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The changing face of medicine

Introduction

The art of medicine is not talked much about these days. Patients figure it out, too, for the art of medicine transcends all else when an anxious individual confronting death or a serious illness looks at us and asks, “*What’s the best for me?*” Our response distinguishes medicine as a timeless noble craft from medicine that’s is simply the interpretation of lab results which for the patient means nothing. There has always been a mixture of art and science but over the ages this art/science ratio has undergone a dramatic change. Using the 20th century retrospectroscope, it would appear that medicine in the past was predominantly art with only a little science thrown in.¹

Some five million years ago, anthropologists tell us, Africa witnessed the first ape men. Within three million years, our upright, large-brained ancestor *Homo erectus* evolved, who

learned how to make fire, use stone tools, and eventually speak. This omnivore fanned out about a million years ago into Asia and Europe, and a direct line leads, around 150,000 BC, to *Homo sapiens*.²

Our palaeolithic precursors led brief lives. Nevertheless, they escaped the plagues that were to besiege later societies. Infectious diseases (small pox, measles, flu and the like) must have been virtually unknown, since the micro-organisms responsible for them require high population densities to provide reservoirs of susceptibles.² The spread of different pathogens occurred as humans colonised the globe and and they were themselves colonised by pathogens. As it multiplied, the human race moved out of Africa, first into the warm regions of Asia and southern Europe, and then further north.²

What we now recognise as medicine is a consequence of

developments in Western society over the past three centuries. In premodern cultures, the family was the main institution coping with sickness. In communities there have always been individuals who acted as healers, using a mixture of physical and magical remedies. Many of these traditional systems of treatment survive today in non-Western cultures throughout the world. The various folk remedies and healing techniques were passed from generation to generation. Illnesses were frequently regarded in magical or religious terms and were attributed to the presence of evil spirits or ‘sin’.³

The idea of public health took shape in the early twentieth century. The state began to assume responsibility for improving the conditions in which the population lived. Sanitation and water systems were developed to protect against disease. Before, cholera epidemics used to eradicate a large



throughout the ages

number of people.⁴ In 1854 John Snow, who is considered the father of field epidemiology, found the source of cholera in the contaminated water system of London. Attention was thus devoted to housing as well as working conditions. Regulations were imposed on slaughterhouses and places of food processing. Burials were monitored to ensure that they did not pose a health threat. Medicine became a public domain, not only pertaining to individual illness. Hospitals, prisons, asylums and schools were built and were controlled by specific regulations to safeguard the public wellbeing and prevent disease.

The “scientific method” began in Bologna around 1315 when the first recorded public human dissection was conducted by Mondino de’ Luzzi. His *Anatomia mundini* (1316) became the standard text on the subject.² From Bologna the practice quickly spread throughout Italy – though anatomy

teaching with a human corpse became routine in England and Germany only after 1550. The emphasis in medicine was changing from philosophy to practical physical science and anatomy, thus anatomy and surgery paved the way for the scientific method. This method as we know it today consists of identifying a problem, postulating a hypothesis, testing the hypothesis by observing and experimenting, and then interpreting the data and drawing a conclusion. This is the basis of modern experimental science and the basis of modern medical science.

With the invention of the stethoscope by Rene Theophile Hyacinthe Laennec (1816), the microscope by Antoni van Leeuwenhoek (1632-1723) and Roentgens’ X-rays in 1895, science was becoming more and more important in medicine. Harvey’s scientific study of the human circulation (1628), Koch’s

scientific studies of microbes causing human disease (1872 – 1882), and Curies’ studies of radium (1897 – 1904) all were important medical advances based on science.²

During the late 19th and early 20th centuries, Sir William Osler (1849 – 1919) was recognised as one of the greatest medical teachers of all time. He strongly influenced the organisation of the clinic at John Hopkins Hospital in Baltimore and perfected teaching medical students at the patient’s bedside. A very famous saying of this great teacher is the following: *“The good physician treats the disease, but the great physician treats the patient.”* He taught his students the art of medicine utilizing the stethoscope, physical examination, and patient history with *“the patient as his text”*.⁴

