

Development of laboratory animal science in Lithuania

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Summary

The development of laboratory animal science (LAS) in Lithuania during the last decades is reviewed. Political changes in the 1990's initiated development of LAS in Lithuania. Two aspects of LAS are analyzed – education and legislation. As regards education over 40 people possess FELASA category C certificates, a regular course on “Laboratory animal science” is delivered at Vilnius University, and a textbook “Basics of laboratory animal science” in Lithuanian has been published. Introduction of necessary legal Acts, establishment of the Lithuanian Ethics Committee on the use of laboratory animals under the State veterinary service, and the introduction of certification of experiments with vertebrate animals are the main results concerning legislation of laboratory animal science.

Introduction

Laboratory animals have been used in research in Lithuania for a long time. The first animal-breeding unit was organized by the Institute of Zoology and parasitology in 1963. A new originally designed animal facility was founded in 1987. The main purpose of this project was to improve experimental science. Over 53,000 animals were used and it completely satisfied the demands of various institutions. The personnel of this facility had veterinary training, but laboratory animal science was not included in veterinary studies at that time and their care was mainly controlled by common law as applied to the veterinary care of animals. There was no control or legislation related to animal experiments and protection of laboratory animals at that time (Simkeviciene et al., 1998).

Political changes in the 1990's influenced the situation in laboratory animal science (LAS): people became aware the laboratory animal science specialty does exist and this area can not be neglected.

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Since the problem itself was identified, there naturally followed some questions- what could be done and how to change the current situation? One of the first steps was to gather people related to or interested in this problem. This was done in 1991- when the Baltic Laboratory Animal Science Association (Balt-LASA) was established, which united people from all three Baltic countries - Estonia, Latvia and Lithuania. Then in 1996 Lith-LASA was set up. There are 18 institutional and 65 individual members in Lith-LASA. Lith-LASA is a member of Balt-LASA and in this way is a member of the Federation of European Laboratory Animal Science Associations (FELASA).

There are 22 institutions in Lithuania using laboratory animals for teaching and/or research at the present time. According to data from a survey done by Lith-LASA in 1996 there were used over 20,000 animals per year. This means: 1) there are at least a few hundreds of people working with laboratory animals; 2) there is a substantial number of animals used and they require proper care and handling; 3) use of animals is not hidden from society, which means corresponding “education“ of society has to be done in order to prevent (or at least to reduce) various kinds of “misunderstandings” between scientists and society.

Education is the first thing that comes up when we think about laboratory animal science. Although this is a necessary constituent it is not sufficient, because it has to be supported by the corresponding legislation enabling legal regulation of all activities involving laboratory animals. Therefore two closely related aspects – education and legislation – can be distinguished when the laboratory animal science situation is discussed.

Education

There are four competence levels (A,B,C,D) in laboratory animal science according to FELASA guidelines. And since neither standard biological nor medical education per se allows working with vertebrate laboratory animals special courses and examinations have to be taken in order to get permission to do that. The best situation for LAS education in Lithuania, is in categories A and C. Category A courses are usually offered by the personnel and scientists in local research facilities. Category C competence can be obtained by taking courses offered by foreign teaching centers or through the cooperative courses organized by the joint efforts of Scandinavian and European colleagues in the Baltics. The first way is more restricted since it's rather expensive for Lithuanian scientists. Cooperative courses in the Baltics is a very good way for our people to get training led by famous specialists in the field from many countries and to broaden contacts, because these courses are attended not only by Baltic representatives but also by Scandinavians. So far five cooperative courses for category C have been organized in the Baltics- two in Tartu, Estonia, two in Trakai, Lithuania and one in Saint Petersburg, Russia. Overall there are over 40 people in Lithuania possessing category C certificate.

The third way to improve competence became available recently - there is a regular category C course on LAS delivered at Vilnius University. This course has been created within the "TEMPUS-PHARE" project "Inter-disciplinary Curriculum for M.Sc. in Neurobiology". The new programme was implemented in 1997 at the

Department of Biochemistry-Biophysics, Faculty of Natural Sciences and a regular course on Laboratory animals science is a part of the programme. Advantages of this way of teaching are as follows: (i) it is delivered in the native language (this is still important for many people in Lithuania); (ii) it costs much less as compared to courses abroad; (iii) it does not require break from work; (iv) additional courses of varying intensity can be arranged in the case of demand. This is a course of 80 hours divided into 48 hours of lectures and 32 hours of practicals - it fulfills the requirements of FELASA for a category C certificate. The following topics are presented during lectures: biology, nutrition, transportation, genetic standardization, anesthesia and analgesia, euthanasia, stress and well-being of laboratory animals; disease prevention and health monitoring; ethical aspects and legislation; alternatives to animal experimentation; design, organization and management of animal experiments. Students get practice in basic techniques of animal handling, surgical operations etc.

There is still a lack of education for category B and especially category D. Again, obviously for language problems category B education has to be established by local specialists - there are prerequisites for that in the form of specialists possessing category C competence. The alternative is to organize international courses. Two international courses (in 1999 and 2002) for category B have been organized in Riga, Latvia.

Category D education may have to rely on educational opportunities abroad, because there are not so many specialists of category D needed and therefore costs of training specialists of this level in Lithuania might be disproportionately high.

