
Point of View

DIAGNOSIS: THE NEED FOR DEMYSTIFICATION

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MOST of the medical profession were taught a diagnostic method based on a complete history and examination and a systems review. This practice can be criticised on two main grounds: it is not what doctors do, and it is not an effective way to reach a diagnosis. The fashionable view is that diagnosis is based on a "hypothetico-deductive method", which suggests a respectable, scientific, and rigorous enterprise, appropriate to the high calling of medicine. The reality is much more pedestrian and a deal less Popperian. Most diagnosis of physical disease is achieved on the basis of recognition, supported by perfunctory confirmation; diagnosis by imaginative and refutable hypothesis does not exist or is extremely rare.

Sackett and his colleagues have used "Auntie Minnie" as shorthand for recognition which ensures that we seldom slap surprised strangers on the back and enables us to attach labels with confidence to some skin diseases, pathognomonic appearances, and some deformities.¹ My thesis is that recognition, based on knowledge and experience, is the mainspring of diagnosis and that the diagnostic process is simple, straightforward, and in need of demystification.

Physicians presented with a symptom, the usual opening gambit of a new consultation, immediately develop notions of its cause. These guesses derive from the age and sex of the patient, from the context, and the specialty of the physician. Sudden headache and vomiting in an 80-year-old is unlikely to be migraine; a routine attendance at outpatients unlikely to be an emergency; multiple sclerosis improbable in the gastroenterology clinic. In practice, symptoms are often simple; a sore throat speedily (and properly) leads to the doctor having a look, and any attempt by a young physician to undertake a systems review or to enquire about sexual activity will be rightly resented. In outpatients, examining the lump in the groin takes precedence over protracted history-taking, and the decision to carry out endoscopy to confirm a suspected ulcer is not postponed until every diagnostic possibility has been explored. As a general rule, the presence of physical disease and its probable nature are identified within a matter of minutes and confirmation is sought by selective examination or simple investigation. The normal diagnostic tasks of doctors are straightforward and do not rely on the imaginative generation of hypotheses but on knowledge and experience—knowledge of probability and the ability to recognise common presentations and physical abnormalities.

THE WRONG DIAGNOSIS

If the diagnostic process is as simple and straightforward as I have suggested, why is diagnostic error so common? The first reason for error is ignorance. We can only diagnose diseases that we know and are within our ordinary terms of reference. This is why new diseases are, after their first description, seen everywhere—for example, toxic shock

syndrome. If the physician is unaware that a certain constellation of symptoms and signs indicates a particular disease, there is no possibility of that diagnosis being reached. The diagnosis is missed because it was not considered. The apparent diagnostic acumen of the senior clinician may be nothing more than "déjà vu"; having seen it before, he can now recognise it. Experience may up to a point protect against diagnostic error by enabling doctors to recognise those pieces of information that are odd or discordant and ring warning bells to say things may not be what they seem.

A second reason for error is the assumption that all symptoms have a physical cause. Errant biochemical values may, on this basis, have their status raised to evidence for mythical disease. Another common reason is faulty logic—an old lady, who incidentally has been confined to bed, has a fever and basal crepitations, therefore she has bronchopneumonia.

THE DIFFICULT DIAGNOSIS

If most physical diagnoses are readily and quickly made on the basis of recognition, there are rare occasions when no useful diagnosis is suggested by a quick history, examination, or simple investigation. The most useful response to this problem is to start again and to listen more carefully to the history. If that does not help, it may then be necessary to undertake a judicious systems review and a careful general physical examination. If at the end of further investigations there are still no leads, "wait and see" is generally a better tactic than more mindless tests or therapeutic interference. What a hunter kills stalking an unknown quarry through an unfamiliar landscape with an arsenal of weapons is not likely to be the most palatable animal.² As the clinicopathological conferences published in the *New England Journal of Medicine* show, hypothesis and intellect are subservient to the diagnostic procedure, the biopsy, or the post-mortem slab. The critical activity occurs at the pathologist's microscope rather than in the physician's imagination.

Although the existence of physical disease is established by methods that have nothing in common with the Popperian view of scientific discovery, there is a place in medicine for the exercise of a different kind of imagination, in the realm of understanding people, their fears, their hopes, their expectations, and the reasons why they have sought professional help. The complete history replete with closed questions may readily exclude the most important information. Because of the patient's prior expectations of doctors, it may be necessary for the physician himself to introduce sensitive topics. These mostly relate to psychological and social matters and are an essential part of agreeing a management plan; they may sometimes provide a full and adequate explanation for symptoms and the decision to seek the doctor's help. To do this effectively and well requires empathy and a little imagination; it also requires an extension of understanding beyond the narrow framework of physical disease.

