Two Types of Medicine

Research in general practice: pursuit of knowledge or defence of wisdom?

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The achievements of "cellular" medicine have rightly won admiration from all sections of our own profession and also from the public and not for one minute do I wish to diminish them. It is probably fair to define cellular medicine as the component of medical work related to the diagnosis, treatment, and study of organic disorder. Its importance to the country is reflected in the huge preponderance of health service money invested in it, and in the simple fact that the annual budget available to the MRC alone is closely similar to the combined budgets of the faculties of medicine of the universities of the United Kingdom.

Academic medicine comprises three main activities: clinical care, teaching, and research. The cellular model of medicine is now clearly identified with high status and high achievement, and has become institutionalised at an increasing rate in recent years, not least because of current economic and political ideology. The tendency to equate academic effectiveness with ability to attract funds for research and to publish in the quality scientific press is evidence of the values of the times—although it would be fair to say that the centrality of this cellular model has been made explicit only in relation to the research activities of the academic world.

Having defined the cellular model, I have to put it against or alongside a different model, which, for lack of a clearly better term, I am calling the behavioural model. This model makes explicit the importance to medical practice of understanding the individuality of patients (and doctors). It emphasises the importance of understanding the complex interaction between the physical, psychological, and social elements of illnesses. It examines how illness is organised and presented by patients and interpreted and managed by doctors; and the importance of culture, community, and family in determining attitudes and values to health and illness. In the "clinical care" element of the triad of care, teaching, and research I have referred to, this is the basic model used by the large majority of experienced doctors, whether working in hospital medicine or in general practice.

A model for tomorrow

The issue I want to concentrate on has its greatest impact in relation to the third element—teaching, or, more accurately, teaching and learning. This element is of great importance to society because it so substantially influences the balance of professional values and attitudes as well as knowledge and skills for a generation ahead. Medicine and society have to decide whether the priority in terms of educational philosophy should be given to promoting a cellular model which accepts behavioural modifications or a behavioural model whose power is enhanced by cellular capabilities. The first of these options seems to hold the centre ground today; I will argue that the second has more to offer, both intellectually and

clinically, for tomorrow. And I will argue and illustrate my case from researches carried out entirely in the setting of my own discipline of general practice.

Three patients

I want to relate three clinical histories drawn from my early years in general practice. I relate them because the education I had received to help me qualify as a doctor was in the first case insufficient and in the second and third inappropriate. It forced me to question the then status quo, and the passage of time has made these questionings seem more rather than less apposite.

Mrs A B—Mrs A B was 24, married to a splendidly mature and talented young officer in the fire service. She had two little girls and everything seemed to lie ahead. On Christmas Eve she dropped in to complain of still feeling tired after the regulation month's iron which was then prescribed symptomatically for so many of the patients who now receive benzodiazepines. By 2 in the afternoon we knew that she had acute leukaemia; by evening she was in hospital; by Easter she was dead.

I would have given anything to be able to cure this disease—which still haunts us today, even if with less authority than it had then. Given the inability to cure, I wish I had been better able to comfort—my training had not helped much with that either, although I believe it would be better able to now.

Mrs C D—This elderly widow consulted every fourth Monday evening for the four years that I spent in my first practice. She asked for a bottle of Aludrox and 60 Soneryl. She never actually had any symptoms of anything, never wanted to stay and talk, and no consultation ever exceeded two or three minutes. When I left, she thanked me in tears for everything I had done for her. Fifteen years later she is still taking Aludrox but takes nitrazepam with it instead; she gets it on repeat prescription without seeing the doctor.

Mrs E F—Mrs E F was younger and had a married daughter who lived near the surgery. She dropped in most Tuesdays on her way to her daughter's for coffee after doing her shopping. She always had several complaints and usually few objective signs, and she accepted the variety of drugs prescribed with a contented scepticism. Suddenly she disappeared for about a month. Surprisingly we almost missed her regular visits. When she returned to her routine, she explained her recent absence as being due to the fact that she had been ill.

