MEDICAL PRACTICE

Medical Controversies

Home or hospital care for coronary thrombosis?

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Dr Aubrey Colling was asked by the *BMJ* to present a case for treating most patients with coronary thrombosis at home. His article, published below, was then sent to two cardiologists and all three met to discuss the topic with one of the *BMJ* medical editors, Dr Tony Smith, acting as chairman.

Working paper

The evidence of the Bristol study¹ showed that after myocardial infarction patients treated at home did as well as those treated in hospital. The Teesside Survey,² which was a total population study, found a lower death rate in home-treated cases. Furthermore, the difference could not be explained by more severe cases being sent to hospital.³ In the Nottingham Home and Hospital study [published after this discussion took place: *Lancet*, 22 April, p 837] cases are randomised for home or hospital treatment after two hours of special care at home.⁴ The final results are not yet available but the early figures do not show a striking saving of life in either. Although all these studies can be criticised, they point in the same direction and indicate that after two or three hours there is no advantage in being transferred to hospital.

Many physicians working in hospital are puzzled by these findings since they know that some patients under their care are resuscitated after cardiac arrest. However, some of these patients die later, before leaving hospital or soon after their discharge. The generally accepted criterion of success or failure

in care is whether patients are alive after 28 days. To mean anything fatality must be assessed on a community basis. In the community survey in Teesside it was found that the coronary care unit received a high proportion of young men and women, who are known to have a relatively good outlook (fig 1). A case could be made out for such practice if it led to better results but treatment in the coronary care unit did not appear to confer any advantage (fig 2). At all ages patients did better at home.

FIG 1—Effect of age on place of treatment.² CCU = coronary care unit.

FIG 2—Effect of age and place of admission on fatality.

Stockton on Tees, Cleveland

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Account must also be taken of patients who die during transport to hospital before being formally admitted to a coronary care unit. These figures are usually excluded from hospital fatality figures. Patients are dying during journeys in ordinary ambulances, yet such deaths do not result in concern and heart searching by doctors such as we see when their patients die elsewhere, especially in the home. If a patient dies in an ambulance it is an act of God; if at home a doctor feels it to be an act of omission.

For most patients with an infarction by the time they are transferred to hospital they have survived the most dangerous period, and have either stabilised themselves or are well on the way towards it. There would seem to be no logical reason to inflict an ambulance journey on a patient with a struggling myocardium and there is some evidence that it is harmful.^{5 6} Indeed, with our present knowledge, we could go further than this and say that if a patient has to be transferred to hospital within, say, the first six hours after an infarction (or moved from the place where the infarction occurred—for example, street, work, place of entertainment) then it is now poor medical practice to attempt it without resuscitation equipment being at hand.

Everyone accepts that some patients will require hospital care for social and medical reasons; there was reasonable agreement about the indications for the latter at a recent National Workshop on Coronary Care.¹ These are: patients whose condition remains unstable two or three hours after an infarction, those who have had cardiac arrest and been resuscitated, those with symptomatic heart block or other medical condition requiring hospital care. Heart failure, hypotension, and cardiogenic shock were not considered absolute indications for hospital treatment. For the majority of cases, home care is the treatment of choice. Most patients prefer it and there is some evidence that rehabilitation is better understood by patients treated at home.^{1 7}

What of patients seen very soon after the attack, say, within

30 to 60 minutes? This is a time of great autonomic instability, with a danger of cardiac arrest. Undoubtedly treatment of bradycardias and tachycardias by atropine and beta-blockers may sometimes dramatically improve a patient's condition. A defibrillator, of course, is useful in the event of an arrest, but even without one a general practitioner can achieve reasonable results using external cardiac massage.⁸ What seems certain is that these patients should be moved as little as possible. They are best left where the infarction occurs unless it is inappropriate—for example, in the street or at a football match. Most patients will settle if given adequate analgesia.

Efficient care during the first two hours is well within the competence of a general practitioner (though many are at present reluctant to accept such responsibility because of the extra demands it makes) yet he will only be faced with early cases three or four times a year.

