Chapter 164
India Needs Clinical not the High-Tech Medicine

INTRODUCTION
The practice of medicine has changed in significant ways since last 50 years. The advent of molecular genetics, molecular biology, and molecular pathophysiology, sophisticated new imaging techniques, and advances in bioinformatics and information technology have contributed to an explosion of scientific information that has fundamentally changed the definition of disease, the way of diagnosis, treatment and prevention of disease. This growth of scientific knowledge is ongoing and accelerating.

The widespread use of electronic medical records, high-technological investigations and the internet have altered the way doctors practice medicine and exchange of information. But today’s many physicians struggle to integrate copious amounts of scientific knowledge into everyday practice, because many of them fail to remember that the ultimate goal of medicine is to prevent disease and treat sick patients. There are many new investigations that really aid in the diagnosis and management but simultaneous increasing lack of logical clinical approach fail in proper convenient application of those. So, despite more than 50 years of scientific advances, it is critical to underscore that cultivating the intimate relationship between physician and patient still lies at the heart of successful patient care.

The significance of the intimate personal relationship between physician and patient cannot be too strongly emphasized, for in an extraordinarily large number of cases both the diagnosis and treatment are directly dependent on it. One of the essential qualities of the clinician is interest in humanity, for the secret of the care of the patient is in caring for the patient.1,2

—Francis W Peabody, 1881–1927

THE SCIENCE AND ART OF DIAGNOSIS
Diagnosis is a creative art and belongs to the realm of discovery. It is like a detective work controlled by a system of logical analysis, and should always be an intellectual exercise which may be based entirely on personally observed informations. Medicine is both art and science. The art of medicine should be enriched and transformed but never polluted by science, and both human and scientific values are necessary and should be honored. The division of medicine into two separate compartments, the art at bedside and the science in the laboratory, is wrong. Spectacular advances in biochemistry, cell biology, and genomics, coupled with newly developed imaging techniques, allow access to the innermost parts of the cell and provide a window to the most remote recesses of the body. Revelations about the nature of genes and single cells have opened the portal for formulating a new molecular basis for the physiology of systems. Increasingly, physicians are learning how subtle changes in many different genes can affect the function of cells and organisms. Researchers are beginning to decipher the complex mechanisms by which genes are regulated. Doctors have developed a new appreciation of the role of stem cells in normal tissue function and in the development of cancer, degenerative disease, and other disorders, as well as their emerging role in the treatment of certain diseases. The knowledge gleaned from the science of medicine has already improved and undoubtedly will further improve physicians’ understanding of complex disease processes and provide new approaches to disease treatment and prevention. Yet, skill in the most sophisticated application of laboratory technology and in the use of the latest therapeutic modality alone does not make a good physician.

Very often, important physical signs as the position of trachea, the apex beat or the cardiac rhythm are not even sought because of the presumed difficulty of their accurate assessment, and instead reliance is placed wholly on investigations. But even a single technique mastered with difficulty is more rewarding than a hundred or should be dismissed, and weighing whether a proposed test, preventive measure, or treatment entails a greater risk than the disease itself are essential judgments that a skilled clinician must make many times each day. This combination of medical knowledge, intuition, experience and judgment defines the art of medicine,3,4 which is as necessary to the practice of medicine as is a sound scientific base.

IMPORTANCE OF CLINICAL SKILL

History Taking
History taking is a major diagnostic procedure usually no less important than physical examination or investigation. The written history of an illness should include all the facts of medical significance in the life of the patient. Any event related by the patient, however trivial or seemingly irrelevant, may provide the key to solving the medical problem. In general, only patients who feel comfortable with the physician will offer complete information, and thus putting the patient at ease to the greatest extent possible contributes substantially to obtain an adequate history. The symptoms of more than half of
the patients seen by average general practitioner are thought to be primarily psychogenic and history taking is the chief diagnostic weapon in these cases. Furthermore a good history is often a correct guide as to which investigations are essential at the outset.

An informative history is more than an orderly listing of symptoms; by listening to patients and noting the way in which they describe their symptoms, physicians can gain valuable insight into the problem. Inflections of voice, facial expression, gestures, and attitude, i.e. “body language”, may reveal important clues to the meaning of the symptoms to the patient. The social history also can provide important insights into the types of diseases that should be considered.

Although current health care settings may impose time constraints on patient visits, it is important not to rush the history-taking since this may lead the patient to believe that what he or she is relating is not of importance to the physician and, therefore, may withhold relevant information. Proper history helps a physician to reach a diagnosis or close differential diagnosis in 90% cases.

Physical Examination

The purpose of the physical examination is to identify the physical signs of disease. The significance of these objective indications of disease is enhanced when they confirm a functional or structural change already suggested by the patient’s history. At times, however, the physical signs may be the only evidence of disease.

Sir Dominic Corrigan wrote in 1853 is still apt today—“The trouble with many doctors is not that they do not know enough but they do not see enough.”

