

Letters to the Editor

The use of animals in experimental studies

O uso de animais em estudos experimentais

To the Editor:

I have read the manuscript "Effects of quercetin on bleomycin-induced lung injury: a preliminary study" by Martinez et al.,⁽¹⁾ and I congratulate the authors. Nevertheless, I would like to comment on certain aspects of the manuscript.

In this experimental study, four different groups of hamsters, consisting of 16, 16, 27 and 20 animals, respectively, totaling 79, were used. However, to comply with the principle that the smallest possible number of animals should be used in any given experiment, the researchers should have used 5-10 animals per group. Due to ethical issues, the number of animals to be used in experimental studies should be reduced to the minimum required to make a statistical analysis and yield scientifically reliable and valid results. Porter devised a practical 8-item scoring system to avoid ethical problems in animal experiments.⁽²⁾ These items address the aims of the experiment, the attainability of those objectives, the species of animals to be used, the anticipated degree of pain, the duration of the discomfort of the animals, the duration of the experiment, the number of animals to be used and the quality of the care of the animals. Each item is scored on a scale of 1-5, and a low score is desired. In this scoring system, limiting the number of animals used is also recommended.

When designing experimental studies, researchers should ensure that the protocol complies with the universally accepted ethics principle of the three Rs (reduction, replacement, refinement).⁽³⁾ This principle was proposed with the aims of safeguarding the welfare of animals and ensuring the quality of experimental studies.

Reduction relates to reducing the number of animals by carefully designing experimental procedures, limiting the number of variables and using genetically homogenous subjects, as well as thoroughly controlling and maintaining the experimental procedures. Replacement refers to avoiding the use of living animals and finding alternative means, including non-animal methods such as computer

systems, cell/tissue cultures and the use phylogenetically lower species, such worms and bacteria, which are less capable of perceiving pain. Refinement deals with reducing any distress or pain that might be experienced by a given animal and decreasing the number of animals or changing the species to achieve this end, as well as altering the procedures or terminating the experiment, if necessary.^(3,4)

A meticulous review of the literature prior to the commencement of the experiments, standardization of all procedures related to the experiment, choosing the appropriate statistical methods and carrying out a pilot study with very few animals to practice all aspects of the experiment will contribute to reducing the number of animals required. In addition, increasing the number of animals will increase the cost of the study, and overextension of resources for an excessive number of animals will result in an excessive workload, which will, in turn, increase the likelihood of errors.

I feel that the authors' comments on this matter would serve to increase the value of this study, into which it is obvious that they have put considerable effort.

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References

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