211-2000

CONFIDENTIAL

IACUC Investigation of Circumstances Surrounding Death of Monkey #3566

Background

On May 15, 2002, the IACUC reviewed the general circumstances surrounding the death of rhesus monkey #3566. This animal was assigned to Dr. Mark Baron, IACUC protocol #211-2000, for use in a MPTP-induced Parkinson's disease study. This initial review related to a report provided by Dr. Jennifer Pullium, Clinical Laboratory Animal Veterinarian, Division of Animal Resources (copy attached). This initial review identified potential problems that may have contributed to the death of the monkey. Dr. Kapp, IACUC chair, subsequently appointed a subcommittee to further investigate this incident. This subcommittee, composed of David Knight, Harold McClure and Jennifer Pullium, subsequently reviewed available clinical and research records and talked with the Principal Investigator (Dr. Barrow), his research fellow (Dr. Weidong Xu) and Kimberly Benjamin, veterinary technician on call during the weekend prior to the monkey's death on April 16, 2002. The following is a report of our findings and recommendations.

General Information

Animal #3566 was a female rhesus monkey, approximately nine years of age, that had been housed at Emory for about five years. The animal was currently assigned to Dr. Mark Baron for use in a MPTP-induced Parkinson's disease study (Protocol #211-2000). Available records indicate that the animal received a series of weekly injections of MPTP from 7/17/2001 through 8/21/2001 (5 injections, 0.4 ml each, and 1 injection of 0.5 ml, all given subcutaneously). The animal reportedly weighed 5 kg during this time period. The density (concentration ?) of the MPTP solution was reportedly 5 mg/ml. No written information is available as to the effects of these treatments on the animal.

The animal subsequently received another series of MPTP treatments between October 29, 2001 and April 9,2002. A total of 21 treatments were given during this time period, with the interval between treatments ranging from as few as 6 days to as many as 14 days. Treatments were given subcutaneously and were initially recorded as 0.4 mg/kg (no volume recorded), and were later (from 1/8/02) recorded as 0.5 ml to as much as 1.0 ml per injection. The concentration of the MPTP was reportedly 5 mg/ml. The animal reportedly weighed 5 kg during this time period. However, there appears to be no records of the body weight recorded by the investigators, even during periods of MPTP treatment. The only body weight records available are the records maintained by the clinical veterinary staff in which body weights were recorded at the time of quarterly tuberculin tests. According to these records, the animal's maximum body weight was 5.85 kg on 1/8/99. The animal weighed between 4.35 kg and 5.25 kg during the most recent periods of MPTP treatment. The animal was showing weight loss during this period of time and weighed 3.7 kg at the time of death (2.15 kg or 36.7% weight loss from its maximum recorded body weight).

During the most recent period of MPTP treatment, the animal was treated on 3/5/02 (0.8 ml), 3/12/02 (1.0 ml), 3/19/02 (0.8 ml), 3/26/02 (0.8 ml?) and 4/9/02 (0.8 ml). All of these treatments were given on a Tuesday, and the clinical veterinary staff noted clinical problems with the animal on the weekend days of March 16, March 31 and April 14. Following a phone call from Dr. Pullium to Dr. Baron on March 16, Dr. Baron did come in and treat the monkey with L-Dopa on March 16. The monkey improved following the L-Dopa treatment. The animal was subsequently treated with MPTP on 3/19 and 3/26. Clinical problems were again noted by the veterinary staff on 3/31. Dr. Baron was unavailable by phone or pager and Dr. Pullium elected to treat the animal with oral L-Dopa that had been left in the room from the previous incident. Dr. Pullium subsequently talked with Dr. Baron regarding the animal's apparent need for L-Dopa treatment and the need for someone from the lab to be available by phone or pager on the weekends. Dr. Baron indicated that he would be out of town from April 8, 2002 through April 15, 2002, but that his fellow, Weidong Xu, would come in to observe the animal daily, including weekends.

On April 14, 2002, vet tech Kimberly Benjamin noted that monkey #3566 was very lethargic (the animal had been treatment with MPTP on April 9). Dr. Baron was not available by phone or pager and Weidong was not available in the laboratory. Dr. Pullium was consulted by phone and instructed Ms. Benjamin to leave a message for Weidong to check and see if the monkey needed L-Dopa and to give it if necessary.

