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Scrutiny of VA Canine Research Continues

By Naomi Charalambakis | April 10, 2019

On March 27 and 28, the National Academies of Sciences, Engineering, and Medicine's (NASEM) Institute for Laboratory Animal Research (ILAR) resumed its review of canine research funded by the U.S. Department of Veterans Affairs (VA), hosting a public workshop. Panels of experts spoke about VA research areas where dogs serve as models of disease, including cardiovascular disease and spinal cord injury. A panel of bioethicists also presented on ethical and societal issues to consider regarding canine research.

During the cardiovascular research session, scientists and clinicians from various institutions emphasized that the model chosen for a study is dependent on the research question. While mice and rats are widely used models for cardiovascular-related questions, dogs are the most appropriate model for translational studies. David Harrison, PhD, from Vanderbilt University Medical Center, noted that the average mouse heart rate is upwards of 500 beats per minute, making rodents ill-suited for heart arrhythmia research or studies involving pacemakers.

Other panelists noted that canines are the best model for medical device research, and that other large animal models such as pigs and sheep cannot accurately replicate certain disease conditions. Rodney White, PhD, of Long Beach Memorial Care Heart & Vascular Institute, described the anatomical differences in sheep and pigs that preclude their use in aortic aneurysm work. Sheep have complex pelvic blood vessel connectivity, and certain vessels in the pig are too small for proper implantation of vascular grafts.

The scientific portion of the workshop concluded with a review of spinal cord injury research projects where small and large animal models are appropriate. Candace Floyd, PhD, of University of Utah Health, observed that canine-human comparative anatomy is the primary reason dogs are used in research. Canine blood flow patterns and spinal cord length match closely with humans – two vital features that scientists consider when designing spinal cord injury experiments.

A panel on animal ethics illuminated the moral issues raised by animal research. Jeffrey Kahn, PhD, MPH, chair of the 2011 Institute of Medicine report "Chimpanzees in Biomedical and Behavioral Research: Assessing the Necessity," discussed the guiding principles for evaluating chimpanzee use. He led the development of recommendations that resulted in the National Institutes of Health significantly curtailing their use. Another panelist, David DeGrazia, PhD, offered his perspective on the morality of animal studies, noting that protections for animals have not changed much since the 1980s.

On the second day, officials from the VA Veterans Health Administration described the process for reviewing and funding projects through the Office of Research and Development. They emphasized the requirement that investigators state clearly how proposed studies will contribute to veterans' health. Rachel Ramoni, DMD, ScD, said the agency is proactive in considering alternative models, but only if the method is proven valid for a particular line of scientific inquiry.

FASEB will host a webinar, "The Case for Canines in Biomedical Research," on April 25, 2-3 p.m. (ET). The VA's Chief Veterinary Medical Officer Michael Fallon, DVM, PhD, and Deputy Officer for IACUC Guidance Alice Huang, PhD, will address the importance of canine research models, and provide guidance on the federal requirements scientists must address before initiating such research. For more information and to register, click here.