The modern general practitioner possesses an electrocardiograph and occasionally a defibrillator. While these add definition to the job, it is important not to be misled into believing that they are essential for home care. By far the most important thing is for the general practitioner to get to his patient quickly, to ease his pain, and to remain with him until he settles down and stabilises.

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Discussion

CHAIRMAN: Perhaps I could start by asking you to answer this question. If you are driving home from your outpatients and you have an unpleasant feeling in the chest suggesting you are about to have a coronary, what do you do? Do you go home or do you turn the car round?

DR JOHN HAMPTON: I'd turn right round and go back to the hospital.

DR PETER CARSON: I think I would do exactly the same. I would want to get back to my coronary care unit as quickly as I could—with a view to getting close to a defibrillator.

DR AUBREY COLLING: In my case it would be very easy to use my radio telephone to ask my surgery to ring for our coronary van to come out; and I'd give myself some heroin. Might I add that I think that John and Peter are unwise to be moved just after they've had their coronary—at a time when they should be left perfectly still and given some medical treatment.

CHAIRMAN: To get to the heart of the matter: just how hazardous is it to move someone within the first hour after the onset of the symptoms?

DR HAMPTON: I don't think anyone really knows. Disasters happen, but whether they happen because patients are moved no one knows. We do know that if we treat pain, generally settle the patient down, and then move him that nothing happens.

CHAIRMAN: So in effect you're backing a hunch that the hazard of being moved from home to your coronary care unit is an acceptable one on account of the benefits you will have when you get there.

DR HAMPTON: That's right, but I'm not sure it is at the heart of the matter—because people don't behave like that. You're talking about the way we think we ought to behave having

recognised our symptoms, but that isn't how people normally do behave.

CHAIRMAN: Let's try and identify if there is any area of common ground. Are there any circumstances in which all three of you agree that the patient is best left at home?

DR CARSON: Yes, if the onset of pain was more than six hours before a doctor gets there, the pain has ceased, the patient looks good, there aren't any vicious arrhythmias—then I would happily leave the patient at home. Even under that time but further away from hospital, or with an elderly patient, I might still be inclined to leave him at home.

CHAIRMAN: By the time they've reached this "good" state six hours on with no pain—either because of drugs or not—it seems you can do almost anything and get away with it.

DR HAMPTON: Yes, and you can cut it a bit shorter than six hours. I would make it four. I think the real arguing point comes between two and four hours. Our study in Nottingham, which will be published soon, has provided patients with two hours of coronary care at home—added on to whatever delay there was between the onset of symptoms and calling for help. We haven't left any patient at home with symptoms for less than two and a half hours.

DR COLLING: Our figures from Teesside showed that three hours was the median time for coming under care; after that time there didn't seem to be any benefit in hospital treatment.

CHAIRMAN: There seems, then, to be consensus that somewhere between three and six hours after the onset of pain the patient who seems to be doing well gains nothing from transferring from home to hospital. Yet is this what is happening over the country? Are these patients being left at home?

DR HAMPTON: I don't think we know. When we asked our GPs in Nottingham what they would do with certain hypothetical cases about a third of them said they would keep the ordinary uncomplicated cases at home. Whether they actually do that we don't know.

DR COLLING: That's not true, John. We know from Tunstall-Pedoe's figures¹ that in London 98% of patients are taken to hospital—and that's a big chunk of the country.

DR HAMPTON: I'm sure this is a cultural and not strictly a medical decision.

CHAIRMAN: Yes, to some extent it's social, but to another extent it's medical. In a lot of the country very few if any GPs are in fact willing to provide home care, because either they lack confidence or they lack facilities or they lack training. A substantial amount of the population are going to have hospital care in the foreseeable future simply because no one is prepared to offer them an alternative. I'm really asking the question, "Are enough GPs adequately trained and adequately equipped to provide the sort of intensive care we have been discussing?"

Can GPs read ECGs?

