Animal Research Ethics and Welfare Standards

Krutika Patre
http://orcid.org/0009-0001-7969-4409
Ajeenkya D.Y. Patil University, India

Sunil Sankathala
http://orcid.org/0009-0004-7809-7647
Ajeenkya D.Y. Patil University, India

Aryan Vasa
http://orcid.org/0009-0000-1837-8587
Ajeenkya D.Y. Patil University, India

Kritikka Kunte
Ajeenkya D.Y. Patil University, India

Devanshi Soni
Ajeenkya D.Y. Patil University, India

Susanta Das
http://orcid.org/0000-0002-9314-3988
Ajeenkya D.Y. Patil University, India

EXECUTIVE SUMMARY

Important scientific discoveries have been followed using animal research particularly in the field of medicine and biology. Nevertheless, animals have to be treated in an ethical manner. Ethics in animal research follow the 3S model whereby: Replacement (where possible, using alternatives), Reduction (involving the use of fewer animals) and Refinement (whereby procedures are altered to cause minimal suffering). The ethics committees must approve their studies on animals in order to make sure that research is necessary and that they take good care of the animals. Good welfare would entail adequate food, hygienic surroundings, medicine and the reduction of pain or stress. Almost all the countries have legislative acts that guard the research animals, but the enactments differ. Uniform care of animals There should be international standards and collaboration that bring about uniformity in taking care of animals. Education of researchers, regulation of laws, and education of alternatives present the important steps towards improved animal welfare in research all over the world.

1. INTRODUCTION

The use of animals in scientific studies dates back centuries, and it has contributed to the progress in medicine, pharmacology, and physiology. Animal research has been one of the most crucial factors in designing vaccines, antibiotics, and curative interventions that have led to better human health outcomes across the globe. Meanwhile, the application of animals in research has brought about a continuous ethical discussion mainly on the ethical duty that humans bear to the sentient. With the scientific advancement in animal cognition, emotional capacity, and other social behaviors, animal research has been subjected to increased ethical; demands have risen to make animal research more humane and transparent and more ethical in its methods (Iyalomhe, 2014; Kiani et al., 2022).

The most important aspect of this discussion is the idea of animal sentience and the status of morality. It is becoming scientifically more apparent that even the majority of animals can feel pain, suffering, and have other complex emotional states, whereas previous perceptions viewed animals as an experiment. The current trends have contributed to increased social interest in animal rights and welfare affecting the expectations, policies and ethical standards of science. Animal research ethics has therefore become a multidisciplinary area that can incorporate scientific necessity and moral responsibility which include the necessity of providing balance between the possible human advantage and the harm that animals may face (Kiani et al., 2022).

One of the most prominent ethical models of modern animal studies is the concept of Replacement, Reduction, and Refinement (3Rs) which was initially developed by Russell and Burch in 1959. The 3Rs were created to offer a more structured method of reducing animal use and suffering and still be scientifically sound and continue to play a fundamental role in animal research ethics worldwide (Iyalomhe, 2014; Clark, 2017). Replacement promotes using non-animal models wherever possible, such as in vitro testing, organ-on-chip technologies and artificial intelligence-based models that have been shown to be increasingly effective, efficient, and relevant to human biology (Clark, 2017). Reduction aims at reducing the number of animals used by designing better experiments, increasing the level of statistical rigor, sharing of data and reusing existing data (Festing et al., 1998). Refinement is done to minimize pain, distress, and suffering by enhancing housing localities, managing procedures, monitoring of welfare and the application of humane endpoints (Brink & Lewis, 2023).

The adoption and establishment of the 3Rs is different in regions yet has become a part of regulatory and ethical control measures in most regions of the world. Ethical review boards and authorities in various authorities, including the European Union, United States, and even parts of Asia demand that researchers explain the reasons behind animal use and also by demonstrating the 3Rs being followed during the