THE ETHICS OF ANIMAL EXPERIMENTATION

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Abstract

Animals have long been used as subject in laboratoy experimentals, as they were considered viable althernatives o the use of humans. Still, this matter gave birth to numerous ethical isues. In the present, there are many points of view concerning the animal expeimentatin. The legislaton took steps forward the assurance of animal potection and welfare, as the public opinion as begun to put pressure on the legislative bodies.

I. Introduction

The progress of biological sciences and especially that of medicine is tightly related to the experimentation on animals both from a scientific and from a didactic point of view. The numerous discoveries in these domains were made possible due to the passage from clinical remarks (made to the occasion of the appearance and the evolution of some illnesses) to the application of some experimenting techniques on the animals.

The experimentation on animals, the way it is done nowadays, involves the analysis of the biological functions of the animals based on the observations on the living beeing. It is made as any other experiment on vegetals or on inert material but it differentiates in that the subject of the experiment owns a nervous system that can feel pain and thus the animal may suffer. /8/. This sensitivity of the animals can manifest itself depending on the conditions in which the experiment takes place and that allows to talk about prejudices inflicted on the animal. These prejudices and the emotional answers generate two major questions: the validity of the experiment as way of analyzing the functioning of the animal and the legitimacy of the utilization of living beings as subjects in experiments /20/.

Animals are frequently used in the process of testing different food products, cosmetics, industrials and medicines. Initially, the experimentation was made preponderantly on species of domestic animals that could be easily procured
and afterwards the area was extended to smaller animals, that could be raised in laboratories and that do not need special conditions (such as frogs, mice, rats, rabbits, hamsters, guinea pigs etc.) /5/. Together with the evolution of experimental techniques was developed the tendency to use standardized lines of lab animals to whom were offered special environmental conditions in order to obtain consanguine and gnotobiotic animals /6/.

II. Short history

The experimentation on animals has developed due to the elaboration of the Code of Medical Ethics adopted in 1956 at Nurnberg and that was signed by 71 countries. This code prohibits the administration of medicines to people if the medicines were not first tested on animals /7/.

Similarly, the vet administration from numerous countries imposes the experimental testing, on a certain number of animals, of any medicine or biological product, before it is approved for production and commercialization. Then, the majority of products for vet and human use are controlled on each charge of fabrication, including through experimental inoculations on animals.

An extraordinary great number of animals are used in the regular activity of diagnose, for the identification of the presence of some microbial pathogenic cultures or toxins, for the estimation of the protective effect of some biological and medicinal products, for the testing of the noxiousness of some cosmetic products, of food additives for human and zootechnical use /9/.

A standard test for some ingredients of food products is the determination of the lethal dose 50% (LD50). Through this test it is established what quantity of that product, administrated to animals, causes the death of 50% of them. The experiment involves the use of a great number of animals from which some die, others get sick and others may not show any signs of illness. Afterwards a statistical calculation is made in order to determine LD50 that is compared to the admitted values. The use of this test causes the death of a great number of animals even in the case of harmless products because in these cases the animal is forced to consume large doses /6,13/.

The use of animals in the research activities as well as for the testing of some medicine, hormones, cosmetic products etc., represents a vast domain of activity from the point of view of the biological standardization as well as from the point of view of bioethics. Except the stress and the suffering that can disturb the results obtained, the sensitivity of the animal puts the question of the legitimacy of the experimentation. The experimentation on animals was always criticized because it produces suffering to the animal.

The human being has the right to make experiments on animals? This question modifies the status of the animal in comparison to the human being. Three major positions makes the knowledge necessary in order to understand the questions raised through the experimentation on animals. In the XIXth century, the position that prevailed was that of discontinuity between the human being and the animal. Descartes qualified animals as “machines”, thus authorizing all experiments, while Kant limited the use of moral to humans, as they are the only beings capable of perceiving duty /11/.
More recently, other philosophers, influenced by Darwin’s theory of evolution, have insisted, on the contrary, upon the notion of continuity between the human being and the animal. This continuity is seen as a rational fact by Singer /17,18/, to whom everything that is capable of suffering deserves consideration. In accordance to this utilitarian theory, the experimentation can be justified if the sufferings caused to individuals on who the experiments are made are inferior to the benefits anticipated. This theoretical calculation depends on the capacity of the species to adapt to suffering or to feel pleasure. Thus, in accordance to this principle, the experimentation on animals from less sensitive species in order to obtain results from which more sensitive species can benefit or the sacrifice of some animals for the benefit of a greater number of animals are justifiable methods. Finally, as Schweitzer puts it, the real results come from emotions; Schweitzer always makes the distinction between the species that are more or less appreciated by the human being /12/.

