

## Editorial

# EVOLUTION OF CLINICAL PHARMACOLOGY: A STEP TOWARDS SAFE AND RATIONAL PRESCRIBING OF DRUGS.

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Clinical Pharmacology is defined as the scientific study of the actions and use of drugs in human beings, their efficacy and safety being the centre of interest. Basically, it teaches us how effective and safe a particular drug is in humans and how does the body handle and respond to it.

Clinical Pharmacology is concerned with the scientific use of drugs for rational (ethical, effective, economic and safe) treatment of patients.

Purkinje<sup>1</sup>, in 1829, wrote that normally we should simply think of making use of animals but the most reliable results may be obtained only by experimenting on one's own body, provided the experimenter performs the experiment with adequate care. Believing this concept he studied the effects of digitalis, camphor and belladonna on himself. A primitive concept of clinical pharmacology was founded in the minds of scientists concerned with patient care.

Sir Malcolm Lader, famous psychiatrist, stressed upon his students to always taste a drug at least, before prescribing it, so that the prescribing doctor may realize the experience that patient goes through.

European regional office of World Health Organization (WHO), in 1977, reported that there was a growing concern of governments, health authorities and general public that, drugs were not used in medicine as efficiently and safely as they should be<sup>2</sup>. This report called for an action by the European community to look for the reasons of the reported concern. It was revealed that optimum use of drugs required the same expertise level as was demanded for the diagnosis of disease.

The European community collectively decided to adopt optimum use of ethical, effective, safe and economic drugs in the treatment of patients. Soon after the implementation of this decision, benefits were experienced in the form of gradual reduction in morbidity and mortality. This approach encouraged the developed nations to work further and look into the ultimate mechanism, which governs optimum use of drugs in the treatment of patients. The knowledge of the scientific use of drugs in humans, in health and disease, was recognized as Clinical Pharmacology and application of this applied science as rational prescribing was therefore, established as an academic discipline in medical

schools and some universities, i.e. University of London<sup>3</sup> and was also recommended to be an essential element in the provision of health care in Europe.

A sound knowledge of drugs and their optimum use enables a physician to give a moment's thought to consider before prescribing, whether drug treatment is really necessary, because, certain diseases are self-limiting and drug intervention can safely be avoided by careful observation of the patient during his illness. However, when life of the patient seems at risk and demands urgent drug intervention, it becomes the responsibility of the attending doctor to select safe, effective, economic and convenient drug/s.

It is worth mentioning that drug treatment is not free from complications and one should not get trapped in the wrong belief of, "a pill for each ill". These iatrogenic diseases are usually difficult to identify and may go undiagnosed, with fatal outcome at times.

The practice of clinical pharmacology was meant to improve upon prescribing habits of clinicians in their day to day practice. Later on it took the shape of an academic discipline, as a full fledged subject to be taught in the medical institutions and in some universities in Europe. Clinical Pharmacology and Therapeutics is not only taught but is considered to be of sufficient importance to be classed and examined in as a separate subject in final year MBBS.

The concept of Clinical Pharmacology, its prospects and role in improving patient care in Pakistan was first published in 1977, for creating awareness amongst the medical professionals<sup>4</sup>.

The role of Clinical Pharmacology in undergraduate medical education was published in 1980 in order to motivate young students to take up this subject for their profession in future<sup>5</sup>.

Nierenberg published consensus for a core curriculum in Clinical Pharmacology for medical students, in 1906<sup>6</sup>.

A workshop held in Perth, Australia, on December 6 1991<sup>7</sup>, endorsed the core curriculum in Clinical Pharmacology developed by Nierenberg<sup>6</sup>. It was recommended in the same workshop that a manual in Clinical Pharmacology should be written for students to learn the subject with interest.

College of Physicians & Surgeons of Pakistan approved postgraduate degree in Clinical Pharmacology in 1994.

Twelve years have passed since the approval of post-graduate qualification in Clinical Pharmacology but it seems as if no one has either joined the course or has not been able to qualify. This may be inferred that introduction of Clinical Pharmacology and as a consequence rational drug therapy has been put in abeyance at the graduate and post-graduate levels for so long.

It is of concern that the concept of Clinical Pharmacology has not been taken in the correct sense in Pakistan. The general physicians seem skeptical as to what will happen to their future status after introduction of this specialty in the country, whereas specialist physicians consider it an extra task of learning about the drugs, which they claim to know already. On the other hand teachers of basic Pharmacology stay in the basic sciences departments mostly. They usually refrain to conduct trials on human subjects for the reason, that they do not retain confidence to handle human subjects and manage drug trials.

The drugs and treatment scenario demands a collective effort as was done by the European community. They changed their prescribing habits by scientific research to a rational approach and named it 'Clinical Pharmacology'. Developed nations did not stop at improving the prescribing habits only but went on towards post-graduate specializations through continued research in the subject.

A similar line of action is recommended to achieve rational therapy in Pakistan. All it needs is a collective effort and harmony of thought.

A reasonable approach to introduce the same is based on the recommended curriculum by the College of Physicians and Surgeons Pakistan in 1994<sup>8</sup>, to motivate the young under-graduate medical students in their pre-clinical years to learn the basic principles of phenomena occurring in the living body as a result of administration of drugs, such as absorption through the mucous membranes, distribution in various compartments of the body, metabolism of drugs and even various ingredients of food, etc., their utilization for different useful purposes, elimination of the waste products which is of no use to the body, will ultimately motivate the young student to find an answer to the above mentioned and learn how to make use of these phenomena for correcting any abnormal condition in

the human body on the same lines. This Knowledge may be provided as a pre-requisite for training in Clinical Pharmacology in the form of a core curriculum / syllabus

Initially, teaching may begin with the basic knowledge of Pharmacology such as mechanisms of actions of drugs (pharmacodynamics) and mechanisms by which the body deals with the administered drug/s (pharmacokinetics). The student should start learning basic and preliminary, interesting, non-invasive, easy to perform and clearly understood practical skills in their practical classes and apply the knowledge and the skill thus gained, to clinical situations before taking up the responsibility of patient care.

All it needs, is more emphasis to attain knowledge in order to justify as to why, how and when a drug should be used, if at all. Once the student is able to justify a decision of treatment or no treatment, he is considered to have learnt Clinical Pharmacology and hence rational prescribing.

In compliance with the recommendations of Perth workshop, an attempt has been made to design a manual for under-graduate medical students, in our institute.

It is recommended that other institutions in the country also adopt similar policy. It is further suggested that approval of teaching of Clinical Pharmacology to the under-graduate students by the Pakistan Medical & Dental Council, as recommended and approved by the College of Physicians & Surgeons Pakistan, will facilitate and give momentum to teaching of rational therapy.

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