The last two tales are very much part of everyday medicine in the community. The three together have to be able to be explained and encompassed by whatever model of medicine we want to adopt to guide our future investments, clinical and financial, in education and in research.

The researches

I want to introduce the results from a number of studies on the work of general practice and general practitioners which I have been concerned in over the past two decades. Most of the studies have been published and the methods used are described in the papers referenced. Much of the work relates to the use of antibiotics in the respiratory illnesses which form such a large part of general practice work. This topic was chosen for study partly because of its commonness and partly because episodes are relatively discrete and

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identifiable. The concepts supported by my findings would not, of course, apply to all illness seen in general practice; but at the same time many of them seem equally relevant to important parts of the medicine of hospital practice.

DIAGNOSIS AND TREATMENTS

The diagnostic and prescribing patterns of some 150 general practitioners in north east Scotland (about half of all the doctors in practice in the area) were sampled on one day a fortnight for a year,¹ and two years later 60 of these doctors contributed to a more detailed study restricted to respiratory illness.² Doctors prescribed antibiotics to around 60% of patients with new episodes of respiratory illness, but within that figure some doctors prescribed for virtually all such patients and others for as few as one in four. Doctors arranged themselves along this range in the form of a normal distribution. Their positions on the curve remained stable between the two studies. Indeed, the volume of antibiotic prescribing by general practitioners has also remained remarkably constant at about 20 million prescriptions per year for well over a decade.³

The diagnostic labels used by the doctors to describe these respiratory illnesses varied widely. There were interpractice and intrapractice idiosyncrasies. Clearly labels such as pharyngitis and tonsillitis were and are used interchangeably and terms such as tracheitis and sinusitis may mean anything or nothing. What is most important is that there is a better correlation between symptoms and signs of illness and the treatment given than between symptoms and signs and diagnosis reached or between diagnosis recorded and treatment used.

Twenty general practitioners took part in a simulated consultation study with standard physical illness case record information available for ten "patients".⁴ Each "patient" was offered on two occasions and less information was required to decide on "treatment" than on "diagnosis." These studies support the belief that formal cellular diagnosis is not necessarily central to making treatment decisions in at least this clinical subject.

PATIENT FACTORS

Photographs of inflamed throats were bound together into a booklet, standard clinical information common to all the patients was added, and each picture was given either neutral psychosocial background information (half the booklets) or positive psychosocial background information (the other half). The positive information included characteristics of patient behaviour, related the consultations to life events, and introduced a variety of features such as holidays and the distance between doctor's surgery and patients' homes. Neutral and positive histories were mixed within each booklet and four "control" patients were included to check for consistency in batches (printed consecutively and thus possibly liable to changes in colour intensity). The booklets were sent to 1000 general practitioners and two thirds replied. In seven of the 12 "patients" the change in psychosocial history influenced the "decision" to use or not to use an antibiotic, on six occasions at the $p < 0.01$ level.⁵

In a retrospective study of patient records the 18 children of 10 mothers who had received fairly regular prescriptions of psychotropic drugs over 10 years received twice as many antibiotics per child year for respiratory illnesses as did the 55 children of the 22 mothers who had had no psychotropic drugs over the same period. The taking of psychotropic drugs in the mothers was concentrated in the first three years of their children's lives and started to rise again from the start of their children's teens. The antibiotic taking was at a peak between these times. As many as one in five families studied belonged to this vulnerable group where the behaviour of the patient (or family) apparently determines the management of physical illness, and the children in these families created a quarter of all the "respiratory" consultations in children in the practice studied.⁶ (The same trends have been shown elsewhere in relation to taking psychotropic drugs in mothers and referral of their children for tonsillectomy—and indeed for tonsillectomy itself.)

DOCTORS

In our department in Edinburgh we have started to look at a seriously understudied aspect of patient care—namely, the doctor himself and the circumstances he is working under. We are looking at the ways in which stress or pressure on doctors may be measured and hope to look at how individual doctors work clinically when stressed and not stressed. At a very early stage we can say that stresses are real and probably can be measured, that quantity of work is only one of many of the stressors which affect doctors, and that patients recognise stress in doctors and may alter the way they present symptoms accordingly.

