

Pharmacology is the Backbone of Rational Prescribing



Prof. Mainul Haque

MBBS, MPhil, MSc (UK), CIDTT (UK)

Professor of the Unit of Pharmacology, Faculty of Medicine and Defence Health, Universiti Pertahanan Nasional Malaysia (National Defence University of Malaysia), Kem Sungai Besi, 57000 Kuala Lumpur, Malaysia. Tel: +60109265543; E-mail: runurono@gmail.com

Rational use of medicines defined as "patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period, and at the lowest cost to them and their community" (WHO, 2002). Globally, it is appraised that half of all medicines are incorrectly prescribed, dispensed or sold, and that half of all patients fail to take their medicine properly. The irrational use of medicines is not only extensive, it is expensive and enormously injurious both to the individual and for the community and country (WHO, 2004). WHO and other studies described that the rational prescribing essentially gauges polypharmacy, excessive use of antibiotics, and the percentage of drugs prescribed by from Essential Drugs List (WHO, 2016; Summoro et al., 2015; Duerden et al., 2013). Quite a lot of studies including WHO reported that time and again quality and rational prescribing promotes health outcomes, improves patient care and prevents polypharmacy, unnecessary antibiotic and injection prescribing (Mugada et al., 2016; Fadare et al., 2013; Akram et al., 2012). Pharmacology and Therapeutics is one the most important branch of medical science with much scientific, social and financial responsibility and commitment (Mukopadhyay, 2005). Pharmacology, clinical pharmacology, pharmacology and therapeutics, etc., all these names are denoting the same subject that provides the knowledge for rational and prudent use of right drug, in the right form, right dosage schedule, right inter-dose interval, right duration, the right clinical indication, and along with mechanism of action and adverse reaction of drug (Mukopadhyay, 2005). Therefore, practically efficient teaching-learning in undergraduate medical pharmacology course will inoculate and implant ideas to promote rational, prudent, and precise justification for high quality prescribing among medical students (deVries et al., 1994; Keijsers and Ross, 2015). Moreover, quite a few studies conducted among medical students and interns opined that medical undergraduates were not adequately trained and prepared for selecting appropriate medicine for any clinical situation (Desai et al., 2016; Islam et al., 2014; Muthaura et al., 2015; Nitya et al., 2013; Rauniar et al., 2012). One recent systematic research reviewed 47 studies and revealed that educational interventions improve and increase the appropriateness of prescribing; specifically, promote prescribing

first-line therapy or reduce inappropriate prescribing (Kamarudin et al., 2013).

WHO developed more than a few manuals on principles of rational prescribing for undergraduate medical students for developing and developed countries (deVries et al., 1994; Hogerzeil et al., 2001). The notion of P-drug pronounced in "Guide to Good Prescribing" for the medical students, hands-on, program of study, is a good tool to promote the practice of rational use of medicine with the objective to promote use of cost effective, safe and suitable medicines (Khilnani, 2008; Singh, 2008). Guide to Good Prescribing teaches and promotes personal drug selection on basis of science, henceforth, prescribers can choose medicine rationally. Thereafter, reduces irrational prescribing and improve the prescribing behavior of healthcare professionals (Shankar, 2011). There are lot of successful studies reporting that P-Drug exercise among medical students has promoted much better and rational selection of medicines (Banerjee et al., 2014; Shankar, 2013; Shankar et al., 2011, Shankar et al., 2007). Nonetheless, the P-drug exercise among medical students has not been widely executed in medical and health professional schools in South Asia (Shankar, 2011). Another study also reported that essential drugs concept plays the most critical part to rational prescribing (Akhtar, 2009). Educational mediation and arbitration especially bed-side clinical teaching promoted by the Basic and Clinical Pharmacology through full of life teamwork with other clinical departments were considered essential as like backbone of rational prescribing, nevertheless, need to be combined with management

and regulatory intervention and strict policy needed for new drug molecule registration (WHO, 2002; Akhtar, 2009).

