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## 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 (?).

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