

VETERINARY CARE AT THE PRIMATE CENTER TNO

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INTRODUCTION

From a medical point of view apes and the lower monkeys are undoubtedly more closely related to man than to animals.

Their high degree of susceptibility to human diseases requires knowledge in the human medical field. The transmission of infectious diseases from attending personnel to non-human primates and vice versa, must at all times be anticipated, although in the modern concept of primate housing all precautions are taken to avoid direct contact. In some cases the disease can be most dangerous for the human host, while the monkey has only little discomfort from this disease (for example herpes B = herpes simiae). The opposite situation can also take place, herpes simplex infection in human beings give only mild symptoms (vesiculae on mucous membranes) but causes high mortality among marmosets. Therefore it is very important that people, working with apes and monkeys have an up to date knowledge of these agents and the symptoms they can give in humans and sub-human primates. In short, be aware of the possible dangerous effects for man and animals.

In contrast to their natural habitat animals in modern facilities have constant exposure to their own discharges which with the humid conditions of the indoor environment promotes the occurrence of parasitic problems and infectious diseases. On the other hand, the new outdoor housing of our rhesus monkeys could lead to the occurrence of infections which we seldom have seen in the past such as avian tuberculosis, tetanus, pseudo-tbc and strongyloides. Overcrowding is an important factor in this matter. Some of the infections listed in Tables 1 and 2 were discussed in detail.

HEALTH SURVEILLANCE PROGRAM AT THE PRIMATE CENTER TNO

- Continuous veterinary surveillance on the health status of the animals together with a regular inventory of the circulating agents by means of bacteriological and parasitological examination.
- Mantoux test every half year on all animals and attending personnel.
- Different species are to be housed separately because of differences in individual sensibility to infectious agents.
- Good and adequate quarantine facilities for sick animals from the colony have to be present.
- In garbage removal and cleaning procedures aerosol formation is to be avoided as much as possible. The disinfection procedures are to be carried out as strictly as possible.

- Autopsy material and other animal material must be burnt in plastic bags.
- Children under 15 years of age and pregnant women are not to be admitted to the monkey rooms.
- Infectious diseases among personnel and their relatives are to be reported.
- Preventive vaccinations of:
 - apes : Diphtheria, whooping cough, tetanus, poliomyelitis (4 times) (DKTP) in the 6th, 7th, 8th, 14th month of life
 - measles in the 18th month of life
 - pneumovax at an age of 3 years (pneumococci)
 - rhesus monkeys: measles at an age of 1 year
 - occasionally tetanus (toxoid).
- Special procedures:
 - TBC: special procedures are outlined in the TBC protocol applied in the Primate Center TNO
 - After a Shigella or Salmonella infection the animals are only to be returned to the colony after three consecutive bacteriological examinations, with an interval of 1 week.

TABLE 1. Major infectious diseases of apes and monkeys.

Systemic diseases	Skin and mucous membrane diseases
<u>Virus:</u> Marburgvirus hemorrhagic fever Ebola virus hemorrhagic fever Yellow fever (arbovirus) Rubeola (measles) Retrovirus: SAIDS (SIV)	<u>Virus:</u> Poxvirus: Monkey pox Yabavirus Molloscum contagiosum Herpesvirus Herpes B = simiae
<u>Bacteria:</u> Clostridium tetani Streptococcus pneumomiae septicaemia Pasteurella multocida Mycobacterium tuberculosis Humane Avian Bovine	<u>Bacteria:</u> Streptococcus Staphylococcus
<u>Parasites:</u> Toxoplasma Oesophagostoma Strongyloides	<u>Parasites:</u> Mycoses: Microsporium Trichophytum Candida (moniliasis) Mouth and intestinal tube Scabies : sarcoptes Lice

TABLE 2. Major infectious diseases of apes and monkeys.

Enteric diseases	Respiratory diseases
<u>Virus:</u> Rotavirus Coronavirus Reovirus Hepatitis A Hepatitis B Hepatitis nonAnonB	<u>Virus:</u> Respiratory syncytial virus (coryza) Parainfluenzavirus type 2 and 3 Rhinovirus Rubella (measles)
<u>Bacteria:</u> Shigella Salmonella E. coli Campylobacter Yersinia enterocolitica and pseudotuberculosis Proteus	<u>Bacteria:</u> Streptococcus pneumoniae Staphylococcus Klebsiella Bordetella Pseudomonas Haemophilus influenza Mycobacterium tuberculosis Corynebacterium
<u>Parasites:</u> Strongyloides Oesophagostomum Trichuris Oxyuris Ascaris Balantidium spp.: ileum + colon Giardia SPP: jejunum + ileum, both not primary pathogenic for monkeys Entamoeba spp.: E.coli, (E.histolytica) :ileum, caecum, colon: primary pathogenic Trichomonas Candida (moniliasis)	<u>Parasites:</u> Pneumonyssus simicola = lung mite Pneumocystiscarinii Strongyloides (larva migrans) Toxoplasma Ascaris (larva migrans)
Diseases of the nervous system	Reproduction diseases
<u>Virus:</u> Picornavirus (poliomyelitis)	<u>Virus:</u> Rubella (measles)
<u>Bacteria:</u> Streptococcus pneumoniae E. coli Klebsiella Pasteurella Clostridium tetani	<u>Bacteria:</u> Mycoplasma Leptospira Trichomonas fetus Actinomyces Staphylococcus Corynebacterium Yersinia pseudotbrc

CONCLUSIONS

The non-human primate has been shown to be responsible for a number of health hazards, both to humans and non-humans. It is claimed with justice that man himself apart, simian primates are the most dangerous animals with which he can associate. It is apparent that non-human primates will continue to play a role in various research efforts attempting to understand human biologic mechanisms and function. Their need and continued use in research is without question. A number of recommendations are made in the pamphlet "Health surveillance program and quarantine procedures at the Primate Center TNO" to minimize the health hazards from the use of these animals in research. This pamphlet, as handed out during the workshop held at the Primate Center TNO, is available on request. If interested, please direct your request to Dr. P.M.C.A. van Eerd at the Primate Center TNO.