Probably we will be able to show that stress changes the outcome as well as the content of the consultation, and that doctors are as individual in their ability to absorb and respond to stress as are patients in the way they perceive their own well being. There is again no reason to suspect that different laws of nature apply to hospital doctors and their work; once again it seems probable that general practice will be where these behavioural elements in doctor-patient-illness interactions can be most readily teased out and measured.

The philosophy

Thomas Kuhn's classic work *The Structure of Scientific Revolutions*⁸ has greatly influenced my analysis and presentation of this paper, although I read it after choosing my title, after writing the introduction, and after carrying out the researches I have described. At the risk of oversimplifying and thus misrepresenting Kuhn's writing, I want to use his concepts about the evolution of scientific activities to highlight and discuss anxieties which I believe a majority of doctors—in hospital and general practice—now share about contemporary emphases in medical practice, research, and education.

Kuhn argues that a scientific fraternity (let us say "doctors" in the broadest sense for our present purposes) uses knowledge and technical skill available to it to explore problems and answer questions relating to its discipline in an additive or cumulative way. From time to time it becomes apparent that the assumptions and techniques on which the discipline is depending for advance are no longer explaining the observed realities and that, although new information is being discovered, it is not necessarily contributing to better understanding of the questions being asked and problems being experienced. Progress from this position requires a statement of a new theory which will explain the realities the previous theory was not able to analyse. The new theory may be revolutionary (flat or round earth) but will often only extend or subsume the old. For a time—maybe several years—the old and new theories (or frameworks or, to use Kuhn's term, paradigms) may coexist while the scientific community comes to terms with the threats and implications of change. Characteristically neither theory is capable of being proved to be true; the view which will prevail is, in the long term, that which helps explain more of the problems of the discipline than does the other.

MEDICINE NOW

For perhaps 30 years now the technical research skills available to medicine have revolutionised knowledge, helped refine diagnosis, helped discover better drugs, and made possible therapeutic procedures undreamed of when the National Health Service was instituted. Cellular research has, in many ways rightly, come to be seen as a prestigious activity and, by association, teaching hospitals and medical schools have achieved great status. Even if student teaching is intended to be broad based and aimed at producing the safe doctor aware of the balance between cure and care, what is learnt is what is seen not what is said. What is seen tends to be the exciting and the interesting, the curious and the futuristic, more often than not related to the cellular problems and manifestations of disease and its management. What is not *seen* by necessarily relatively young and inexperienced doctors and students is any sufficient emphasis on the behavioural components of medicine,

the aspects of medical practice which differentiate sickness from disease, health from illness, and happiness from distress.

The reason why these parts of medicine are not seen by young doctors as much as they should be is not because of who teaches but because too much teaching takes place in hospital (where illness factors are naturally most apparent) and too little teaching is made available in the community (where patient determinants in the health/illness equation are by implication more prominent and more easily seen). Behavioural medicine is underlearnt in hospital, not because hospital doctors do not practise it but because they do not consistently make its techniques explicit to their students—much in the way general practitioners have often failed to make explicit the cellular components of the medicine of the community.

WHICH FRAMEWORK?

The cellular framework for medical practice can and will still help medicine advance. A few problems worth tackling remain but the patients who will benefit from new cellular knowledge will become fewer as the century moves to its end. Given the finite nature of life, the contemporary challenges for doctors as physicians as against biological scientists seem more and more to lie in applying existing knowledge effectively and compassionately, in widening awareness of culture and its implications for health, in better communication, in better counselling, and in health education and preventive medicine. The behavioural framework implies no more than a larger emphasis on patient factors than at present, a wider recognition of the importance of the personal qualities of the doctor in determining good outcomes of care, and an implicit willingness to maintain a sensible perspective on the illness element.