Scientists from the XIXth century weren’t preoccupied by the ethical reasons regarding animals. In his work from 1865 “An introduction to the study of experimental medicine”, Claude Bernard (1813-1868), one of the first modern physiologists with important contributions to the experimental medicine, stayed that: if it is immoral to undertake dangerous experiments on humans, although the results can be useful to some persons, it is fully moral to undertake experiments on animals, even though painful and dangerous, if the results are useful to the human being /4,13/.

Public opinion from the great scientific centers has brought serious accusations to scientists and biomedical research for the suffering induced to experimental animals. Not rarely the street manifestations organized by some organizations or associations (ecologist or religious) were even violent. During these manifestations not only the suffering but also the inefficiency and even the noxiousness of some remedies introduced in the medical practice were invoked on the basis of the experiments made on animals. The conflict between the users of animals and the militants for the protection of animals stays open because, from an ethical point of view, there are no compromises. Although the experimentation on animals does not necessarily imply disobeying the animal protection rules, we cannot assert with certainty that it can be made without producing fear and suffering. Numerous personalities from art and literature, representatives of religious cults and later some scientists formulated and publicly expressed their support for the protection of animals, especially after it was known that numerous species of animals and plants had disappeared as a result of some wrongly oriented human activities /10/.

Gradually was accepted the idea that some experiments can be suppressed without consequences on human health. There are many serological, immune-enzymatic and citopathogenic tests that can be made on cell colonies with a great specificity and exactness that can successfully replace animals in some procedures of identification of microbes and toxins in laboratories of diagnose. Some tests of global toxicity can be done on Protozoa instead of lab mice and rats. Even some experiments on domestic animals can be replaced with experiments on inferior species or sophisticated bioreactors. The use of mathematic and informatic models represents an alternative for the replacement of animals in experiments /13/.

It is a proven fact that the protection of animals is tightly related with the respect among people and corresponds to human dignity. As a result of the activity and recognition of the prestige of some Nobel prize laureates, such as Albert
Scweitzer and Konrad Lorenz, the attitude of people towards animals began to be considered as a relevant marker of the standard of civilization and consciousness for the individual, but also for the people /6/. More and more, animals used for experiments are seen as beings with both physical and psychological sensitivity that can become victims of stress just as the human being. While most people understand and obey ethical needs in what concerns the protection of monkeys and pets, maltreatments through vivisection or through other maneuvers are still very frequent made on lab animals, considered to be “quiet”. Because of the lack of knowledge on the behavior and the sensitivity of these species it is wrongly considered that these animals would be ideal for experimenting just because they can be easily handled and do not produce desperate screams such as other species do. In reality, the human being is deaf to the ultrasonorous messages of pain and alarm of these “lab species”. /6,12/.

From a technical and scientific point of view, the experimentation on animals is motivated by the assurance of the relevance and validity of the tests in accordance to the international norms for biological standardization. From an ethical point of view which includes both ecological aspects concerning the protection of natural environments and biodiversity and an economic point of view in which limitation of the experiments is motivated by their costs, there is a moral necessity to limit the animal suffering in accordance to the human dignity.

People apply many different ethical principles in what concerns the interaction with animals. A significant progress in the domain of the animal ethics was made when the public and the members of the biomedical research community as well came to the conclusion that animals used in experiments should be offered more complex environments and positive psychological experiences /14/. This recently formulated point of view is not yet applied to all species. Many people believe that the main ethical obligation towards all animals is that of not causing useless or unjustifiable suffering to them.

Most laws concerning the utilization of animals (anti-cruelty status, laws concerning the sacrifice of animals with minimum of suffering, laws and rules concerning the experimentation on animals) request that animals used for legitimate reasons should not be inflicted pain if possible and in the case where pain is inevitable, useless pain should not be inflicted. The point of view that stays the fact that the capacity of animals to feel pain is the primer source for our ethical obligations towards them was motivated by Jeremy Bentham. The philosopher stated that there are no implications of ethical nature in the case when an animal used for experiments and raised for that purpose does not feel pain, stress or discomfort. This argument is presently accepted on a large scale both by the public and by scientists.

The fact that animals can feel pain resides in their utilization in the study of pain as models for human pain. If this fact wasn’t a certainty the study would have no object. Tannenbaum /19/ considers that pain is not just the expression of something evil but the evil itself by the simple fact that it is felt. Although pain is sometimes benefic when it signals a problem such as a wound or an illness, the experience of pain is unpleasant therefore both people and animals avoid it.

The most serious problem of precise estimation and minimization of pain to animals result from the fact that animals cannot speak about their pain. The general mechanisms of stress and pain known up to present times are limited to the knowledge to detect stress or pain to tested animals.
III. Modern concepts concerning the experimentation on animals

It is estimated that, in the whole world, 200 millions of animals are tested in lab experiments. Most of these experiments cause pain and discomfort to animals and do not bring any benefit to human beings. These realities determined the rethinking of the relation between man and animals.