There was no further follow-up until the morning of April 15, 2002 when the monkey was found near death (no evident heart beat or respiration and hypothermia). The clinical staff did manage to revive the animal to some extent, although it was found dead in its cage on the morning of April 16, 2002. Weidong had not come in to check and/or treat the animal on April 14, 2002. When informed of this and the animal's death, Dr. Baron indicated that Weidong would probably not have treated the animal as he had instructed him to only treat the animal if it was recumbent. Dr. Baron had previously told Dr. Pullium that he needed to have the animal in a severe state of Parkinsonism and that treatment with L-Dopa caused the animal to recover from MPTP treatment and led to the need for further treatment.

IACUC Protocol #211-2000

In brief, the research procedures in the IACUC protocol to which this animal was assigned (#211-2000) included neuronal recordings, systemic MPTP treatment until stable parkinsonism develops (2 to 4 doses and 1 to 3 rounds of treatments), and further neuronal recordings before and after drug-induced (L-Dopa) dyskinesias. The MPTP was to be administered I.M. or I.V. at a dose of 0.4-0.7 mg/kg. The protocol indicated that L-Dopa would be given orally 2 to 3 times per day (time period not specified) to relieve parkinsonism, as well as to sensitize the animal to the dyskinesia effects of the medication. The protocol stated that the animal would be monitored at least twice daily and more often when indicated by the animal's condition. Monitoring was to be the responsibility of the P.I. with monitoring to also be done by the fellow, under the

supervision of the P.I. Monitoring was to include observations for signs of irritability, reduced activity, or weight loss. In a response to questions raised by the IACUC at the time of protocol review, Dr. Baron indicated that he would modify the protocol to target for mild to moderate, rather than severe parkinsonism. He indicated that such a milder state responds well to L-Dopa administration and would avoid any significant stress. The animal was to be treated with MPTP no more than one time per week, at the dose of 0.4-0.7 mg/kg. Full stabilization of the effects was to be established before considering additional treatments. Additional MPTP treatments would only be considered after retesting the animal with L-Dopa for the induction of dyskinesias. When questioned about this statement, Dr. Baron said, "I am not sure why I said that...it doesn't make sense."

Interview with Kimberly Benjamin

The subcommittee met with Kimberly Benjamin on Friday, May 24, 2002. Ms. Benjamin was the vet tech on call on the weekend of April 13-14. Although there was no written record of the events on the weekend of April 13 and 14, Ms. Benjamin provided the following information:

Animal #3566 had been treated with MPTP on Tuesday, April 9 and had been put back into her cage in the regular animal room on Friday, April 12. The animal had apparently not eaten at all on Wednesday (4/10) through Friday (4/12). The husbandry staff did not tell the vet staff that the animal had not eaten during this period until the morning of 4/15. The animal did eat a sweet potato on Saturday, 4/13, but appeared lethargic and was not eating on Sunday, 4/14. After consulting with Dr. Pullium, she called Weidong's lab number (only number available) about 11:00 a.m. and left a message that he should check the animal and treat it if necessary. There was no follow-up to confirm that the animal had been checked and/or treated. The veterinary staff does not routinely return to check animals in the afternoon when the research laboratory staff will be observing the animal.

Interview with Dr. Weidong Xu

The subcommittee met with Weidong Xu on Friday, May 24, 2002. Dr. Xu, Dr. Baron's fellow/lab. tech, shared the responsibility for monitoring the animal with Dr. Baron and was specifically responsible for daily monitoring the animal during Dr. Baron's absence from 4/8/02-4/15/02. Dr. Xu has been at Emory since March 2000 and is responsible for neurological recordings of the MPTP animals in addition to MPTP treatments, L-Dopa treatments and daily monitoring. His understanding of the study was to produce Parkinson's disease with MPTP and treat with L-Dopa to produce dyskinesias. He indicated that the animal had been treated some with L-Dopa, but the dyskinesia didn't develop. When asked at what point did he treat with L-Dopa, he stated, "when required by the vets." He later stated that the animal would be treated if it was not eating (for 2-3 days). However, Dr. Xu apparently had little, if any, information on how much the animal was eating (it had apparently eaten essentially nothing for 5-6 days prior to death), and he apparently never weighed the animal. The multiple doses of MPTP were apparently not based on a current body weight, but were given, based on the supposed

body weight of 5.0 kg (the animal weighed 3.7 kg at the time of death). There was no record of any L-Dopa treatment except that in March 2002 (as requested by the clinical veterinary staff) and four treatments given in September 2001. Dr. Xu stated that he was aware that Dr. Baron was out of town and that monitoring the monkey was his responsibility. He stated that he did check the monkey on Saturday, 4/13, but did not come in to check the animal on Sunday, 4/14. He said he didn't think he needed to check it on Sunday.

