

COMMENTAIRE/EDITORIAL COMMENT
CLINICAL PHARMACY AND PHARMACOLOGY

Indispensable expertise in modern and advanced pharmacotherapeutics

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Within the past couple of decades, the practice of medicine has been witnessing a dramatic shift in emphasis on its two main endeavors, the diagnostic and the therapeutic. Up to fairly recent times, in the absence of the more advanced, versatile and sophisticated diagnostic techniques which the profession enjoys today, arriving at a precise diagnosis, a vital determinant of a subsequent therapeutic plan, was laborious, time consuming, often invasive and sometimes defiant. With the introduction of the more advanced diagnostic modalities, be it radiological, ultrasound, nuclear, chemical, histological, genetic and others, it has become possible to arrive at the diagnosis of even the most intricate medical problem, not only with amazing efficiency, but also with great precision both qualitative as to the nature of the disease process and quantitative, as to the extent of its progression. On the other hand, an equally monumental development in pharmacotherapeutics resulted in a plethora increase in drugs within known classes, the discovery of new classes of drugs, the production of a wide array of body constituents and factors through biotechnology, introduction of new modalities of treatment based on complex drug combinations and elucidation of detailed information on drug properties, mechanisms of action, interactions and toxicities. This has rendered therapy far more complex, necessitating a broad knowledge base, experience, exercise of judgment and special expertise in drug monitoring and pharmacokinetics, in order to achieve the ultimate objective of pharmacotherapy, an effective and safe therapeutic outcome. To meet these emerging complex demands, the medical and pharmacy professions have introduced drastic changes in their administrative, academic and training programs as well as in their professional operation. In time, these changes became consolidated as subspecialties under the jurisdiction of formal organizations which serve as custodians of the academic and training requirements, specialty examinations and certi-

fication and specialty journals. On the American scene, this is represented by the American College of Clinical Pharmacology in the medical profession [1-2] and the American College of Clinical Pharmacy in the pharmacy profession [3]. On the American scene too, the services that most hospitals assign to clinical pharmacists or pharmacologists include amongst others, monitoring of therapeutic outcomes with special focus on medication errors and adverse drug reactions ; providing advice on all aspects relating to prescribing, designing and implementing pharmacokinetic monitoring studies, particularly in the case of critical treatments ; cooperating with management teams charged with special treatments such as pain management, parenteral nutrition, cancer treatment and medication in critical care units ; providing patient education and counseling on medications ; participating in the development of treatment guidelines and in clinical research involving drugs.

These changes, which have gained universal acceptance, must be recognized and adopted locally. In the first place, the custodians of undergraduate and graduate medical and pharmacy education and training programs do well to introduce the necessary curricular modifications to upgrade and enhance the discipline of pharmacotherapeutics. Programs in clinical pharmacology geared towards medical graduates and in clinical pharmacy geared towards pharmacy graduates should be initiated [4]. At the practical professional level, it is highly desirable to have clinical pharmacologists or clinical pharmacists as integral partners of the management teams in hospital settings. The special expertise they possess is expected to enhance the therapeutic outcome and minimize adverse effects, through proper selection of drugs, determining the physiologic state of drug eliminating organs, recognizing interactions of drugs with each other and with body constituents such as receptors, enzymes and transporters, take into account various factors known to modulate drug effects such as age, sex and genetic background and recognize special and additive toxicities. The medical and pharmacy literature is replete with studies which provide evidence that the addition of clinical pharmacists or clinical pharmacologists to management teams, not only improved the therapeutic outcome, but also reduced the cost of treatment [5-8].

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