory is, therefore, that only women with normal body levels of iron will conceive, because below these levels there would be insufficient stocks to sustain development of the baby growing in the womb.

So far, the iron theory of infertility has not been tested further. For the record, the official recommended daily allowance (RDA) of iron is 15 milligrams. The richest natural sources are shellfish, liver,

dried apricots, and wholegrain cereals. Menstruation, as well as pregnancy, is known to be a major drain on the body's iron store, and iron supplements have long been recommended for women with heavy periods.

Iron, however, is not the only mineral in the fertility equation. Australian doctors showed that low levels of zinc — a body mineral necessary to protect against harmful heavy metals like lead — was linked to a low sperm count in infertile men.

A man must produce about 100 million sperms with each ejaculation to have a reasonable chance of fertilising his partner's egg. Anything which lowers that count, also lowers the chance of pregnancy. Semen is known to be a drain on the body's zinc supply.

So men with hectic sex lives could find their zinc levels much reduced — and their abilities to conceive

equally lowered. Oysters, long thought an aphrodisiac, are rich in zinc.

Fertility experts have also been surprised by a further report in The Lancet suggesting that caffeinated soft drinks like cola are similarly linked to female infertility.

American researchers found that one caffeinated soft drink per day was associated with a staggering "50 per cent reduction in the monthly chance of conception". Other caffeine studies in infertility, they add, are inconsistent, which leaves the cola case confusing at least.

However, emerging from confusion is the statistical effect which a woman's age has on her chance of conceiving. Dutch doctors writing in the British Medical Journal in June assessed 751 women receiving artificial insemination at two infertility centres, and found that fertility certainly does decrease with age.

None of the women had had children before; their partners were all suffering from male infertility. More than 550 of the women became pregnant with the treatment, and 461 had healthy babies.

The study showed that the chances of becoming pregnant fell dramatically after the age of 31, described by the researchers as the "critical age at which fertility decreases".

The fall in fertility was even plotted as a percentage year by year after 31, such that the researchers concluded: "The chance of a woman aged 35 having a healthy baby was about half that of a woman aged 25." Fertility up to the age of 30 was found to be the same each year, whatever the age.

According to the World Health Organization, about one in ten of all couples in the world are unable to have a baby because of infertility.

— Family Health.