Interview with Dr. Mark Baron

The subcommittee met with Dr. Mark Baron on Tuesday, May 28, 2002. Dr. Baron is the principal investigator for protocol #211-2000. The following information and/or comments were provided by Dr. Baron:

He did not know why Weidong didn't check the animal on Sunday, 4/14 --- maybe he didn't understand and thought that I (Dr. Baron) was going to check the animals on Sunday. He wouldn't have treated it unless the monkey was down and not eating.

Dr. Baron stated that the L-Dopa treatments were recorded on the chart in the animal room. As previously noted, these records were not available except for four treatments in September 2001.

Dr. Baron stated that he didn't want severe Parkinson's disease in the animal, but wanted mild to moderate parkinsonism. He had previously told Dr. Pullium in March 2002 that he didn't want to treat with L-Dopa because he needed to have the monkey in a severe Parkinsonian state.

Dr. Baron said that he thought the monkey looked OK. When it was pointed out that the monkey had lost 32% of its body weight since June, 2001, he said he was not aware of the weight loss but acknowledged that maybe the monkey looked a little skinny.

Dr. Baron said the monkey was re-treated with MPTP on multiple occasions because it seemed to have recovered each time. Body weights were not recorded as they didn't think it was necessary. He said he was not sure why they were giving the MPTP subcutaneously when the IACUC approval stated that it would be given I.V. or I.M.

When asked what he would do to prevent a recurrence of this incident, Dr. Baron stated that they needed to keep better records. He also stated that MPTP has a point of no return and believes that's what happened in this case. He stated that the L-Dopa treatment probably wouldn't have helped.

Conclusions

There are a number of significant deficiencies in the manner in which this study was conducted. These can be summarized as follows:

1) There was a failure by the Principal Investigator and his assistant to monitor and treat the animal as needed and as specified in the protocol. This was particularly evident during the weekends of March and April 2002. Failure to check and treat the animal with L-Dopa on April 14 was likely a major contributing factor to the animal's death.

2) There was a failure to follow the protocol as specified in the IACUC application. Some of the deviations from the approved protocol include:

   a. The animal was apparently not treated with L-Dopa to relieve the Parkinsonism and produce dyskinesias, as was the stated objective of the study.

   b. The investigator was apparently attempting to induce severe Parkinson's disease rather than mild to moderate Parkinson's disease as stated in the protocol.

   c. There is no record that this animal was monitored at least twice daily as specified in the IACUC protocol and no monitoring for weight loss as specified in the protocol (the investigators apparently never recorded the animal's body weight). The animal had lost over 30% of its body weight and the investigators indicated that they were not aware of any weight loss problem.

   d. MPTP was administered subcutaneously rather than I.M. or I.V. as specified in the protocol.

3) Records that were maintained with respect to the research with this animal were grossly inadequate. There were no records related to the daily monitoring of the animal; body weights were not obtained or recorded for the animal; there were only minimal records concerning the L-Dopa treatments, an integral part of this study; and the minimal records available were essentially illegible.

4) Failure to frequently obtain the animal's body weight and to determine MPTP dose based on a current body weight appear to have resulted in a significantly higher dose of MPTP than was planned. Based on the animal's body weight at death (3.7 kg) and the dose of MPTP to be given, as stipulated in the IACUC application (0.4-0.7 mg/ml), the animal should have been receiving 1.5 to 2.5 mg of MPTP at each administration. The treatments given in the latter part of February through early April of 2002 amounted to 4 to 5 mg at each treatment. The relationship between this MPTP overdose and death of this animal is unknown, but this may have been a contributing factor to this animal's death.

Recommendations

The following recommendations are provided for consideration by the IACUC. These recommendations are made with the knowledge that Drs. Baron and Xu are leaving Emory for positions at another university. The recommendations are:

1) Drs. Baron and Xu should receive letters of reprimand from the IACUC. These letters should outline the deficiencies and problems with respect to the conduct of this study. They should also be informed that they cannot conduct additional MPTP related studies at Emory until they provide a letter of explanation to the IACUC that also outlines, in detail, steps that would be taken to prevent a recurrence of such an incident.