DR CARSON: My answer is quite definitely no. Aubrey says in his paper that the modern GP has an ECG machine; well in my experience most do not. Can they read an ECG? Many cannot, even the ones who take their own ECGs; I get a lot of them in the post, and I'm very happy to report on them. You say, Aubrey, that GPs ought to go and stay with the patient for two hours. If the GP is trained, if he can read an ECG, if he's got two hours, and if he's got a defibrillator, then I have no quarrel with you; but I'm absolutely certain from talking to GP friends that they are not trained and that they haven't got two hours. It's not the way the GPs work in any area that I've known.

DR COLLING: The practice of GPs is changing. Most vocational trainees, who are the next generation of general practitioners, are discussing this approach and certainly many of the young doctors accept this sort of thing. And I have not in fact said that GPs should stay two hours with the patient. What I said was that the patient should be under supervision for somewhere about two hours or more from the time of onset of pain. Often you will be called fairly late anyway. All I'm saying is that you should stay with the patient until his condition is stabilised.

DR HAMPTON: Aren't you both getting a bit too excited about the value of the ECG anyway? It's not that helpful in acute myocardial infarction. You make the diagnosis on the history, and on examination the pulse is either a reasonable speed and regular or it isn't, and that's about as far as the GP need go.

"You don't need very much special training for looking after a coronary patient at home"—Dr John Hampton.

DR CARSON: I think patients and doctors want to know what is the matter.

DR HAMPTON: You don't need very much special training for looking after a coronary patient at home. The important thing is that the GP should be prepared to call often enough to ensure pain relief. In our own studies in Nottingham pain relief has been one of the major problems, partly because GPs are not happy to use heroin.

CHAIRMAN: I should like to raise another point. If the average GP is going to see round about three or four cases in his practice in a year—early cases that will require this sort of skilled supervision at home—should we not ask how skilled he will be? In obstetrics, for example, no one would consider that a GP who delivered three or four babies in a year was seeing enough to maintain an adequate clinical standard.

DR COLLING: The most important thing is for the GP just to

get there to relieve pain: this is by far the most important thing he can do. The number of times he will need to use atropine or lignocaine are few. I've been doing this now for several years and I have used these drugs very infrequently—in fact I always carry drug instructions around with me so that I can refresh my memory.

DR HAMPTON: That is certainly our experience too. Our team that goes out to patients' homes doesn't very often give any sort of antiarrhythmic treatment.

CHAIRMAN: The important thing, then, is that someone who is capable of giving effective pain relief needs to get to the patient quickly.

DR COLLING: That means the GP, who can get there quicker than anyone else, if he is well organised. Before GPs begin to consider giving better care they will need to ensure that they are available, that they have sufficient telephone lines, and that their staff can recognise urgent calls and know where their doctors are.

CHAIRMAN: Yes, we have been talking about ideal general

"A point often ignored in discussions of home versus hospital is that many of the very sick patients are taken straight to hospital without being seen by a GP"—Dr Peter Carson.

practice and ideal circumstances. A recent television programme "World in Action" claimed that whether it was a deputising service or the family doctor a delay of four hours was by no means unusual. That makes the whole of this discussion entirely academic.

First filter

DR HAMPTON: Most of the studies of coronary disease have shown little delay once a doctor has been called. We must, however, differentiate between calls that come through a GP and 999 calls—this is the first filter over which there is no control. People in bad trouble probably call 999, and inevitably they end up being treated in hospital. In Nottingham 44% of the patients were admitted via 999 calls.

DR CARSON: This is a point which is often ignored in discussions of home versus hospital—that many of the very sick patients are taken straight to hospital without being seen by a GP. Do you, Aubrey, allow this to sway you? If you see a patient at home looking really ghastly, do you send him straight to hospital?

DR COLLING: This is a subjective matter—on the part of the patient. If the patient has had a severe pain then he will put in a call more quickly; the GP is much more likely to go quickly, and much more likely to send him into hospital.