REFERENCES

- Akhtar MA. Rational Prescribing. *Pak J Med Sci*, 2009; 25: 523-525.
- Akram MS, Qamar A, Javid U, Rehman A, Bano F, Perviz F. The Study of Evaluation of Drug Use by Using WHO'S Prescribing, Patient Care and Health Facility Indicators in Selected Health Facilities in Province Punjab, Pakistan. *J App Pharm Sci*, 2012; 2: 88-92.
- Banerjee I, Saha A, Sathian B, Roy B, Banerjee I. Evaluation of Medical students' perception on Personal Drug Selection for improving prospective Medical Education: A situational Analysis from Manipal College of Medical Sciences, Pokhara, Nepal. *Nepal J Med Sci*, 2014; 3: 89-93.
- Desai MK, Panchal JR, Shah S, Iyer G. Evaluation of impact of teaching clinical pharmacology and rational therapeutics to medical undergraduates and interns. *Int J App Basic Med Res*, 2016; 6: 205-210.
- deVries TP, Henning RH, Hogerzeil HV, Fresle DA. 1994. *Guide to Good Prescribing. A Practical Manual*. Geneva: World Health Organization Action Programme on Essential Drugs. Available at <http://apps.who.int/medicinedocs/pdf/whozip23e/whozip23e.pdf> [Accessed on May 22, 2017]
- Duerden M, Avery T, Payne R. 2013. *Polypharmacy and medicines optimization Making it safe and sound*. The King's Fund, 11–13 Cavendish Square, London W1G 0AN, UK. Available at <http://cheme.bangor.ac.uk/documents/Polypharmacy%20report%20with%20foreword.pdf> [Accessed on May 23, 2017]
- Fadare JO, Agboola SM, Alabi RA. Quality of Prescriptions in a Tertiary Care Hospital in South-West Nigeria. *J App Pharm Sci*, 2013; 3: 81-84.
- Hogerzeil HV, Barnes KI, Henning RH, Kocabasoglu YE, Möller H, Smith AJ, Summers RS, de Vries TPGM. 2001. *Teacher's Guide to Good Prescribing*. World Health Organization (WHO), Department of Essential Drugs and Medicines Policy, Geneva, Switzerland. Available at <http://apps.who.int/medicinedocs/documents/s15940e/s15940e.pdf> [Accessed on May 22, 2017]
- Islam MZ, Rahman MF, Mossaddek ASM, Rozario RJ, Iftekhar AFMH, Akhter S, Jahan I, Helali AM, Dali WPEW, Ismail S, Rahman NIA, Haque M. Bangladeshi Interns' Knowledge of Pharmacology and Therapeutics for Prescribing. *J App Pharm Sci*, 2014; 4: 43-51.
- Kamarudin G, Penm J, Char B, Moles R. Educational interventions to improve prescribing competency: a systematic review. *BMJ Open*, 2013; 3: e003291. Doi: 10.1136/bmjopen-2013-003291.
- Keijsers CJ, Ross S. A pharmacological approach to education. *Br J Clin Pharmacol*, 2015; 80: 329-330.
- Khilnani G. The concept of personal drugs in the undergraduate pharmacology practical curriculum. *Indian J Pharmacol*, 2008; 40: 131-132. Doi:10.4103/0253-7613.42308.
- Mugada V, Paruchuri A, Munagala M. Drug Utilization Evaluation of Anticancer Drugs in a Tertiary Care Teaching Hospital: A Descriptive Observational Study. *J App Pharm Sci*, 2016; 6: 98-101.
- Mukopadhyay K. Relevance of pharmacology in the present context. *J Indian Med Assoc*, 2005; 103: 40.
- Muthaura PN, Khamis T, Ahmed M, Hussain SR. Perceptions of the preparedness of medical graduates for internship responsibilities in district hospitals in Kenya: a qualitative study. *BMC Med Educ*, 2015; 15: 178. Doi: 10.1186/s12909-015-0463-6.
- Nitya S, Mangaiarkkarasi A, Ali RM, Sawadkar MS. Intern's knowledge of clinical pharmacology and therapeutics at Puducherry: a cross-sectional study. *Int J Basic Clin Pharmacol*, 2013; 2: 622-628. Doi:10.5455/2319-2003.ijbcp20131020
- Rauniar GP, Das BP, Manandhar TR, Bhattacharya SK. Effectiveness of an Educational Feedback Intervention on Drug Prescribing in Dental Practice. *Kathmandu Univ Med J*, 2012;10:30-35.
- Shankar P. Seven years' experience of P-drug selection. *Australas Med J*, 2011; 4: 201-204. Doi:10.4066/AMJ.2011.648.
- Shankar PR, Jha N, Bajracharya O, Gurung SB, Singh KK. Feedback on and knowledge, attitude, and skills at the end of pharmacology practical sessions. *J Educ Eval Health Prof*, 2011, 8: 12. Doi: <http://dx.doi.org/10.3352/jeehp.2011.8.12>
- Shankar PR, Palaian S, Gyawali S, Mishra P, Mohan L. Personal Drug Selection: Problem-Based Learning in Pharmacology: Experience from a Medical School in Nepal. *PLoS ONE*, 2007; 2: e524. Doi: 10.1371/journal.pone.0000524
- Shankar PR. Prescribing skills for undergraduate medical students: Time to redress the neglect? *Nepal J Epidemiol*, 2013; 3: 260-261.
- Singh NR. P-drug concept and the undergraduate teaching. *Indian J Pharmacol*, 2008; 40: 285. Doi: 10.4103/0253-7613.45160
- Summoro TS, Gidebo KD, Kanche ZZ, Woticha EW. Evaluation of trends of drug-prescribing patterns based on WHO prescribing indicators at outpatient departments of four hospitals in southern Ethiopia. *Drug Des Devel Ther*, 2015; 9: 4551–4557. Doi: 10.2147/DDDT.S83588
- World Health Organization (WHO). 2002. *Promoting rational use of medicines: core components*. World Health Organization, 20 Avenue Appia, 1211 Geneva, 27, Switzerland. Available at <http://apps.who.int/medicinedocs/pdf/h3011e/h3011e.pdf> [Accessed May 21, 2017]
- World Health Organization (WHO). 2004. *The World Medicines Situation*. World Health Organization, 20 Avenue Appia, 1211 Geneva, 27, Switzerland. 2004. Available at <http://apps.who.int/medicinedocs/pdf/s6160e/s6160e.pdf> [Accessed May 21, 2017]
- World Health Organization (WHO). 2016. *WHO Essential Medicines and Health Products Annual Report 2015*. Essential medicines and health products. World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland. Available at http://www.who.int/medicines/publications/AR2015_links_bookmarks.pdf?ua=1 [Accessed on May 23, 2017]

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