2) The letters to Drs. Baron and Xu should be copied to the Department Chair to make him aware of the problems with this MPTP study. Since other investigators in the Department conduct MPTP studies, the Department Chair should be encouraged to evaluate the overall situation to insure that appropriate records are being maintained and that protocols are being followed.

3) The Division of Animal Resources should modify or change their operating procedures to provide the follow-up needed to insure that animals receive necessary treatments, as recommended by the clinical staff, when treatments are to be given by the investigators.

4) The IACUC, at the time of the semi-annual review of animal facilities and programs, should review the medical and post-op records maintained by investigators for animals used in their studies. The Committee might want to consider doing a spot check of some of these laboratories prior to the October semi-annual review.

USDA

United States Department of Agriculture
Animal and Plant Health Inspection Service

FILE

INSPECTION REPORT

SEP 16 2002

ABARTHOLOMEW
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209057 insp_id
7800 site_id

EMORY UNIVERSITY

Customer ID: 896
Certificate: 57-R-0003

1440 CLIFTON RD, NE
ATLANTA, GA 30322

Site: 001
EMORY UNIV. - DIV. OF ANIMAL

Inspection Type: ROUTINE INSPECTION
Date: AUG-23-2002

2.33 (a][2)
2.33 (b][3)
ATTENDING VETERINARIAN AND ADEQUATE VETERINARY CARE.

Inspection conducted August 20-23, 2002.

(a) Each research facility shall have an attending veterinarian who shall provide adequate veterinary care to its animals in compliance with this section:
(2) Each research facility shall assure that the attending veterinarian has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use

***At the time of inspection, records of daily animal observations to assess well-being of animals on active protocols were not accessible for review. Currently, once an animal begins on a protocol, monitoring of animal health and performance of necessary treatment defined in that protocol is reportedly the responsibility of principal investigators. Division of Animal Resources provides daily observation, but does not keep records of daily individual animal health observation unless the animal is determined to be a clinical case. Principal investigators maintain monitoring and treatment records in their individual laboratories and offices, rather than in animal areas. Hence, records of monitoring and treatment are not readily accessible to the attending veterinarian. Under this arrangement, the attending veterinarian cannot ensure that appropriate care and monitoring, as outlined in the respective protocol, are being provided. Corrective measures must be implemented that allow the attending veterinarian to adequately oversee all aspects of animal use.
Correct by: Initiation of correction plan to be addressed at next scheduled IACUC meeting

(b) Each research facility shall establish and maintain programs of adequate veterinary care that include:
(3) Daily observation of all animals to assess their health and well-being; Provided, however, That daily observation of animals may be accomplished by someone other than the attending veterinarian; and Provided, further, That a mechanism of direct and frequent communication is required so that timely and accurate information on problems of animal health, behavior, and well-being is conveyed to the attending veterinarian;

***As described above under 2.33 (a)(2), records of monitoring and treatment are not readily accessible to the attending veterinarian and animal health staff. Additionally, recent incidents involving protocols 154-2001 and 211-2000 demonstrate lack of timely communications between investigators and the attending veterinarian.
The incident involving protocol 154-2001, describes an anorexic, barely mobile, syringe-fed monkey that had been living in a sleep study cubicle for "several days" following multiple, systemic MPTP injections. The condition of the animal was reported to veterinary staff by a veterinary technician. The veterinary staff then consulted the principal investigator, who was reluctant to treat the animal out of concerns that treatment may interfere with study results. The veterinary staff was unaware of the

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USDA

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Animal and Plant Health Inspection Servi

INSPECTION REPORT

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condition of this animal. Additionally, the protocol this animal was assigned to did not mention MPTP administration and stated that the animal would not be removed from the animal room for no more than 5 hours at a time. This incident was reported to the IACUC at the 19 Dec 01 meeting. Appropriate measures were instituted to correct this specific situation, however, changes to to prevent future incidents are not adequate.