In order to eliminate the extremist positions and to put new scientific and ethical basis of the desiderates concerning the experimentation on animals, the participants of the International Congress of San Antonio concerning Biological Standardization (Texas, 1979) agreed to accept the concept of the three R (or 3R), initially formulated by Russell and Burch in 1959 and later on developed under the aegis of W.H.O. and other international organisms /16/. This international scientific manifestation, by including the humanitarian reasons in the program of the Congress and by unanimously support of the 3R concept, marked and reflected the change in the point of view, in the scientific world, concerning the utilization of animals in labs /6/.

The protection of animals used in experiments does not refer merely to the handling during the experimentation, but also to the maintenance of animals in labs that should correspond to the physiological needs of breeds and age categories, as it is mentioned in the Directive 86/609/EEC.

The 3R principles are as follows:

Reduction, that means the reduction on the number of animals that are part of justifiable experiments up to the limit that allows the statistical assurance and avoiding or even eliminating the experiments that have a doubtful utility for the people’s wellbeing and for the progress of knowledge.

Replacement, meaning the replacement of the testing methods on animals with other physical, chemical and biological methods (serological, immune enzymatic and on cell colonies), in all the situations when such methods satisfy the required needs. These could have also the advantage of precision or that of eliminating the biological variability. In the experiments where animals cannot be replaced with other testing methods it is recommended that superior animals, particularly primates, dogs and cats be replaced with inferior vertebrates and if it is possible with invertebrates. Russel and Burch /16/ distinguished two meanings for this term; relative replacement, in which animals are necessary for the experiment but they are not subjected to stress and total replacement in which animals are not at all necessary for the unfolding of the experiment.

Refinement is the principle that aims at the improvement of the biological methods used for the diminishing or the elimination of the suffering. It also means the humanization of the experimenting techniques in order to promote a humane
attitude towards those beings that are subject to experiments and also for the benefit of the psycho-somatic conditions of experimentation.

The W. H. O. as well as other international organizations who accepted the principles of the 3R believe that these principles should be applied wholesale because they are inseparable in the experimental practice. Numerous international conventions have highlighted the moral responsibility of the research project leaders and of the managers of the research institutions concerning the knowledge and the respecting of the 3R principles. These principles tend to become international principles due to the fact that any international aid and especially the aid coming from U. N., W.H.O. and U.N.E.S.C.O. is conditioned by the respecting of the ecological norms and those that concern the protection of the environment and of the animals of all categories /1/.

As well as the organizational and juridical framework, although the 3R principles have been unanimously accepted there are still important delays in what concerns the legislation /3/. In some countries the protection of animals is done through juridical settlements that stipulate repression methods for cruelty manifestation towards animals. Bioethical committees and institutions that organize the scientific research have the responsibility to protect animals during experiments.

The European Convention for the Protection of Vertebrate Animals used for Experimental and other Scientific Purposes settles the utilization of animals in experiments /22/. The convention specifies the purposes in which an animal can be experimentally used: the avoidance and the prevention of illnesses or other abnormalities or their effects in humans, vertebrate and invertebrate animals or plants, including the production, the testing of the quality, efficiency and safety of medicines, substances or products; the diagnose and the treatment of illnesses or other abnormalities or their effect in humans, vertebrates and invertebrates or plants; the discovery, the evaluation, the settlement or the modification of the physiological conditions in humans, vertebrates and invertebrates or plants; the protection of the environment; scientific research; education and juridical research.

The convention specifies the compulsoriness to provide a shelter, an environment in accordance to the animal’s needs, a minimal possibility to move, to provide the animals with food and water and to care for the animals in accordance to their health and welfare. Any restriction of the possibility to satisfy the physiological and ethological needs has to be limited to a minimum. The environment conditions in which animals are raised, kept or used have to be daily verified. The welfare and the health of the animals have to be closely and frequently surveyed in order to avoid pain and suffering.

When an experiment has to take place, the choice of the species has to be carefully done and has to be carefully explained to the responsible authorities. It is better to choose the procedures that cause less suffering, pain or stress and use the minimum number of animals and have the most satisfying results.

As far as possible, during the experiment any procedure can be done under general or local anesthesia or after the proper dosage of painkillers or after any other methods meant to eliminate pain, suffering and stress were administered. The exceptions are represented by the situations when pain caused by the experiment is lesser than the pain caused by anesthesia or analgesia or when the use of anesthesia or analgesia is incompatible with the experiment. In such cases administrative and legislative measures must be taken in order to avoid the uselessness of the experiment.
The convention stipulates that at the end of the experiment a decision should be taken whether the animal will be kept alive or killed through a procedure involving the minimum pain. An animal should not be kept alive if it is possible to feel pain or longlasting stress even though he could get healthy again.