DR HAMPTON: But there is nothing quite like dropping dead for encouraging someone to dial 999 in a hurry. This is the trouble, isn't it? The sicker the patient—and dropping dead is obviously one end of the spectrum—the more likely he is to get into hospital by routes that bypass the GP. In Nottingham what we've actually been doing is to join a group of 60 GPs covering a population approaching 100 000 people in and around Nottingham. On receipt of a call from one of those GPs we send out a coronary car with an SHO and a coronary care nurse. They assess the patient, they relieve the pain, they provide coronary care for a couple of hours, and if there are certain social and medical indications for hospital care they admit the patient. We found that the group of patients thought unsuitable for home care had a relatively high mortality. If the patient is medically stable and there are no social contraindications he is then randomised to home or hospital care. We've now answered 500 calls and the study is complete. Roughly speaking what we've found is that 25% of cases didn't seem to have had heart attacks anyway. Of those who were suspected of having had heart attacks, we were able to randomise about two-thirds.

CHAIRMAN: If the mortality was 23% in your high-risk group that suggests that the overall mortality of the 500 patients was really quite low—any call that involves a GP has a low mortality. Is there not a danger that by improving the quality of the GP services and getting it talked about we may be persuading people to call the GP rather than the 999 call for the really sick patients? Is that a good thing?

DR HAMPTON: We have a study in progress in which we have tried to educate the public to call for help soon after the onset of symptoms, but it will be a while before we know how successful we have been.

DR CARSON: In Stoke we don't have a coronary ambulance. In our coronary care unit we cannot send trained hospital

"A practitioner of 25 years' experience who had never seen a cardiac arrest started this new policy and during his first year he saw six"—Dr Aubrey Colling.

people because we can only just run the thing on the staff we've got, and the Department of Health's policy is very clear at the moment: they do not want any more ambulancemen trained.

DR COLLING: Trained ambulancemen do just as well as hospital doctors. It's partly because they're good; it's relatively easy to train them; and if you try and send a doctor instead the delay time is greater because doctors just can't sit in ambulances.

DR HAMPTON: I'm very concerned with the effectiveness of coronary ambulances, which our studies have shown to be rather poor. Yes, they do save a handful of lives, but you've got to assess the benefit in the terms of the other things that might have been done with the same money.

Neurotic ill health

DR CARSON: The thing that has always worried me about the Belfast policy, and maybe Brighton too, is that these schemes depend on educating the public about what a coronary is like. Physicians spend a great deal of their time seeing patients referred by GPs who have got neurotic ill health about coronary disease. I work hard enough without having to see yet more patients because of anxiety or indigestion.

CHAIRMAN: We have got to try to answer the question: do we do better to persuade people to summon the ambulance or summon the doctor? Dr Carson says that the Department of Health is not willing at the moment to spend money on training ambulancemen. We're all agreed that a very large number of general practitioners at the moment are either unwilling or untrained to provide care at home. Sometime or other a policy decision has got to be made by the Department. Is it going to spend money on training doctors to treat their patients at home or on training ambulancemen to take patients from home to the hospital?

DR HAMPTON: I would hope that, as Aubrey Colling says, the modern generation of doctors knows quite enough to do it at home already. It doesn't require any more money spent. The modern doctor does know about coronary care by the time he comes off the production line.

CHAIRMAN: More than 70% of doctors have trained over ten years ago for general practice.

DR HAMPTON: When we questioned our GPs we found two things. Those who trained 25 years or 30 years ago kept their patients at home, and so did those who trained very recently. The people who trained somewhere in the middle said they sent their patients to hospital. The senior GPs clearly reckoned that all these new fangled ideas didn't do much good anyway.

DR CARSON: As a hospital cardiologist I see that 5% of patients admitted into our coronary care unit are resuscitated

from cardiac arrest and then go home—with a good prognosis. All that Aubrey Colling and other enthusiasts for home care can say in answer is that these arrests wouldn't have happened if the patients had stayed at home. I do not accept that admission to a coronary unit causes arrests.

DR COLLING: But there are a whole lot who die while being taken to hospital.

DR HAMPTON: The Brighton studies show that this is very rare. All their successes were with patients in ventricular fibrillation when the ambulance got there.

