

**Asis Bala\***

Division of Pharmacology, Guru Nanak Institute of Pharmaceutical Science and Technology, 157/F Nilgunj Road, Kolkata 700114, India

**Dates:** Received: 20 July, 2015; Accepted: 21 July, 2015; Published: 24 July, 2015

\***Corresponding author:** Dr. Asis Bala, Assistant Professor, Division of Pharmacology, Guru Nanak Institute of Pharmaceutical Science and Technology, 157/F Nilgunj Road, Kolkata, 700114, India, E-mail: asisbala\_ju@yahoo.co.in

[www.peertechz.com](http://www.peertechz.com)

## Editorial

# Animal Simulation in Under/Post Graduate Studies: It's Effect in Clinical Pharmacology Research

In this context of present changing scenario, the alternative approach of changing curriculum, it's set up and adaptation by both teachers and students is a time consuming process and this lead a great challenge to Indian Pharmacologist. Though the different aspect of changing curriculum towards teaching learning by the scientific discussions were already started [10]. A fast development of set up for CAL, AS and cell culture are required through proper training to the teachers (if required). In addition, study guidelines of good practices for simulation developed by Center for Drug Development Science (CDDS) [11], Delphi technique [12] and interpretational software handling may overcome the challenges.

## Abbreviations

CPCSEA: Committee for the Purpose of Control and Supervision of Experiments on Animal; UGC: University Grant Commission; CAL: Computer Assisted Learning; AS: Animal Simulation; CDDS: Center for Drug Development Science

## Editorial

Animal experimentation was successfully taken an important part of the curriculum of the students of medicine, pharmacy, nursing, dentistry, veterinary, and even to basic sciences like life sciences, zoology etc. The objective of the animal experiments was to develop skills for performing in-vivo experiments and to correlate the findings with theoretical concepts as well as in vitro results with prior permission to Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA). However by considering the seriousness of declining of wild life, the University Grant Commission (UGC) decided to stop the animal experimentation for both the under and post graduate levels and noticed accordingly [1]. Therefore redundant animal experiments are now trying to replace with the Computer Assisted Learning (CAL), animal simulation (AS; using Ex. Pharm, Ileum Ink software etc) or by molecular studies in cell culture. And the world wide acceptance of CAL and AS was documented in some of previous studies [2-6]. And finally UGC has also decided to bans use of animals for research in laboratories [7].

In other hand, the recent education about drug therapy begins with physiology, preclinical pharmacology and subsequent education in clinical pharmacology and therapeutics. The clinical pharmacology research is based on preclinical data and the interpretation of animal dose and human equivalent dose for drug development is taking an important part in clinical research or trials [8,9]. Though the trial simulation using "Pharsight Trial Simulator" Software is well recognized and established but the simulation not necessarily correlate always with original preclinical or clinical results. Therefore outcome of clinical pharmacology research depends not only on researcher's perception but also on concrete curriculum of experimental research. Thus the present changes of experimentation in education and in basic research may affect the clinical pharmacology research: It is a question (?).

## References

1. University Grant Commission Notification on July 2014. [No.F.14-6/2014 (CPP-II)] Subject: Dissection and Animal experimentation in Zoology/ Life Sciences and Allied Disciplines in undergraduate, post graduate and research program.
2. Roy V, Tekur U (2001) Animal experiments in medical undergraduate curriculum: a teacher student perspective. Indian Journal of Pharmacology 33: 104-107.
3. Naritoku DK, Faingold CL (2009) Development of a Therapeutics Curriculum to Enhance Knowledge of Fourth-Year Medical Students about Clinical Uses and Adverse Effects of Drugs. Teach Learn Med 21: 148-152.
4. Gitanjali B (2001) Animal Experimentation In Teaching: Time To Sing A Swan Song. Indian Journal of Pharmacology 33: 71.
5. Wang L (2001) Computer-simulated pharmacology experiments for Undergraduate pharmacy students: experience from an australian university. Indian Journal of Pharmacology 33: 280-282.
6. Ammons SW (1995) Use of live animals in the curricula of U.S Medical Schools in 1994. Acad Med 70: 740-743.
7. (17 JULY 2015) UGC BANS USE OF ANIMAL FOR RESEARCH IN LABORATORIES. INDIATODAY.IN (NEWS).
8. DHHS, FDA (2005) Center for Drug Evaluation and Research (CDER). Guidance for industry estimating the maximum safe starting dose in initial clinical trials for therapeutics in adult healthy volunteers U.S.
9. Shin JW, Seol IC, Son CG (2010) Interpretation of Animal Dose and Human Equivalent Dose for Drug Development. The Journal of Korean Oriental Medicine 31: 1-7.
10. Goyal RK, Bhise SB, Srinivasan BP, Rao CM, Sen T, et al. (2014) Curriculum for pharmacology in pharmacy institutions in India: Opportunities and challenges. Indian J Pharmacol 46: 241-245.
11. Holford NHG, Hale M, Ko HC, Steimer J-L, Sheiner LB, et al. (1999) Simulation



in Drug Development: Good Practices Draft Publication of the Center for Drug Development Science (CDDS) Draft version 1.0

pharmacology and therapeutics: A Delphi study. Br J Clin Pharmacol 44: 167-170.

12. Walley T, Webb DJ (1997) Developing a core curriculum in clinical

**Copyright:** © 2015 Bala A. 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.

**Citation:** Bala A (2015) Animal Simulation in Under/Post Graduate Studies: It's Effect in Clinical Pharmacology Research. Peertechz J Clin Pharmacol Clin Pharmacokinet 1(1): 001-002.