A very interesting form of teaching related to LAS is organized at the Institute of Biochemistry in Vilnius. There is a special course "The young biochemists" for schoolchildren (15-18 years old) who are interested in biological sciences. In the framework of this course topics related to the various aspects of laboratory animals are discussed. Schoolchildren take part in academic exercises involving either live

or dead animals. The idea of such a course is the demonstration of greater similarity than difference between man and other mammals, replacement of animals in medical experiments, and the reduction of the number of animals used for exploration of fundamental problems in diseases such as AIDS, cancer, Alzheimer and others. Also if disputes are supported by practical training this helps to diminish many spurious arguments against the use of animals in experiments. Increasing understanding in school-children about the need for animal use provides a good opportunity to understand the animals "rights" and as a result of this course they do not get a biased impression about the problem of animal use and related topics. An important issue concerning education in LAS is literature. The main problem in this respect is the shortage of special literature in the Lithuanian language. "European Convention for the Protection of Vertebrate Animals Used for Experimental and other Scientific Purposes" and "Guidelines for euthanasia" have been translated into Lithuanian as the first and main documents. In addition to this the textbook "Basics of laboratory animal science" (Simkeviciene & Ruksenas, 2001) in Lithuanian has been published in 2001 with the support of the University Federation for Animal Welfare, UK.

Legislation

The legal basis is another very important issue related to LAS since it is obvious that if there is no legal regulation, education itself is not sufficient. The last few years have witnessed rather rapid improvement in this area, despite the fact that Lithuania has not signed the "European Convention for the Protection of Vertebrate Animals Used for Experimental and other Scientific Purposes".

The following acts of law relate to laboratory animals in Lithuania:

- Law on Animal Care, Handling and Use, 1997;
- Veterinary Regulations on Breeding, Handling and Transportation of Laboratory Animals, 1998;
- Rules of Good Laboratory Practice, 1999;
- Rules off the Use of Laboratory Animals in Scientific Experiments, 1999;

The last one is very important with respect to education in LAS because according to the new law a licence to perform experiments on laboratory animals can be issued only on condition that at least one member of the applying group possesses a category C certificate. This law introduced legal regulation of animal experimentation and has caused increasing interest and demand for special education in LAS.

There is established a Department of Animal Care which is supposed to take care and control of various aspects related to the use of animals. The Department has animal welfare officers in all 54 administrative units of Lithuania and therefore it is an efficient institution able to control the use of animals. A very important step from the legal point of view was setting up the Lithuanian Ethics Committee on the use of laboratory animals under the State veterinary service in 1999. Members of this committee are representatives of ten state institutions – Institute of Biochemistry, Institute of Immunology, Kaunas Medical University, Lithuanian Veterinary Academy, Lithuanian Veterinary Institute, National Veterinary Laboratory, Lithuanian Center of Oncology, State Drug Control Service, State Center for Public Health, Vilnius University and two public institutions- Lith-LASA and Society for Animal Protection.

The introduction in Lithuania of requirements of European Conventions, European and national legal acts concerning the rearing and use of laboratory animals, and assistance to the State food and veterinary service on issuing of licences to work with laboratory animals, are the main aims of the Ethics Committee (EC). The EC is elected for two years period and the Director of the State Food and Veterinary Service approves its structure. Meetings of the EC are held quarterly and are conducted by the Chair, who together with the executive chair and secretary of the EC are elected for the two year period during the first meeting of the EC. Meetings are close, but the Committee can invite independent experts in case of need.

To perform its assigned functions the Ethics Committee has the following rights: (i) to get relevant information from scientific and industrial institutes, higher education schools and research institutes; (ii) enter industrial, experimental, and animal housing premises at any time in order to control how approved experimental protocols or regulations are followed; (iii) to recommend the State Food and Veterinary Service to stop permission to perform experiments with laboratory animals if the welfare of laboratory animals is not ensured; (iv) to stop experimental investigation of biological and medical compounds if approved regulations and experimental protocols are not followed or the welfare of animals is not ensured.

Before starting experiments with laboratory animals researcher(s) has to get a licence from the State Food and Veterinary Service. In order to get a licence the scientist has to submit an application including the following documents: (i) CV of applicant; (ii) certificates or other documents confirming qualification to work with laboratory animals; (iii) application form; (iv) project or other documents concerning breeding/rearing of laboratory animals.

Review of a submitted research protocol is based on clear and precise guidelines concerning the scope and criteria to be used in the research, application of the Three R's, assessment of animal pain and distress, and the balance between animal harm and human benefit. If the applicant is a member of Ethics Committee, he/she would usually withdraw from the discussion of the project. The reviewers of the proposed project must decide whether the experiment is ethically justified and a decision to

approve or disapprove the research protocol is then made. It has to be stressed that the Ethics Committee evaluates the research protocol only with respect to animal welfare. Based on recommendations of the Ethics Committee, the State Food and Veterinary Service issues, renews or stops permission/licence to perform activities with vertebrate animals. Importantly the State Food and Veterinary Service not only issues licence to perform experiments but it has possibilities to control whether all procedures are performed according to the licence agreement.

It can be concluded that the initial period of the establishment of Laboratory animal science in harmony with existing European guidelines has been successful and it has good perspectives for its future development in Lithuania.

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