DR COLLING: It's very difficult to find just exactly when a patient dies; but we've carefully interviewed our first 800 notified patients, not all of whom had had coronaries. We certainly had ten deaths actually in the ambulance. Whatever advantages there may be in a coronary care unit must be outweighed by the disadvantages of movement. There is no other way of explaining the figures.

DR HAMPTON: There is another way of explaining it. Our figures show quite clearly that the hospital mortality is related to the length of history. So the shorter the history the higher the hospital mortality; you will probably find, Dr Carson, that your 5% of success for resuscitation is among patients who got to you very quickly, probably via 999 calls. As we've said already, the sicker you are the earlier you call and having arrived sick then you are more likely to arrest.

Cardiac arrests

DR COLLING: Yes, but the GP can influence this. I've been present at three cardiac arrests in the home. One of my colleagues is a practitioner who has been in practice for 25 years or more—never seen a cardiac arrest. He started this new policy and during the first year he saw six. If a GP has a different outlook and gets there quickly and is prepared to be involved then we might begin to bite into this fatality rate in the first two or three hours. We now have a hospital-based coronary van, which comes out with all the equipment and a hospital doctor. They stay with the patient until he has stabilised and then make a decision whether the GP is going to keep the patient at home or whether he is going to hospital.

DR CARSON: In your paper you say, Dr Colling, that GPs are better at rehabilitation. I would dispute that very strongly. The chief snag in getting fit men back to any sort of activity is their anxiety and the anxiety of their families—and the GPs' reluctance to accept this, because it's a fairly new concept. The prospects of rapid recovery are best if the patient is seen by somebody who is doing it frequently. People who get what they want in life don't want doctors who see only three or four

"If we are going to spend money on coronary services it can either be spent on improving the GP's domiciliary care or on improving the ambulances and the coronary care units."—Dr Tony Smith.

coronaries a year. If you or I have something wrong with us we go to an expert. Now I'm not suggesting that the patient should go to hospital just to be rehabilitated, but I am saying that at some time along the line the patient has to be told what to do by someone whom he accepts as an expert.

DR COLLING: My criticism is that by and large in Britain rehabilitation is very badly dealt with. I think it's perfectly fair for a GP to look after his patient at home and to refer him for assessment to a specialist unit only if there are difficulties. It is routine follow-up that I oppose.

DR CARSON: I agree with that—for patients who are kept at home. But I also believe that those patients who are referred to hospital, whether as inpatients or outpatients, are best sent

to a cardiologist or a physician with an interest in cardiology.

DR HAMPTON: I disagree strongly with the belief that all coronaries should go to the cardiologist. In Nottingham all patients with suspected infarcts in the coronary care unit stay strictly under the general physician on duty that day; my role as supervisor in the coronary care unit is only administrative and educative.

DR CARSON: There is a difference of opinion here. I'm saying that if a patient goes to hospital with a coronary he should be looked after by somebody who knows about it.

DR HAMPTON: That's any general physician.

DR CARSON: That just isn't true. Most general physicians are appointed because they've got a specific interest in something other than cardiology.

DR HAMPTON: Even gastroenterologists know enough about such things as accelerated idioventricular rhythm—and if they don't their juniors certainly do, because fortunately nowadays they are all trained in coronary care.

DR COLLING: There are unknown things about home care that you are ignoring. Quite often I may see a seriously ill patient at home; I relieve his pain and then two or three days later he'll ask what it's all been about. "That was nothing serious," he'll say, "otherwise you'd have sent me to hospital." This person hasn't got any anxiety.

CHAIRMAN: Should there be any difference in approach for the people that drop in the street or have their attacks at their work place and those who have their coronaries at home? Dr Colling has suggested that about 80% of people who survive to be treated have their coronaries at home. At first sight that suggests that a very large proportion indeed of all deaths must occur in that group. If this isn't true why should it be more dangerous to have your coronary in the street?

DR HAMPTON: You are more likely to go home if you have your symptoms in the street and you don't drop dead. That's the fallacy in the argument. If you survive long enough to get home then you will be in a group with a low mortality.

