oxygen—selects this over the systemic circulation; so they may produce systemic hypotension, and this has indeed been a problem with hydralazine in several studies.[12 13]

The calcium antagonist nifedipine is able to block hypoxic vasoconstriction in the pulmonary circulation.[14] Both nifedipine and hydralazine have shown beneficial haemodynamic effects on secondary pulmonary hypertension in acute and short term studies in some hands.[15-18] The consensus is that when these drugs are first used their effects should be monitored by invasive haemodynamic measurements to confirm effectiveness and help cope with adverse effects. Unfortunately, the changes in pulmonary artery pressure after eight weeks of treatment are not always predictable from the initial changes.[17]

Vasodilators which also act on the venous side, such as nitroglycerin (glyceryl trinitrate) and nitroprusside, may be harmful.[18] The right ventricle probably needs a good filling pressure to keep up its adaptive response with a high cardiac output. Similarly, overenthusiastic use of diuretics may be harmful. It is worth tolerating a little oedema to give the heart a good head of steam. Digoxin, which might be expected to have a further positive inotropic effect, is not useful in cor pulmonale unless there is coexistent atrial fibrillation.[19]

Haemodynamic benefits at rest and on exercise have been shown from oral or parenteral β stimulants,[20-26] with little apparent difference from the choice among the selective agents.[26] The action is thought to be a combination of positive inotropic effect and pulmonary vasodilatation.[24] Haemodynamic effects have continued for six weeks with no problems except in patients with pre-existing extrasystoles.[24] Invasive monitoring is not necessary; a response may be confirmed by radionuclide measurements of the ejection fraction, though this presents difficulties in the presence of over-inflation. Carefully controlled long term studies will be necessary, however, before β stimulation can be regarded as routine treatment for cor pulmonale. Possibly a further increase in cardiac output maintained over many months might even be deleterious.

Perhaps the β stimulant responses give a clue to the future; what is needed may be a combined approach, improving oxygen carriage by giving oxygen or almitrine while dropping the pulmonary artery pressure with selective vasodilators and improving cardiac output with an inotrope.

At present, however, treatment should be to get the patient to stop smoking, reverse his airflow obstruction, go easy on the diuretics, and then consider long term low flow oxygen or possibly an oral β stimulant. Meanwhile, clinicians should wait for a selective pulmonary vasodilator, more data on almitrine, and, most important, trials to show that early changes in haemodynamics continue and produce long term clinical improvement—and reduce mortality.

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Help for the child who is sexually abused

Sadly, not only should we caution our children against talking to strangers; we should think about protecting them from father, uncles, grandfathers, and even mother. Sexual abuse of children is now known usually to take place within the family or among family acquaintances.[1] In a series of 56 children referred to the Hospital for Sick Children, London, for treatment only one of the assailants was totally unknown to the child.[2] In a larger series in Britain three quarters of the assailants were known to the child, with 43% relatives and 31% family acquaintances; of the relatives, 48% were fathers, 28% stepfathers, and even 5% mothers; 7% of the victims were boys.[1] Similar figures have been reported from the United States.[3] Incidents may range from kissing and touching to full sexual intercourse; indeed, one of the problems for the doctor is differentiating caring and nurturing from sexual exploitation.[4] It would be a tragedy if publicity about child sexual abuse deterred parents from physical expression of their affection for their children.

In the distant past incest was considered to be immoral rather than criminal behaviour and so was the province of the church: until 1908 in England it was punished in ecclesiastical courts.[5] Only in 1980 was sexual abuse included in the Department of Health and Social Security's statistics in the definition of child abuse, and reported cases are still probably only the tip of the iceberg. At least three children in every 1000 in Britain will be recognised by a professional as having been sexually abused in some way during childhood, but the true incidence is almost impossible to ascertain since there is a conspiracy of silence, certainly by the family and often by professionals who come to know what is going on.[6] The doctor who suspects incest is in a dilemma: he may consider that the damage to the child will be worse if he reports the case to the police—and sadly his fears may be accurate. Society's first thought is to punish the offender, by removing him to prison where he can do no harm; but usually no effort

is made to help him not to repeat the offence, perhaps with another sibling, when he is released.

