

# Clinical Pharmacology – current importance and future perspectives

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Clinical pharmacology (CP) is a medical specialty that should integrate pharmacological and medical knowledge and thereby promote and take responsibility for the rational use of drugs (RUD) in individual patients and in the population at large. In outlining the functions of a clinical pharmacologist the WHO technical report series of 1970(1) mentions as the first obligation „to improve patient care by promoting the safer and more effective use of drugs”.

The International Union of Basic and Clinical Pharmacology (IUPHAR) early realized that pharmacology had to reach out to the bedside in order to develop. During the 1960:s some IUPHAR presidents supported the development of CP such as Börje Uvnäs in Stockholm and Helena Rašková in Praha. They both encouraged an exchange of young pharmacologists between our countries. The discipline grew strongly between 1970 and 1990 but to variable extents in the different European countries (2, 3).

The discipline has now reached a stage where its importance for drug development and drug evaluation is undisputed. The pharmaceutical industry is keen to recruit clinical pharmacologists, and so are drug control agencies. Universities have been ambivalent and too many still lack chairs and senior academic positions in clinical pharmacology. This is surprising in view of the fact that clinical pharmacology has been successful in several areas of pharmacological research from controlled clinical trials and pharmacovigilance to clinical pharmacokinetics, pharmacogenetics and more recently pharmacoepidemiology originating from drug utilization research. Regarding the latter I would like to mention the contributions of the late Ludvík Štika in Praha, whom I had the pleasure to collaborate with.

The weakest point of the discipline today is its vague roles in health care. The discipline has done well in countries, which have adhered to the WHO recommendations to provide services that facilitate rational prescribing of drugs. Such services are mediated by departments

or sections of clinical pharmacology, Drug and Therapeutics' Committees (DTC's), networks for pharmacovigilance and drug information centers. Clinical pharmacologists are increasingly involved in clinical drug trials particularly the early phases. Therapeutic drug monitoring (TDM) should have become an important laboratory service but has deteriorated to measurements of drug concentrations without pharmacological advice as pointed out by Milan Grundmann in Ostrava. Pharmacogenetic services are increasing in diversity but seldom used in clinical practice in spite of their potential to predict abnormal drug response, be it adverse drug reactions or therapeutic failure.

A clinical pharmacologist at a leading European university hospital is fully busy with providing specific pharmacological services and consultations and does not any longer have to excuse his/her presence by providing routine clinical examinations at the same time such as running a hypertension clinic.

Another weak point is that clinical pharmacologists are too little used in teaching pharmacology to medical students in many countries. Several recent publications report poor prescribing ability among newly graduated physicians. A main goal of pharmacology teaching must be to emphasize rational drug prescribing. Of course it helps if the teacher is competent to prescribe drugs.

Clinical pharmacology is an interdisciplinary specialty and collaboration with drug experts representing other professions is important, not the least with basic pharmacologists and pharmacists whose training in many ways complement that of a clinical pharmacologist. Fruitful collaboration between the three professions is particularly well documented in DTC:s and drug information services (4). In pharmacoepidemiology and pharmacovigilance collaboration with epidemiologists is necessary. In therapeutic drug monitoring collaboration with drug analytical experts is vitally important to maintain accreditation of the analytical methods used. Such experts

are usually trained in chemistry or pharmacy. Collaboration with persons knowledgeable in molecular biology is of increasing importance, particularly in pharmacogenetics.

Clinical pharmacology at its best requires an overview of all aspects of medicine where drugs are used, be it internal medicine, pediatrics, neurology, psychiatry, geriatric medicine or oncology. A common role of clinical pharmacology in all these areas should be to educate other physicians about the principles of drug evaluation and rational use of drugs. These roles necessitate having access to a unit with critical mass, who can master diversified methods for monitoring and improving the quality of drug therapy.

New priorities in clinical pharmacology appear continuously. Now pediatric pharmacology and an essential drug list for children are in focus at WHO. In some countries geriatric pharmacology is developing as a subspecialty as a way to prevent polypharmacy and other overuse of drugs in the elderly. Pharmacoeconomy has become an important extension of requested services.

An international expert group appointed by IUPHAR and WHO is now preparing new recommendations about the discipline and its future directions.

## References

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