Function of CCUs

CHAIRMAN: Is there indeed any medical advantage from admission to a hospital without a coronary care unit?

DR HAMPTON: If the hospital hasn't got a defibrillator and somebody who knows how to use it then I'm sure there is no point in taking a patient in. There's no need for enormously expensive coronary care units; but the important thing is to have a few people around who know how to use a defibrillator. My guess is that the function of coronary care units is to train nurses and residents and not to do anything else.

DR CARSON: Regarding anxiety in a CCU, we have a whole 20-bedded ward, and we monitor the first three beds on either side. When a patient comes off the monitor after 72 hours he moves down the ward. He doesn't have any anxiety about the move; he's pleased to get off the monitor, and he's already been chatting with chaps who've been on the monitor and come off it. He can see that he's making progress.

DR COLLING: All doctors who begin to get interested in home care say how much more involved they are with the patient, how much more interest they've got, and how much more skilled they become.

DR CARSON: But if a call comes in ten minutes after you've begun your morning surgery your patients aren't going to look at you very kindly if you disappear for 2½ hours to look after a coronary.

DR COLLING: That's not true. If I get called out to an emergency my staff say I've got an urgent case and the other patients understand.

DR CARSON: You just pull down the shutters and they come back next day?

DR COLLING: General practice has always been like that. You can have a forceps delivery in the middle of your surgery.

DR HAMPTON: There are a lot of parallels between midwifery

and coronaries at home. We've now gone completely away from home confinement and I think a lot of the arguments that apply to home confinement probably apply to coronary care as well—the hazard of potential complications and all the rest of it.

CHAIRMAN: Yes, surely GPs are conditioned to the view that they will not move out of the surgery to do an acute visit. They will say that if the patient can't wait until the end of the surgery he should be told to dial 999. That is what happens.

DR COLLING: Surely that is why it is very important that we should insist on good standards in general practice—and a good standard means not passing the buck.

DR HAMPTON: Do we wish the DHSS to pay GPs to cut down their list size and look after patients at home, or do we wish the DHSS to pour money into hospitals for coronary care units and coronary ambulances?

Not an academic discussion

CHAIRMAN: This is not entirely an academic discussion. If we are going to spend money on coronary services it can be spent either on improving the GP's domiciliary care or on improving the ambulances and the coronary care units.

DR CARSON: And what happens out of hours, when GPs switch over to medical deputising services in the big cities?

DR COLLING: Put it back the other way. When we discuss emergency care service with groups of vocational trainees they say that any group of three, four, or five GPs should be able to look after their emergency care. This may be only what they say when they're idealistic and young, but I believe that most of them will want to practice that way.

CHAIRMAN: There does seem to be an enormous difference in the quality and standard of general practice between the big cities and in the country. And it's partly because perhaps there is more job satisfaction to be obtained from general practice in the country.

DR COLLING: I should like to make the point that the degree of special knowledge required is actually very small. It is easy to recognise the patient who is going bad and who you will not want to keep at home.

DR CARSON: I don't think that GPs seeing a few acute myocardial infarcts a year will feel confident unless they are trained very well. Furthermore, I believe that the ECG is an inherent part of the diagnosis. I can train a resident to read ECGs by having him for three 20-minute sessions a week for four months. At the end of that time I think he is qualified to read an ECG properly—and he is well aware that a normal ECG does not deny an infarct.

DR COLLING: As John said earlier, aren't we exaggerating the value of the ECG? If I get a call to a coronary case, even if I don't have my cardiograph or defibrillator with me, I go to the patient first. There are more important things—in particular, the relief of pain. The tracing and everything else can be done later. That is why I think it's important to get across to GPs that the treatment is simple.

DR HAMPTON: I agree with you completely that you want to get there. It's easy to recognise what doesn't look nice even without an ECG. If the pulse is fast then something needs doing: if it's 250 or thereabouts then it doesn't matter terribly what the ECG shows because then I would accept that no GP would have the confidence to treat the condition.

DR CARSON: If we're talking about a GP looking after a coronary patient at home then ideally I think he ought to know about ECG diagnosis. He will certainly gain in confidence—and impart that extra confidence to his patient.