The incident involving protocol 211-2000 involves the accidental death of a female Rhesus monkey #3566 on 16 Apr 02. This animal had received multiple series of MPTP treatments over a 6 month period. The clinical veterinary staff noted clinical problems on weekend days of March 16, and March 31 and contacted the principal investigator regarding treatment. The animal is reported to have been responsive to these treatments. Animal health concerns were again noted on 14 April by a veterinary technician. Attempts to contact the principal investigator and his research fellow by telephone and pager were unsuccessful. The investigators did not perform daily observation of this animal on 14 April despite the fact that the animal had been anorexic since 10 April. The husbandry staff did not report the animal's anorexic conditon to veterinary staff until 15 April, when the animal was found with no evident heartbeat or respiration, and hypothermia. The veterinary staff was able to revive the animal on 15 April, but the animal was discovered dead in its cage the following morning. Review of weight records obtained by veterinary staff at time of TB testing indicate this animal had lost 32% of body weight since June 2001. This figure is not in compliance with IACUC defined end-points.
An IACUC subcommittee investigated the situation involving protocol 211-2000 and noted the following deficiencies: failure by principal investigator and assistant to monitor and treat animal as needed and specified in protocol, failure to follow IACUC application, lack of records involving daily monitoring, and failure to frequently obtain animal's body weight to determine proper drug dosage. Recommendation #3 in IACUC investigation states "Division of Animal Resources should change or modify operating procedures to provide the follow-up needed to ensure that animals receive necessary treatments, as recommended by the clinical staff, when treatments are to be given by the investigators." Changes in operating procedures to ensure proper daily monitoring were not adequate.
Recent incidents described herein demonstrate lack timely communications between investigators/husbandry staff and the attending veterinarian, one of which resulted in an animal death. Measures must be taken to ensure daily animal health observations and timely reporting of abnormal animal conditions to veterinary staff.
Correct by: Initiation of correction plan to be addressed at next scheduled IACUC meeting

Reviewed:
1.) IACUC roster
2.) Monthly IACUC minutes: Sep 01-Jul 02
3.) Protocols: 105-2002, 250-2001, 088-2001, 195-99, 189-2001, 114-2001, 232-2000, 057-2002, 041-2001, 159-2002, 046-2001, 176-2000, 193-2000Y, 054-2000Y, 221-2001Y, 225-2000Y, 178-2002, 186-2002, 201-2002.
4.) IACUC criteria for euthanasia (updated 13 Aug 02, currently in progress)
5.) Attended 21 Aug 02 IACUC meeting

Discussed:
1.) Direction of enrichment program with new enrichment coordinator.
2.) Identification of dogs at Peavine Kennel on protocol 176-2000.
3.) Acquisition/Disposition records for dogs/cats
4.) Recording of cleaning schedules at Emory
5.) Literature searches for alternatives

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Date: AUG-23-2002

154-2001

Incidence of non-compliance:
Summary by Jennifer K. Pullium, MVB SEP 16 2002

Investigators: Amanda Freeman and David Rye

4DEC01:
In the DAR veterinary clinical meeting, it was noted by Kimberly Benjamin (veterinary technician) that Freeman monkey #3933 (IACUC protocol #154-2001) was anorexic, following multiple systemic MPTP injections. It was also noted by Ms. Benjamin that the monkey had been living in the sleep cubicle in WMRB M022 for "several days." The question was raised as to whether such an extended period in the sleep cubicle was in the IACUC protocol (#154-2001).

Examination of the protocol revealed that there was no mention of MPTP administration and that the monkey would only be out of the animal room for no more than 5 hours at a time. Further investigation revealed that Dr. Rye (Amanda Freeman's advisor) previously had an IACUC protocol (#185-98) for MPTP administration and extended periods of time in the sleep cubicle, but that protocol expired August 2001 without renewal. In addition, the grant submitted with Amanda Freeman's protocol (an NRSA) did not mention MPTP administration.

I went to Dr. Rye's office and explained to him that he was out of compliance and needed to:
1. Not give any more MPTP injections to any monkeys on #154-2001.
2. Ensure that #3933 is not kept out of the colony room for >5 hours.
3. Either renew his IACUC protocol or submit a new one which included systemic MPTP injections and extended time periods in the sleep cubicle.
4. Consider giving a dopamine agonist to the monkey, as it was immobile and not able to feed itself, having lost 17% of its body weight. I explained that although Dr. Rye's lab had begun syringe-feeding the monkey, the IACUC default endpoints state that such feeding can continue for only 7 days.

I then informed Dr. Judith Kapp, IACUC chair, of this incidence of non-compliance.

5DEC01:
DAR continued to monitor #3933, which was still anorexic, barely mobile, and being syringe-fed by the Rye lab personnel. Dr. Rye stated to me that he did not want to give dopamine agonists because they would interfere with his study. I contacted Dr. Kapp, and per her advice, informed Dr. Rye that particularly since he was out of compliance that he should be more diligent about the welfare of the monkey rather than his study.

