



The Importance of Clinical Pharmacist Education in Medicinal Chemistry

Raymond S. Ochs*

Department of Pharmaceutical Chemistry, St. John's University, USA

Commentary

Medicinal chemistry is defined by the International Union for Pure and Applied Chemistry (IUPAC) as a "chemistry-based field that also includes biological, medical, and pharmaceutical sciences." It deals with the creation, discovery, design, identification, and synthesis of biologically active compounds, as well as the research of their metabolism, molecular interpretation of their mode of action, and the building of structure-activity connections.

Medicinal chemistry is also known as pharmaceutical chemistry in Brazil. Pharmaceutical chemistry is distinguished from other pharmacy specialties by its "emphasis on patient-centered pharmaceutical treatment and the pharmacist as a therapeutic adviser, rather than a chemist." Clinically relevant medicinal chemistry must be taught to all pharmacy students, regardless of denomination, especially those who are expected to work in clinical pharmacy.

Medicinal chemistry is traditionally taught in pharmacy schools in Brazil as a required subject, alongside pharmacognosy, pharmaceutics/pharmacotechnology, pharmacology, and pharmaceutical care [1]. Knowledge of medicinal chemistry is necessary not only for a pharmacist's duty as a member of the health-care team, but also for the pharmacist's specific knowledge of medicines obtained from other health-care specialists.

These criteria also specify that pharmacy graduate courses must cover "theoretical and practical expertise relevant to research and development, manufacture, and quality assurance of pharmaceutical raw materials, components, and products," which includes medicinal chemistry. Furthermore, a pharmacist must be able to "act in research, development, selection, manipulation, production, storage, and quality control of ingredients, natural, synthetic, and recombinant drugs, medicines, cosmetics, sanitizings, and correlates," as well as "perform individual and collective pharmaceutical tasks" [2]. In this regard, medicinal chemistry enhances a pharmacist's drug design and development skills, as well as their understanding of structure-activity relationships (SAR), allowing them to excel in adverse reaction management and pharmaceutical care [3].

Resolution was released by the Brazilian Federal Council of Pharmacy (FCP) in 2013. In Brazil, the FCP controls independent pharmacists' prescribing authority and gives pharmacists new obligations. Independent pharmacists' medication prescribing power can be characterised as a pharmacist's autonomous prescribing within his or her clinical competence. This approach is used in a number of countries around the world, including Canada, the United Kingdom, South Africa, and Australia.

Medicinal chemistry is an important part of the pharmacy curriculum since it helps pharmacists differentiate themselves from other prescribers when it comes to pharmacotherapy. To obtain a high-level practise in clinical pharmacy, pharmacy students must use medicinal chemistry ideas as one of the determinants of pharmacotherapy decisions, notably the SAR background of the included medications. This topic was covered in a number of publications published in this journal [4]. The importance of medicinal chemistry knowledge for pharmacy students was stressed by Khan and

colleagues, Alsharif and colleagues, and Beleh and colleagues. This may also be seen in the shift in traditional medicinal chemistry textbooks, such as those by Lemke and colleagues and Currie and colleagues, which stress the discipline's clinical significance and have been adopted by many medicinal chemistry courses across the world.

As a result, the purpose of this work is to highlight how medicinal chemistry can be useful in pharmacotherapy decisions by reviewing case reports in the literature and applying medicinal chemistry ideas to develop and explain the clinical decision taken in each case [5].

The case reports were changed to focus on the study's primary points, but their overall significance was kept. To keep the instances apart, some specific information was kept. Relevant to pharmacy practise. Trade names, personal information, and other non-essential data were not included.

SAR data from didactical texts used in medicinal chemistry courses were used to analyse the clinical case reports [6]. In order to prevent or manage such occurrences, case studies must emphasise the importance of medicinal chemistry ideas in conjunction with other pertinent clinical components of a pharmacist's knowledge.

References

- Cheng KL, Dwyer PN, Amsden GW (1997) Paradoxical excitation with diphenhydramine in an adult. *Pharmacotherapy* 17:1311–1314.
- Tonna AP, Stewart D, West B, McCaig D (2007) Pharmacist prescribing in the UK-A literature review of current practice and research. *J Clin Pharm Ther* 32:545–556.
- Pharmacist Prescribing Task Force (2010) Prescribing by pharmacists: information paper (2009). *Can J Hosp Pharm* 63:267–274.
- Behl M, Engels M, Garcia G (2015) Integrating a new medicinal chemistry and pharmacology course sequence into the PharmD curriculum. *Am J Pharm Educ* 79:13.
- Garza I, Swanson JW (2006) Prophylaxis of migraine. *Neuropsychiatr Dis Treat* 2:281-291.
- Holbrook A, Wright M, Sung M, Ribic C, Baker S (2011) Statin-associated rhabdomyolysis: is there a dose-response relationship? *Can J Cardiol* 27:146-151.

*Corresponding author: Raymond S. Ochs, Department of Pharmaceutical Sciences, St. John's University, USA, E-mail: raymdoch@gmail.com

Received: 03-Jan-2022, Manuscript No: JMPOPR-22-54415, Editor assigned: 5-Jan-2022, PreQC No: JMPOPR-22-54415(PQ), Reviewed: 19-Jan-2022, QC No: JMPOPR-22-54415, Revised: 24-Jan-2022, Manuscript No: JMPOPR-22-54415(R), Published: 31-Jan-2022, DOI: 10.4172/2329-9053.1000129

Citation: Ochs RS (2022) The Importance of Clinical Pharmacist Education in Medicinal Chemistry. *J Mol Pharm Org Process Res* 10: 129.

Copyright: © 2022 Ochs RS. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.