DR COLLING: I don't agree with that, Peter. What we have to say to GPs is, look, you're doing pretty well already and all the evidence is that the patients you've been keeping at home are doing fine. Can you improve on that, can you get there quicker, can you save more lives, can you make your diagnosis more concrete by learning more about cardiographs and how to do defibrillation?

DR CARSON: I accept the sense of that, but I'm also concerned about the intellectual side. Doctors are meant to be learned professional men. If you're going to look after somebody who's had a heart attack you're meant to know about heart attacks. You're saying you don't need to know.

DR HAMPTON: You can find out next day. As long as you've excluded the things you must do something about like a perforated peptic ulcer than I don't think it matters if you don't turn up the diagnosis until the following day.

DR CARSON: But if I was lying in bed and my GP came round to say that he didn't know much about it but he thought I ought to stay put, then I would say, "Well, let's have somebody who does know something about it."

Reference

¹ Tunstall-Pedoe, H, *et al*, *Lancet*, 1975, 2, 833.

Today's Treatment

Diseases of the respiratory system

Asthma

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Asthma is a common condition that most doctors can recognise easily in most cases, yet it defies exact and agreed definition. For practical purposes, however, asthma may be regarded as variable airways obstruction, which presents clinically as wheezing dyspnoea. Just how variable is "variable" is debatable, but most people would agree that a 20% change in either direction in some index of resistance to airflow constitutes variability and hence asthma, as opposed to chronic irreversible airways obstruction as found in chronic bronchitis and emphysema.

Diagnosis

Given the above description of asthma, how is the condition to be recognised in practice? Often the history alone is sufficient, particularly in the case of classic episodic asthma, in which symptoms may be accurately described as wheezing dyspnoea with obvious and pronounced variability in severity. Sometimes the pattern of breathing even in episodic dyspnoea cannot be defined by the patient, and the diagnosis may then be confirmed by the finding of rhonchi on examination of the chest. Examination is often unrevealing, however, the patient being in remission when visiting the surgery or outpatient clinic, though severe airways obstruction may have occurred during the night. Thus the finding of a normal chest does not preclude the diagnosis, though positive findings may support it.

The next step in diagnosis is some simple test of pulmonary function, such as the peak flow rate (PFR), or spirometry, with measurement of the forced expiratory volume in one second (FEV₁) and the forced vital capacity (FVC). The latter values are often expressed as the ratio FEV₁/FVC, and an arbitrary level of 65% or 75% is taken as the lower limit of normal. Again, a normal result on a single occasion cannot exclude asthma and

neither can a low value distinguish asthma from other forms of airways obstruction. Variability in airflow obstruction is most easily shown by repeating the test after using a bronchodilator such as salbutamol aerosol, but a failure to improve by 20% may be because the patient was in remission at the time of testing, with no room for further improvement in pulmonary function. In this case confirming the diagnosis by provocation tests such as exercise or inhalation of dilute histamine may be justified, since one of the characteristics of the asthmatic patient is increased bronchoconstrictor reactivity of the airways in response to non-specific stimuli. These tests are specialised procedures, which should be carried out only under experienced supervision, since they can occasionally provoke severe wheezing.

Types of asthma

After diagnosis it is useful to characterise the type of asthma more fully to assess prognosis and management. The present broad classification into extrinsic (allergic) and intrinsic (or late-onset) asthma is certainly an oversimplification, and there are many intermediate or mixed forms, but it still forms a useful basis for management in many cases (see table).

Assessment of asthma

Assessment of asthma with a view to treatment can be approached in several ways, more than one of which is generally used in any individual patient. Firstly, causative factors such as

TABLE—Types of asthma

Extrinsic	Intrinsic
Onset in childhood Usually external allergic "trigger" Sometimes caused by infection	Onset in adult life None Commonly caused by infection
Atopic features: hay fever, eczema Positive family history Episodic, many improve	None Often none Often becomes chronic; prognosis less good Commonly needs steroids
Occasionally needs steroids	