Although attention is often directed by the history to the diseased organ or part of the body, the examination of a new patient must extend from head to toe in an objective search for abnormalities. Unless the physical examination is systematic and is performed in a consistent manner from patient to patient, important segments may be omitted inadvertently. Skill in physical diagnosis is acquired with experience, but it is not merely technique that determines success in eliciting signs of disease. The detection of a few scattered petechiae, a faint diastolic murmur, or a small mass in the abdomen is not a question of keener eyes and ears or more sensitive fingers but of a mind alert to those findings. Because physical findings can change with time, the physical examination should be repeated as frequently as the clinical situation warrants. Because a large number of highly sensitive diagnostic tests are available, particularly imaging techniques, it may be tempting to put less emphasis on the physical examination. Indeed, many patients are seen for the first time after a series of diagnostic tests have been performed and the results are known. This fact should not deter the physician from performing a thorough physical examination since clinical findings are often present that have “escaped” the barrage of pre-examination diagnostic tests. The act of examining (touching) the patient also offers an opportunity for communication and may have reassuring effects that foster the patient-physician relationship.

Medicine is to be learned only by experience; it is not an inheritance; it cannot be revealed. Learn to see, learn to hear, learn to feel, learn to smell and to know that by practice alone you can become expert. Medicine is learnt by the bedside and not in classroom. Let not your conceptions of the manifestations of disease come from words heard in the lecture room or in a book. See and then reason and control. But see first. 

—William Osler

Diagnostic Studies

Physicians have become increasingly reliant on a wide array of laboratory tests to solve clinical problems. However, accumulated laboratory data do not relieve the physician from the responsibility of carefully observing, examining, and studying the patient. It is also essential to appreciate the limitations of diagnostic tests. By virtue of their impersonal quality, complexity, and apparent precision, they often gain an aura of authority regardless of the fallibility of the tests, the instruments used in the tests, and the individuals performing or interpreting them. Physicians must weigh the expense involved in the laboratory procedures against the value of the information they are likely to provide. Single laboratory tests are rarely ordered now-a-days. Instead, physicians generally request “batteries” of multiple tests, which often prove useful. For example, abnormalities of hepatic function may provide the clue to nonspecific symptoms such as generalized weakness and increased fatigability, suggesting the diagnosis of chronic liver disease. Sometimes a single abnormality, such as an elevated serum calcium level, points to a particular disease, such as hyperparathyroidism or an underlying malignancy.

The thoughtful use of screening tests may be quite useful. A group of laboratory determinations can be carried out conveniently on a single specimen at relatively low cost. Screening tests are most informative when directed toward common diseases and when their results indicate the need for other useful tests or interventions that may be costly to perform. On the one hand, biochemical measurements, together with simple laboratory examinations such as blood count, urinalysis, and sedimentation rate, often provide a major clue to the presence of a pathologic process. On the other hand, the physician must learn to evaluate occasional abnormalities among the screening tests that may not necessarily connote significant disease.

An in-depth workup after a report of an isolated laboratory abnormality in a person who is otherwise well is almost invariably wasteful and unproductive. Because so many tests are performed routinely as screening, it would not be unusual for one or two of them to be slightly abnormal. If there is no suspicion of an underlying illness, these tests ordinarily are repeated to ensure that the abnormality does not represent a laboratory error. If an abnormality is confirmed, it is important to consider its potential significance in the context of the patient’s condition and other test results.

The development of technically improved imaging studies with greater sensitivity and specificity is one of the most rapidly advancing areas of medicine. These tests provide remarkably detailed anatomic information that can be a pivotal factor in medical decision-making. Ultrasonography, a variety of isotopic scans, CT, MRI and positron emission tomography have benefited patients by supplanting older, more invasive approaches and opening new diagnostic vistas. In light of their capabilities and the rapidity with which they can lead to a diagnosis, it is tempting to order a battery of imaging studies. Furthermore, the greater the number of investigations, the more likely is that at least one will be reported abnormal, and even if this be entirely irrelevant to that complaint of patients or of no clinical significance. The sound clinician has the courage and wisdom to ignore some biochemical finding, but others keep on repeating the test or order yet more test, and by so doing ,chase up blind alleys.