6DEC01:
Dr. Rye administered SKF 82958. #3933 responded very well and began eating sufficient amounts of food to maintain itself.

7DEC01:
Dr. Rye informed Dr. Kapp and me that the monkeys were to be transferred to Dr. Jerrold Vitek's protocol (#219-2001), which includes systemic MPTP injections. The sleep study would still be conducted under the Freeman protocol #154-2001.

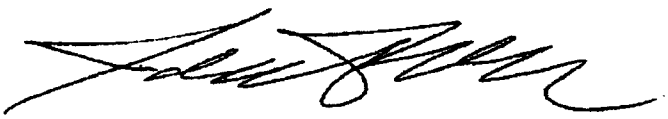
Dr. Baron said that he would be out of town from 08APR02-15APR02, but that his lab tech, Wei Dong, would come in to observe the animal daily, including weekends.

14APR02
It was noted by Kimberly Benjamin (veterinary technician on-call) that monkey #3566 was very lethargic. The monkey had been treated with systemic MPTP earlier in the week. Dr. Baron was unavailable either at home or by pager. In addition, Wei Dong was unavailable in the lab. Dr. Pullium was consulted by phone. Ms. Benjamin stated that the animal was drinking, but not eating. Dr. Pullium instructed Ms. Benjamin to leave a message for Wei Dong to check and see if the monkey required L-Dopa and to administer it if necessary.

15APR02
It was noted by the facility supervisor at WMRB, Nancy Miller, that #3566 was recumbent and stiff. Upon examination by the veterinary staff, including Dr. Pullium, the animal had no audible heart rate or respiration. After administering CPR, the veterinary was able to revive the animal, although it was severely hypothermic (temp <90 degrees F). A warm environment and medical care continued throughout the day, including intravenous and oral L-Dopa per consultations with Dr. Thomas Wichmann. By the end of the day, the animal was brighter and drinking fluids, although still hypothermic. Wei Dong was informed, and admitted that he did not check the animal on 14APR02, nor did he come into work or check his messages.

16APR02
Monkey #3566 was found dead. Dr. Pullium informed Dr. Baron about the monkey death and the fact Wei Dong did not come into work on 14APR02. Dr. Baron stated that it was doubtful that Wei Dong would have treated the animal, as Dr. Baron instructed him to only treat the animal if it was recumbent. Dr. Baron concluded by stated that he will not perform any further systemic MPTP studies.

I then informed Dr. Michael Huerkamp, Director Division of Animal Resources, who in turn informed Dr. Judith Kapp, IACUC chair, of this incidence.



Jennifer K. Pullium, MVB
Clinical Laboratory Animal Veterinarian

EMORY UNIVERSITY SCHOOL OF MEDICINE

Division of Animal Resources

SEP 16 2002

17APR02

Mortality of monkey #3566:
Summary by Jennifer K. Pullium, MVB

Investigator: Mark Baron, MD
Protocol #: 211-2000

Background:
Monkey #3566 is a bilateral Parkinsonian monkey that has been housed in WMRB.

16MAR02
It was noted by Dr. Jennifer Pullium (veterinarian on-call) that monkey #3566 was very lethargic. The monkey had been treated with systemic MPTP earlier in the week. After phone consultation with Dr. Baron, Dr. Baron came and administered oral L-Dopa to the monkey. The monkey was improved and eating and treated the following day with oral L-Dopa by Dr. Pullium per Dr. Baron's instructions.

Examination of the protocol revealed that the animal is currently listed under stress class B (class D, under new classification system).

I discussed the situation with Dr. Baron regarding the monkey's need for dopamine agonists. He explained that he needs to have the monkey in a severe Parkinsonian state in order for the animal to develop chorea, and that treatment with L-Dopa causes the animal to "recover" from MPTP and only leads to the need for further redosing.

31MAR02
It was noted by the animal care tech in WMRB and Dr. Jennifer Pullium (veterinarian on-call) that monkey #3566 was very lethargic. The monkey had been treated with systemic MPTP earlier in the week. Dr. Baron was unavailable either at home or by pager. Dr. Pullium elected to treat the monkey with oral L-Dopa that was left in the room from the previous incident.

I spoke to Dr. Baron again regarding the animal's apparent need for dopamine agonists and the need for someone from the lab to be available by phone/pager on the weekends.

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