

Potential of Clinical Pharmacology in Developing Rational Prescribing

Irrational prescribing, poly-pharmacy and prescribing errors are public health problems which exist both in developing and developed countries.^[1,2] Virtually, every single working physician prescribes medicines, and most of them write a plethora of prescriptions every day.^[3] The changes in clinical medicine, over the last couple of decades, generate new issues and challenges to medical schools^[4,5] for training medical doctors about how to select right and prescribe medicines rationally to ensure safe and efficient treatment.^[3] Prescribing medicines is the supreme instrument utilized by medical doctors to cure illness, relieve symptoms, and prevent future ailments.^[6,7] Prescribing medicines is also a composite and thought-provoking task that requires diagnostic skills, knowledge of common medicines, an understanding of the principles of clinical pharmacology, communication skills, and the ability to judge the potential benefits and risks of medication.^[6,8,9] Pharmacology furnishes the scientific basis of therapeutics, i.e., the scientific foundation for safe and rational prescribing of drugs.^[10] One of the essential constituents of pharmacology is clinical pharmacology and therapeutics (CPT).^[11] The main objective of teaching CPT is to impart knowledge, proficiency, and attitudes so that a medical doctor can evaluate the potential benefits and risks of prescribing medicines along with their cost-effectiveness.^[12] Pharmacology, clinical pharmacology, pharmacology, and therapeutics denote the same subject that provides the knowledge for rational and prudent use of medicine.^[13] Prescribing drugs safely and effectively is an essential expertise that medical students must acquire before graduation, since after graduation, they will prescribe drugs daily, with marginal, administrative control and supervision.^[14] Multiple studies reported that medical students are not adequately prepared to prescribe rationally and independently.^[2,15-17] It has also been recommended that medical doctors may be exposed to irrational prescribing if not effectively trained in rational pharmacotherapy.^[18] Clinical pharmacologists play a commanding role in the development of the skills of rational prescribing of medicines by teaching principles of pharmacotherapy among the undergraduate medical students.^[19] Teaching principles of pharmacotherapy to develop the indispensable skills of safe and rational prescription writing in undergraduate medical curriculum based on the WHO Teacher's Guide to Good Prescribing could be the best solution.^[20,21]

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REFERENCES

1. Hogerzeil HV. Promoting rational prescribing: An international perspective. *Br J Clin Pharmacol* 1995;39:1-6.
2. Aronson JK. A prescription for better prescribing. *Br J Clin Pharmacol* 2006;61:487-91.
3. Braunwald E. Foreward. In: Golan DE, editor. *Principles of Pharmacology*. Philadelphia, US: Lippincott Williams and Wilkins; 2005. p. vii.
4. Perrillo R. Challenges and opportunities for medical education and clinical research in a changing healthcare environment. *Ochsner J* 2001;3:16-21.
5. Flockhart DA, Usdin Yasuda S, Pezzullo JC, Knollmann BC. Teaching rational prescribing: A new clinical pharmacology curriculum for medical schools. *Naunyn Schmiedebergs Arch Pharmacol* 2002;366:33-43.
6. Maxwell S. Rational prescribing: The principles of drug selection. *Clin Med (Lond)* 2009;9:481-5.
7. Pollock M, Bazaldua OV, Dobbie AE. Appropriate prescribing of medications: An eight-step approach. *Am Fam Physician* 2007;75:231-6.
8. Likic R, Maxwell SR. Prevention of medication errors: Teaching and training. *Br J Clin Pharmacol* 2009;67:656-61.
9. Maxwell S, Mucklow J. E-learning initiatives to support prescribing. *Br J Clin Pharmacol* 2012;74:621-31.
10. Gwee MC. Teaching of medical pharmacology: The need to nurture the early development of desired attitudes for safe and rational drug prescribing. *Med Teach* 2009;31:847-54.
11. Naik M, Nerurkar R, Phatak A, Panchal S, Paunikar A. A questionnaire-based study to assess rational prescribing practice among interns. *Natl J Physiol Pharm Pharmacol* 2015;5:323-7.
12. Gitanjali B, Shashindran CH. Curriculum in clinical pharmacology for medical undergraduates of India. *Indian J Pharmacol* 2006;38 Suppl 2:S108-14.
13. Mukhopadhyay K. Relevance of pharmacology education in present context. *J Indian Med Assoc* 2005;103:340.
14. Brinkman DJ, Tichelaar J, Okorie M, Bissell L, Christiaens T, Likic R, *et al*. Pharmacology and therapeutics education in the European Union needs harmonization and modernization: A Cross-sectional survey among 185 medical schools in 27 countries. *Clin Pharmacol Ther* 2017;102:815-22.
15. Miles S, Kellett J, Leinster SJ. Medical graduates' preparedness to practice: A comparison of undergraduate medical school training. *BMC Med Educ* 2017;17:33.
16. Ferguson GR, Bacila IA, Swamy M. Does current provision of undergraduate education prepare UK medical students in ENT? A systematic literature review. *BMJ Open* 2016;6:e010054.
17. Rothwell C, Burford B, Morrison J, Morrow G, Allen M, Davies C, *et al*. Junior doctors prescribing: Enhancing their learning in practice. *Br J Clin Pharmacol* 2012;73:194-202.
18. Akici A, Gören MZ, Aypak C, Terzioğlu B, Oktay S. Prescription audit adjunct to rational pharmacotherapy education improves prescribing skills of medical students. *Eur J Clin Pharmacol* 2005;61:643-50.
19. Richir MC, Tichelaar J, Geijteman EC, de Vries TP. Teaching clinical pharmacology and therapeutics with an emphasis on the therapeutic reasoning of undergraduate medical students. *Eur J Clin Pharmacol* 2008;64:217-24.

20. Hogerzeil HV, Barnes KI, Henning RH, Kocabasoglu YE, Moller H, Smith AJ, *et al.* Teacher's Guide to Good Prescribing. Geneva, Switzerland: World Health Organization, Department of Essential Drugs and Medicines Policy; 2001. Available from: <http://www.apps.who.int/medicinedocs/documents/s15940e/s15940e.pdf>. [Last accessed on 2017 Sep 11].
21. Ignacio D, Sealy P, Clement Y. Confidence in prescription writing among junior physicians in Trinidad and Tobago. *West Indian Med J* 2015;64:407-12.

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