Understanding the individuality of the sick is part of medicine’s art, well chronicled by the Roman educator A. Cornelius Celsus in his masterly work

“The good physician treats the disease, but the great physician treats the patient”

De Medicina, written 2,000 years ago. Celsus teaches that the physician applies a common knowledge while searching in a given patient for unique characteristics that may be at odds with established dogma. He writes, “Nay, even in the same patient, the particular characteristics of a disease are very variable, and those who have been treated for a time in vain by the ordinary remedies have been often restored by contrary ones.” Attention to individuality – then and now – makes all the difference in quality care.¹

Health is traditionally equated to the absence of disease. A lack of a fundamental pathology was thought to define one’s health as good, whereas biologically driven pathogens and conditions would cause an individual to suffer from poor health and label him as “diseased”. However, such a narrow scope on health limited our understanding of what constitutes good health, thwarted our treatment efforts, and perhaps more importantly, suppressed prevention measures.

In 1977, American Psychiatrist George Engel introduced the major theory in medicine, the Biopsychosocial (BPS) Model. The model accounted for biological, psychological, and sociological interconnected spectrums, each as systems of the body. In fact, the model accompanied a dramatic shift in focus from disease to health, recognizing that psychosocial factors (e.g. beliefs, relationships, stress) greatly impact recovery the progression of and recuperation from illness and disease.⁵ The concept of wellness is particularly stressed, where the state of being in good health based on the biopsychosocial model is accompanied by good quality of life and strong relationships. This is in contrast to the traditional, reductionist biomedical model of medicine that suggests that every disease process can be explained by an underlying process or cause (germ theory of disease).

The BPS model underlines the importance of handling the three

systems together. A growing body of empirical literature suggests that patient perceptions of health and threat of disease, as well as barriers in a patient’s social or cultural environment, appear to influence the likelihood that a patient will engage in health-promoting or treatment behaviours, such as medication taking, proper diet, and engaging in physical activity.

“Personalised medicine” is today’s lingo, spearheaded by increasing research into human genomics and pioneering therapies which seek out and target differences among diseases commonly thought to be the same. In the next ten years the era of bio-engineering will achieve new milestones in areas like miniaturised instruments and the application of stem cell techniques for the production of human tissues. Artificial intelligence components will assist in clinical decision making. Molecular medicine will have a greater impact in diagnosis and screening.

Society is continually changing and the role of doctors in shaping the nature and provision of health care has changed accordingly.⁶ Changing lifestyles, with the associated problems such as obesity, cardiovascular disease and cancer will continue to place more emphasis for health education and health behaviour.⁷ In an article in the *British Medical Journal*, Plamping stated that a doctor’s opinion is no longer regarded as sacrosanct and a new dialogue is developing between health care consumers and providers.⁸

We are living in an age where more and more information is available – from a variety of sources – to draw on in making choices about our lives. Individuals are becoming ‘health consumers’ – adopting an active stance towards their own health and well-being. Not only patients are able to make choices about the practitioners to consult, but they are also demanding more involvement in their own care and treatment. The use of the internet has already resulted in a more demanding and knowledgeable patient. This is, first

and foremost, a fascinating reflection of transformations occurring within modern societies.⁹

Another challenge is tele-medicine which on a global scale is already a reality. The growing practice of tele-medicine puts this technology to work by allowing doctors to consult each other about management of their patients even from thousands of miles away. Computers that make use of artificial intelligence may be used to analyse difficult medical problems and advising physicians on the patient’s diagnosis. These new technologies must not detach the physician from the patient. The patient-doctor relation is a fundamental relationship which binds the two together. As an eminent Harvard professor, Francis W. Peabody (1881 – 1927), so well stated: “*The secret of care of the patient, is caring for the patient.*”

Conclusion

With the patient being the central person there is the danger of invasion of his privacy. This danger to privacy is always a challenge and medicine must deal with ethical and social issues that accompany its progress. Doctors must never lose sight of the fact that they are the guardians of their patients’ best interests. Medicine in the future will continue to take different forms but the best interests of the patient will never change and always need to be protected. S

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