

Laboratory Animal Disease in Thailand: Its Occurrence and Importance to Comparative Medicine

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OBJECTIVE: The objective of this study is to detect and investigate spontaneous diseases of laboratory animals. This knowledge will aid in defining and improving the health of laboratory animals maintained in Thailand, and in developing animal models for human diseases.

DESCRIPTION: In order to accomplish the objective, a program of continuous surveillance of the health status of the animal colony has been developed. Four areas are emphasized in this program: (1) the disease screening program conducted in the laboratory animal breeding colony, (2) the recurring clinical and laboratory examination of animals housed in the laboratory including those procedures performed during the quarantine of newly purchased animals, (3) the post mortem examination of each animal that dies in the colony, and (4) the development of standards for operation and quality control. When indicated by the findings, experimental studies are initiated to explore in detail the problems that occur.

PROGRESS: There was little evidence of spontaneous disease among laboratory rodents during this report period. The annual production of rats, mice, and guinea pigs has been maintained at levels comparable to previous years, as have indicators of production efficiency such as conception rate and yield per female. Production was lowest during the hot season as in previous years. The number of rodents necropsied and the distribution of gross pathological lesions according to organ system is shown in Table 1. The most frequently observed gross lesions were lobar pneumonia, regional enteritis, and cystic ovaries. Bacteria isolated from the lungs or feces of mice, hamsters, and guinea pigs as part of the disease screening program are shown in Table 2. The coliform group was most frequently isolated, followed in frequency by *Pseudomonas* sp.

A number of spontaneous deaths occurred among primates in the laboratory during the year. The cause and frequency of deaths in rhesus monkeys during the initial 45 day quarantine period after arrival in the colony are summarized in Table 3. Rhesus monkeys arrive directly from the wild in India, and over 85 per cent of them have intestinal parasites upon arrival. These animals are stressed by capture, transportation, and adjustment to a different environment, and are quite susceptible to enteritis which is often complicated by secondary bacterial infection. This bacterial enteritis accounts for most of the losses due to intestinal symptoms. Most of the losses due to pulmonary disease were attributed to primary measles virus infection with secondary bacterial complications. This was determined from clinical signs and confirmed by observation of pathologic lesions of interstitial and giant cell pneumonia. Virus isolation has not been attempted on these animals. There were no cases of tuberculosis diagnosed either by intrapalpebral inoculation with KOT or by post mortem examination.

Nine deaths occurred among gibbons during this report period (Table 4). Most of these deaths were due to gastrointestinal conditions caused by a combination of parasitic and bacterial infections, and by respiratory problems. Two cases of granulocytic leukemia developed in gibbons during the year and are reported elsewhere.

Table 1.
Summary of Rodent Breeding Colony Pathologic Findings for 1972

Species	Number Examined	Pulmonary Pathology	Gastrointestinal Pathology	Genito-Urinary Pathology
Guinea Pig	122	17	9	9
Mouse	235	10	3	0
Hamster	182	8	2	1

Table 2.
Bacterial Isolates Identified in Laboratory Rodents 1972

Bacterial Isolate	Species Examined		
	Mouse (234)	Hamster (177)	Guinea Pig (119)
Staphylococcus aureus	7 (3%)	6 (3.4%)	4 (3.4%)
Staphylococcus epidermidis	0	12 (6.8%)	0
Micrococcus sp.	2 (0.85%)	1 (0.56%)	2 (1.7%)
Escherichia coli	55 (23.5%)	13 (7.3%)	20 (16.8%)
Paracolobactrum coliforme	6 (2.6%)	6 (3.4%)	0
Paracolobactrum intermedium	2 (0.85%)	0	2 (1.7%)
Paracolobactrum aerogenoides	18 (7.7%)	6 (3.4%)	22 (18.5%)
Intermedium coliforme	0	2 (1.1%)	0
Non-hemolytic streptococci	0	2 (1.1%)	0
Alpha-hemolytic streptococci	0	3 (1.7%)	2 (1.7%)
Pseudomonas aeruginosa	0	0	6 (5%)
Pseudomonas sp.	19 (8.1%)	4 (2.2%)	2 (1.7%)
Diphtheroids	0	0	1 (0.84%)
Proteus mirabilis	18 (7.7%)	0	0
Proteus morganii	0	0	1 (0.84%)
Proteus sp.	8 (3.4%)	25 (14.1%)	0
Bacillus sp.	2 (0.85%)	4 (2.2%)	1 (0.84%)
Herellea sp.	2 (0.85%)	0	0
Mima polymorpha var. oxidans	1 (0.42%)	0	0
Mima sp.	0	0	3 (2.5%)
Citrobacter alkaligenes	1 (0.42%)	0	0
Citrobacter sp.	0	0	1 (0.84%)
Providencia sp.	3 (1.3%)	0	4 (3.4%)
Shigella boydii	0	0	1 (0.84%)
No Pathogens Isolated	102 (43.6%)	114 (64.4%)	61 (51.3%)

Table 3.
Rhesus Monkey Losses During The Initial
45 Day Quarantine Period

Month	Animals Received	Number of Deaths	Intestinal Disease	Pulmonary Disease
February	85	44 (51.8%)	18	26
April	85	6 (7.1%)	3	3
June	85	1 (1.2%)	1	0
August	85	3 (3.5%)	3	0
October	85	5 (5.9%)	3	2
December	85	12 (14.1%)	4	8
Total	510	71 (13.9%)	32	39

Table 4.
Summary of Gibbon Necropsy Findings

Principle Pathologic Finding	Number of Animals
Pneumonia	3
Gastroenteritis	3
Meningoencephalitis (Cysticercoid)	1
Granulocytic Leukemia	2