Limitations

Imagine for a moment if being a doctor you could see with your eyes the anatomy starting at the cellular level, the pathology, the microbiology, the biochemistry behind every patient you see in the clinic. How easier will then be the detailing, the diagnosis and of course the directed treatment of that patient would be. Clinical medicine is fantastic if properly learned, practised, nice to appreciate by the bed side, but what if the overconfident clinician somehow misdiagnose where he could have saved the life of the patient by some high-tech investigation. Here comes the importance of newer hi-tech gadgets. Just think about the situation for example when CT scan and MRI were not there, a person diagnosed as having
a stroke was found to have a tumor and vice versa often at autopsy. Imaging modalities changed and made our diagnosis so certain and easy. The Practice of Clinical Medicine versus High-Tech Medicine in Developing Countries like India: The Present Scenario

India supports a population of 1,241,491,960. Poverty in India is widespread, with the nation estimated to have a third of the world’s poor. In 2011, World Bank stated, 32.7% of the total Indian people fall below the international poverty line of US$1.25 per day (PPP) while 68.7% live on less than US$2 per day. According to 2010 data from the United Nations Development Program, an estimated 37.2% of Indians live below the country’s national poverty line. INDIA is growing with large BHARAT in it. In case of developing countries like INDIA doctors should be well conversant with bedside medicine as often high-tech facilities are not available in the remote areas, furthermore most of the people are below poverty line as already mentioned, they cannot afford to attend the highly specialized clinics with high-tech facilities, also people here are mostly not sufficiently educated to understand the needs of the relevant high-tech examinations hence they do not give enough importance to the relevant tests advised, and believe more on “over the counter” drugs thus often neglect resulting into mortality though unexpected and preventable in those cases.

SUMMARY

The medical profession today faces many problems. Doctors need to march to bureaucratic drummers losing their autonomy, prestige and professionalism. Lurking in the shadow of these ills is yet another medical malady, one for which doctors is solely responsible, and one that endangers the public service. It begins in medical school, where clinical teaching almost never receives the attention it deserves. “Malady hypskillia” (deficiency of clinical skills) is the ultimate result. By definition, those afflicted are ill-equipped to render good patient care. Yet, residency training programs across the country are graduating a growing number of these “hypskilliacs”—physicians who cannot take an adequate medical history, cannot perform a reliable physical examination, cannot critically assess the information they gather, cannot create a sound management plan, have little reasoning power and communicate poorly. Moreover, they rarely spend enough time to know their patients “through and through.” These knowledge deficits, however, do become proficient at a number of things. They learn to order all kinds of tests and procedures—but don’t always know when to order or how to interpret them. They also learn to play the numbers game—treating a number or some other type of test result rather than the patient to whom the number or test result pertains. And by using so many sophisticated tests and procedures, they inevitably and unwittingly acquire a laboratory-oriented rather than a patient-oriented mindset. The problem of deficient clinical skills is long-standing and widespread. Its cause, however, is obvious—faulty training. And the fault, of course, lies with the teaching faculty also.

What is high-touch medicine? It means medicine based on a carefully constructed medical history coupled with a pertinent physical examination and critical assessment of the information thus obtained. One of them determines which studies, if any, are indicated. And if studies are deemed necessary, the simpler ones are ordered first. In comparison, high-tech medicine essentially bypasses the medical history and physical examination, and, primarily on the basis of the patient’s chief complaint, goes directly to a slew of tests that typically include magnetic resonance imaging or computed tomography, or both. One other point is important. In bypassing or curtailing the history-taking and physical examination, the high-tech approach weakens the patient-doctor bond—or prevents it from ever forming. The high-touch approach, by contrast, represents the apotheosis of Oslerian medicine, ensuring that we treat the patient, not the disease.

The bottom line is this: while modern medical technology has greatly enhanced our ability to diagnose and treat disease, it has also promoted laziness—especially mental laziness—among many physicians. Habitual reliance on sophisticated medical gadgetry for diagnosis prevents physicians from using the most sophisticated, intricate machine they’ll ever and always have—the brain.

Is there a cure for this tyranny of technology? Any cure would be very difficult because, at a minimum, it would require a total revamping of our medical school teaching faculties. Currently, these faculties consist largely of two groups: fellows and young instructors who are fact-filled but experience—thin, and older professors who are proficient in only a narrow segment of their specialty. Both groups spend most of their time lecturing, writing papers, working in the clinics or laboratory, or travelling to meetings. House officers are spending more and more time preparing for postgraduate or postdoctoral entrance and less and less time attending their patients. With limited access to the teaching staff, the trainees turn to house officers and fellows 1–2 years senior to them for instruction—a situation I consider “the blind leading the blind.”

What is needed to alleviate and potentially reverse this trend? First and foremost are teachers who recognize that their job is to educate, not placate trainees. Need of the hour are teachers who know and understand the pathophysiology, clinical features, and natural history of diseases; teachers who know what tests, if any, to order, when to order them, and how to interpret them; and teachers who use advanced technology to verify rather than to formulate their clinical impressions. Medical Colleges across the country need teachers who first use the stethoscope, not an echocardiogram, to detect valvular heart disease; teachers who first use the ophthalmoscope, not magnetic resonance imaging, to detect intracranial hypertension; teachers who first use their eyes, not a blood gas apparatus, to detect cyanosis; teachers who first use their hands, not computed tomography, to detect splenomegaly; and teachers who always use their brains and their hearts, not a horde of consultants, to manage their patient. It is desired that current teachers of medicine can somehow recapture the Oslerian spirit and strive diligently to restore the very core of doctoring—humanism.

REFERENCES