This decision must be taken by a competent person, usually a vet or the person in charge of the experiment. When, at the end of the experiment, the animal is kept alive special care should be given to him and he should be surveyed by a vet or another competent person.

The legislation forbids the repeated use of an animal in a painful experiment, even though it was anaesthetised or analgised, if its health and welfare weren’t completely restored and if during the next experiment the anaesthesia is not kept until the animal is dead.

The animal from the following species: mouse (Mus musculus), rat (Rattus norvegicus), guinea pig (Cavia porcellus), golden hamster (Mesocricetus auratiis), rabbit (Oryctolagus cuniculus), dog (Canis familiaris), cat (Felis catus) and quail (Coturnix coturnix) meant to be used in experiments must be acquired from authorised nurseries only. The stray animals from domestic species are not allowed to be used in experiments.

IV. Legal basis concerning the experiments on animals in Romania and Portugal

The romanian decree nr. 37/2002 /25/ for the protection of animals used in scientific purposes or other experimental purposes approved by the law nr. 471/2002 and the portuguese law-decree nr. 129 /92 /26/ represent the transposition in the national legislations of the provisions of the European Convention for the protection of vertebrate animals used in experimental purposes or other scientific purposes /25/. According to these laws, the animals used for experimental goals and other scientific purposes must have adequate care, and must not be unnecessarily object of pain, suffering, fear or permanent damage and, when unavoidable, these sufferings must be reduced to a minimum level.

The decree nr. 37/2002 designates the National Veterinary Sanitary Agency as the competent authority in the emission of the consultative notification concerning the necessity of the experiment and other methods. In Portugal, there is the same body, the DGV (General Veterinary Direction), which is empowered by Governmental order nr. 124/99 /27/ to issue licenses for the experiments.

Animals’ individual welfare must prevail on any clinical research, over science and scientific communities’ interests.

The experiment has to have special authorization highly justified when an animal is going to be used in an experiment in which he is likely to suffer or be in great pains that could last. This special authorisation will only be issued for an experiment which has a major importance for the essential needs of humans or animals.

Moreover, the romanian and the portuguese decrees stipulates the interdiction of using wild animals in experiments. The exceptions to this interdiction refer to the research which is meant to establish adequate measures for
the conservation of those animals, or some very important biomedical researches, in which those species prove to be the only upon the experiment can be made /25, 28/.

The fifth chapter of the romanian decree stipulates the sanctions that can be applied when the stipulations from the first to the fourth chapter are not obeyed. As the fifth chapter stipulates, causing pain, suffering, anxiety or invalidity represent contraventions which are sanctioned with a fee.

The law 205/2004 /23/ concerning the protection of animals, modified and completed by the law 9/2008 /24/ stipulates that animals used in scientific purposes are subjected to specific protection rules that do not allow any useless pain and also stipulates the purposes in which the experimentation on animals is allowed: scientific research, the diagnose of illnesses, the production of medicines or biological products as well as other similar purposes when the object of the activity cannot be attained through other methods that do not imply the use of animals.

A potential ethical problem is generated by the fact that the use of genetic modification affects animals through their biological modification. Those who work with genetically modified animals should be capable to evaluate their welfare and to determine their physiological, psychological and behavioral needs in order to ensure their protection /2/. The legislation referring to welfare and protection against cruelty is too general. There aren’t specific laws for the genetically modified animals. The creation by the human of the genetically modified animals implies the recognition of the moral duty towards them as well as the necessity of some legislative stipulations. The legislation should stipulate that no genetically modified animal should be used for commercial purpose without having done studies on their welfare for at least two generations /2/. The decision to use a genetically modified animal should depend on the existence of a benefit for the welfare of all animals, including man.

V. Conclusions

1. The experimentation on animals, the way it is done nowadays, involves the analysis of the biological functions of the animals based on the observations on the living being.
2. Animals are frequently used in the process of testing different food products, cosmetics, industrials and medicines.
3. The vet administration from numerous countries imposes the experimental testing, on a certain number of animals, of any medicine or biological product, before it is approved for production and commercialization.
4. Except the stress and the suffering that can disturb the results obtained, the sensitivity of the animal puts the question of the legitimacy of the experimentation. The experimentation on animals was always criticized because it produces suffering to the animal.
5. Gradually was accepted the idea that some experiments can be suppressed without consequences on human health.
6. It is a proven fact that the protection of animals is tightly related with the respect among people and corresponds to human dignity.
Bibliography