Until a generation ago it is arguable whether medicine would have been better categorised as a cellular or as a behavioural science. Perhaps it was a relatively unimportant distinction as matters then stood. Much of the researches of the day were descriptive and epidemiological and most of the patient care was, in today's terms, both straightforward and unpretentious. Paré's dictum of curing sometimes and comforting always was easily visible as the core content of good medicine.

The changes in knowledge and technical competence of the 'sixties and 'seventies have made the distinction between the cellular and the behavioural at the same time obvious and problematic. It would be nonsense to suggest that either can survive alone; but I believe that it is in the interests of most in the profession and most of those we serve that the behavioural philosophy should encompass the cellular rather than the reverse. This is the concept of medicine that more fully describes the realities and defines the needs of modern society in health and illness. As this framework is the one that most doctors do in fact use as they practise medicine, whether in general practice or in hospital, the one change that is needed is that this model should be made more clearly explicit in the teaching philosophy of medical schools. Only in this way will the academic thrust of medicine and its institutions be kept properly relevant, balanced, and thus useful to its public.

Conclusions

My theme has been research in general practice. Much of the researches in general practice during the past two decades have been, as with more established disciplines in their earlier years, necessarily descriptive and epidemiological. Fry and Hodgkin, Watson and Williams, Morrell and Marsh are among the many whose work is now taken for granted, and it is because of their determination and direction that we have a platform to build on. According to the traditional view of research as an additive and cumulative facility, general practice research should now be contributing to understanding the determinants and distribution of disease and helping in experiments to assess therapies—and there is indeed a role and a need for research of this kind.

Nevertheless, if we return to the three histories I used to set my scene—three of the many which any doctor anywhere could describe

—we must recognise that the cellular style of general practice research can be expected to have only a most modest part to play in helping our science forward. Hence my subtitle "Pursuit of knowledge or defence of wisdom?"

In 1971 Feinstein wrote: "until the methods of science are made satisfactory for all the important distinctions of human phenomena, our best approach to many problems in therapy will be to rely on the judgements of thoughtful people who are familiar with the total realities of human ailments".⁹ In the researches I have presented from general practice I have worked forward from two assumptions. The first is that most general practitioners, and certainly those interested in looking thoughtfully at what they do, practise medicine which is good in the fullest sense of the word. The second is that hidden in the apparent contrasts and contradictions in what they individually do lie fundamental truths about the definition of that goodness of medical practice which we all strive to seek for as doctors and teachers.

TS Eliot wrote these lines in 1934:

Where is the life we have lost in living?
Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in information?

I will conclude by returning to Thomas Kuhn. He argues that the time to rethink the appropriateness of a framework is when it becomes progressively less able to answer the questions asked of it. I believe this is now happening with the cellular theory of medicine and its practice. Personally I see the behavioural theory as better; better because it not only incorporates the now established view but emphasises some of Feinstein's important distinctions of human phenomena and seems to give more scope for future development—in research, in education, and in clinical practice. I accept Kuhn's further statement that the establishment of the superiority of one model over another may well not be capable of proof and may more appropriately be an issue for scholarship rather than research. Until recently, universities sponsored such scholarship freely and their faculties and their departments used each other in the long term interests of the society which the universities serve. The present climate of higher education, and indeed of health service planning, has swung dangerously towards the pragmatic and away from the philosophical. Let us hope that the balance does not go too far from our control. If the researches of general practice can help preserve the essential relationship between information, knowledge, and wisdom in medicine in its broadest sense, the academic role of the discipline of general practice will be justified.

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Answer to Minerva riddle

According to art historian Panofsky, van Veen's painting alludes to syphilis.¹ This only became apparent from a study of Luco Giordano's "Allegory of Syphilis" painted in 1664. Giordano's painting contains the same youth and classical figures but his style is high baroque and there is an additional figure, thought to be the shepherd boy Syphilus, who dominates Fracastorius's (1530) poem, and gives his name to the disease.

¹ Panofsky E. Homage to Fracastoro in a Germano-Flemish composition of about 1590. *Netherland Year Book for the History of Art* 1961;12:1-38.