But what of the victim? Horrifying though the results of sexual assault by a stranger may be, at least the child should retain the support of the family. When the father is the assailant her story is likely to be disregarded as fantasy[4 7]; and even if she is believed efforts to help may totally disrupt her environment. She has first to face a physical examination, often frightening, in the unpleasant surroundings of a police station. The removal of father may break up the family—even to the extent of the children being taken into care—and mother and siblings are then likely to blame the victim. Unhappily, the opposite solution—a conspiracy of silence—may not help the child either. In cases of incest efforts to help without the authority of the law to back them up are likely to be ineffectual, and the offences often continue.[2 8]

Here in Britain we are only just beginning to realise the extent of the hidden problem of child sexual abuse, though for a few years now we have accepted the high prevalence of physical abuse. In the United States sexual abuse has been discussed openly for far longer, and in some parts of that country police and social services are cooperating well. Instead of breaking up the family by sending the assailant to prison they arrange deferment of prosecution or sentencing, or a probation order may be made so that help may be given to offenders, victims, and their families.[9] Several schemes have been set up to offer treatment, which usually consists of a mixture of individual, marital, family, and group therapy.[10]

Is treatment needed, and is it effective? The long term effects of sexual abuse on a child are very difficult to assess. Most studies have been retrospective.[11] Reported effects range from none[12] to drug abuse, behavioural, interpersonal, and psychological symptoms of all kinds, even psychosis, various types of sexual dysfunction,[11 13 14] and both adult and child prostitution.[15 16]

An attempt at treatment certainly seems justified, but the outcome also needs careful assessment. Good results have been reported from a very intensive programme in California, where police and other agencies combine to offer immediate help as soon as cases are reported.[17] Treatment is then offered to offenders, victims, and their families, usually at first on an individual basis but later using marital, family, and group therapy. Much use is made of self help groups, some of whose members carry on to support new families joining the programme. The public has come to trust the scheme so that families are now even seeking help voluntarily. The children can usually return home—92% of girls after 90 days in one sample—and most of the family relationships improve substantially with treatment.

A few groups are trying to offer this sort of help in Britain.[2] Unhappily, however, most treatment is still fragmentary, and, if they do uncover cases of abuse, few professionals have any means of referring offenders, victims, or their families for expert help. More coordinated effort is urgently needed.

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Sleep helps healing

"Surely," wrote Minerva, "sound, prolonged sleep is essential for optimum healing?[1] The answer must be yes. Bodily tissues are continuously degraded and continuously renewed. Wounds heal through the same processes as make possible the normal renewal, by cell division and protein synthesis, and these do appear to be aided by rest and sleep.

Across the 24 hours there is normally a balance between catabolism (degradation) and anabolism (renewal): the activities of wakefulness enhance catabolism, while sleep shifts the balance in favour of anabolism. Infection, surgical stress, or trauma increases the activity of the sympathetic nervous system and increases secretion of catabolic hormones such as cortisol, glucagon, and catecholamines, while inhibiting anabolic hormones such as insulin and testosterone, so leading to the loss of body nitrogen, indicative of a net loss of protein.[2] That breakdown of muscle throughout the body is enhanced is confirmed by a large, delayed increase in the excretion of 3-methylhistidine.[3 4]

It is not just that cortisol concentrations are low during most of a normal night: sleep positively inhibits the secretion of cortisol,[5] and appears to do the same for that of catecholamines.[6 7] Moreover, deep sleep is the normal stimulus for the release of most of our growth hormone, an anabolic hormone that increases the synthesis of protein and mobilises free fatty acids to provide energy, thereby saving amino acids from catabolism.[8] Growth hormone acts, for example, directly to enhance the synthesis of bone,[9] and, with haemopoietin, to enhance the formation of red blood cells.[10] Given postoperatively, growth hormone improves nitrogen balance,[11] though, unlike sleep, giving it artificially cannot diminish the release of the counteracting catabolic hormones.[11]

In a wide range of animal tissues cell division and protein synthesis reach their maximum values during the hours of sleep and are minimal during wakefulness.[12] When tissues have been damaged, the rate of healing is greater during sleep, whatever the time of the injury.[13-15] Adrenaline, released through wakeful stress, prevents the cell division that is necessary for healing.[16 17]

In man sleep deprivation leads to loss of body nitrogen,[18 19] and in recent carefully controlled experiments Rechtschaffen and his colleagues in Chicago have shown that in rats (which have a high rate of metabolism) sleep deprivation leads to death through widely distributed deterioration of bodily tissue; this happens "in spite of their increased food intake and suggests an increased ratio of catabolism to anabolism."[20] Modern hypnotic drugs prevent