It may please doctors to believe that their diagnostic method is an analogue of the methods of scientific discovery. This is an illusion.³

THE HYPOTHETICODEDUCTIVE METHOD

The modern taxonomy of diseases is derived from older systems which were modelled on botanic taxonomy. The doctor, not unlike a botanist, either recognises the species of

disease or, if not, has to use a systematic algorithm, not unlike a botanic key. If it is true that diagnosis is commonly made by the recognising characteristic features of known diseases (or rather accepting a minimum of distinctive features which are still compatible with a known disease), how did the tongue-twister "the hypotheticodeductive method" gain such wide acceptance? Two reasons offer themselves: it sounds high-falutin' and thus respectable and, perhaps even more important, it suggests that the diagnostic process belongs to the domain of science, since scientists, when serious, are not supposed to use anything else.

Every practitioner knows that within seconds of a consultation's beginning the doctor has developed a notion of what is likely to be wrong, and what kind of questions to ask in order to focus the initial diffuseness of the unique presentation into the sharp universality of a textbook case. Some medical theorists believe that an average physician generates at least five hypotheses during history-taking.⁴⁻⁶ What they mean is that the doctor floats a few labels in his head and drops them one after another when they do not match what he hears and sees. To dignify "this sounds like piles", as the patient describes bright blood spotting on the toilet paper, with the epithet "hypothesis" devalues the meaning of the word as used in science. The label "piles" springs immediately to the doctor's mind, not as a result of the exercise of creative imagination (which could be fatal in making a correct diagnosis) but because of pre-existing knowledge and experience, which includes an intuitive grasp of what is probable and what is not. Recognition is not hypothesis generation. Scientific hypotheses are tested deductively—ie, the general prediction of the hypothesis is put to the test in singular cases. To dignify the statement "this patient complains of a sore throat and I therefore expect to observe redness" as deduction is to misuse the word. Expectation is not deduction. Finally, in the Popperian universe (which is always tacitly implied in talking about hypotheticodeductive method), hypotheses should be subjected to the most stringent attempts at refutation. "Confirmations should count only if they are the result of *risky predictions*; that is to say, if, unenlightened by the theory in question, we should have expected an event which is incompatible with the theory—an event which would be refuted by the theory."⁷ Yet, in medicine, examination and investigations are used primarily to confirm diagnoses.

CONCLUSION

Diagnosis, the attachment of a label to a disease, is, many would believe, the essential task of the physician. It should give rational grounds for prognosis and appropriate treatment—a notion which includes no treatment. It follows that an important part of medical education is learning how to make correct diagnoses and how to diminish the possibilities of error. To replace the complete history and physical with the hypotheticodeductive method is to exchange rubbish for nonsense. Although knowledge and experience often lead to making the same mistakes with increasing confidence, they remain the basis of our diagnostic skill.

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Patients and Their Illnesses

COMMON-SENSE BELIEFS ABOUT ILLNESS: A MEDIATING ROLE FOR THE DOCTOR

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Summary A great deal is said these days about how important it is for doctors to pay attention to the patient's beliefs about his or her disease. Better knowledge of such beliefs, it is argued, will enable the doctor to counter ignorance, enhance communication, and reduce non-compliance. The view advanced here is that the significance of patients' beliefs and their frequent resistance to rational correction will emerge only if they are seen as components in a process of "narrative reconstruction". It is suggested that the main difficulty is not ignorance but rather the fact that doctor and patient have different purposes: whereas the doctor's objective is to explain the aetiology of the disease, the patient may be more concerned to make sense of the disruption caused by the disease.

INTRODUCTION

IT has often been pointed out that communication between doctors and patients is not easy^{1,3} and that patients regularly fail to follow the instructions doctors give them.^{4,6} This so-called "non-compliance" is often attributed to the patient's ignorance, or at least to his or her irrational attachment to certain mistaken beliefs about disease and treatment.⁷ In recent years a growing interest in these "lay beliefs" has been evident in medical, sociological, and anthropological literature.⁸⁻¹⁰ Opinion about the status of such beliefs varies. Some commentators point to their unsystematic qualities in comparison to the scientific "medical model".¹¹ Others claim that, whereas the content of lay beliefs departs from accepted clinical knowledge, the forms into which they are "modelled" are very similar to those of advanced medical science.¹² Although there is some debate as to whether patients' beliefs are orientated towards "disease" or "illness"—the former referring to quantifiable physical data, the latter to the social and moral meanings attached to these data¹³—the general assumption is that making sense of the disorder is the prime objective for patients, as it is for doctors.

We suggest that while patients do have a genuine and often urgent interest in understanding why they have a disease, and develop models to explain it, they have additional purposes which play an important part in determining the choice of beliefs and the strength of the attachment to them. Using material from a study of patients with rheumatoid arthritis (RA),¹⁴ we argue that beliefs about aetiology are components of a broader interpretative process of "narrative reconstruction".¹⁵ These observations have

J. S. McCORMICK: REFERENCES—continued

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