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Original Research Article

Temperature Management in Infant Orangutan (*Pongo pygmaeus*) at Orang Utan Island, Bukit Merah, Perak, Malaysia

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Abstract

The role of the Infant Care Unit (ICU) is to provide the veterinary care for infant orangutans, to create public awareness and to provide the public with an opportunity to view how the veterinary care is provided for the infant orangutan. Temperature management is difficult to manage in infant orangutan due to their sensitive heat regularly centered in the hypothalamus various. The normal temperature of infant orangutan ranges between 36°C to 36.5°C. Antipyretic drugs can be used to control temperature in infant orangutan. The temperature in infant orangutan should be controlled to prevent seizures and other complications.

Keywords: Antipyretic drugs, fever, orangutan, veterinary care

INTRODUCTION

Bukit Merah Orang Utan Island (BMOUI) was opened to public on February 2000. It covers an area of approximately 35 acres of natural rainforest. Out of 35 acres, 15 acres are developed for their exhibit area with enrichment material (Dharmalingam et al., 2012). The Infant Care Unit (ICU) in BMOUI was established in March 2004 to provide veterinary care of infant orangutan. On 14 February 2008, Bukit Merah Orang Utan Island Foundation was incorporated to develop ex-situ conservation of orangutan focusing on research and education.

Fever is one of the common cases in infant orangutan. Fever is defined as an abnormal elevation of body temperature and one of the most common manifestations of disease (Sastf, 1983).

There is no definition of fever which is accepted universally. In general, fever is considered to be present in the rectal temperature is above 38.3°C, oral temperature is above 37.8°C, or auxiliary temperature is above 37°C. Fever can occur as a syndrome in orangutan infants when metabolic and functional disturbances occur. Fever can occur as a syndrome in infants when metabolic and functional disturbances occur (Robinson and Roberton, 1998).

Recently new facts have come to light regarding the production of fever. It is now clear that the various factors enumerated under the causes of fever do not themselves produce the fever directly, but they induce the fever indirectly by releasing a pyrogen from the tissues of the host. This so called 'endogenous pyrogen' can be detected in the circulation, and this, in turn, is directly responsible for producing the fever by acting on the heat-regulating centre in the hypothalamus (Sasty, 1983). In infant orangutan fever was observed during teething. The common clinical parameter changes that take place during a febrile episode are rise in pulse rate, low blood pressure and high respiration rate.

The normal temperature of infant orangutan ranges between 36 to 36.5°C. The common symptoms observed during episode of fever are anorexia, sleeping most of the time (figure 1), the infant activity are low and vomiting leading to dehydration. The infant will isolate itself from the rest of the infant.

Figure 1. Infant sleeping during fever

Figure 2. Taking body temperature with a digital thermometer.

Function of fever

Fever has its own beneficial effects:
1) Increased in phagocytosis, moderate rise in temperature increases the activity of the neutrophils.
2) Increased production of neutrophils.
3) Distribution of the leucocytes is accelerated due to increased in velocity of blood.
4) Formation of antibodies more quickly and in larger quantities.
5) Bacteria cannot thrive at high temperature and to a certain extent fever is bacteriostatic.
6) Antigen-antibody reaction occurs more rapidly.

Objective

The objective of the study is to control body temperature in infant orangutan

METHODS

Measurement of body temperature in infant orangutan

The body temperature can be measure by mercury thermometer, digital thermometer and using oxypulsemeter. Digital thermometer is commonly used in the infant care unit. The Thermometer is places underneath the infant arm-pit (figure 2). In adult and juvenile infra-red laser are used due to the aggressive nature of the orangutan (figure 3). Every object emits infrared energy in accordance with its temperature.

By measuring the amount of this radiant energy, it is possible to determine the temperature of the emitting object. Infrared radiation is a form of light (electromagnetic radiation), and has the property that is passes easily through air while it is easily absor-bed by solid matter. With an emission thermometer which

Figure 3. Taking body temperature with an infrared laser.

Figure 4. Checking the blood pressure of the infant using the oxypulsemeter

operates by detecting infrared radiation accurate measurement is possible, irrespective of the air temperature or the measurement distance. The laser beam is pointed at the mid of forehead whose temperature to be measured, a distance of 1 to 2 feet should be maintained to avoid the orangutan from grapping of the thermometer. The reading will appear on the screen of the infrared thermometer which will be temperature of the orangutans

The common clinical parameter changes that take place during a febrile episode are rise in pulse rate, low blood pressure and high respiration rate (figure 4 and figure 5).

Figure 5. Checking the respiration, pulse, SPO_2 and temperature of the infant using the oxypulsemeter.

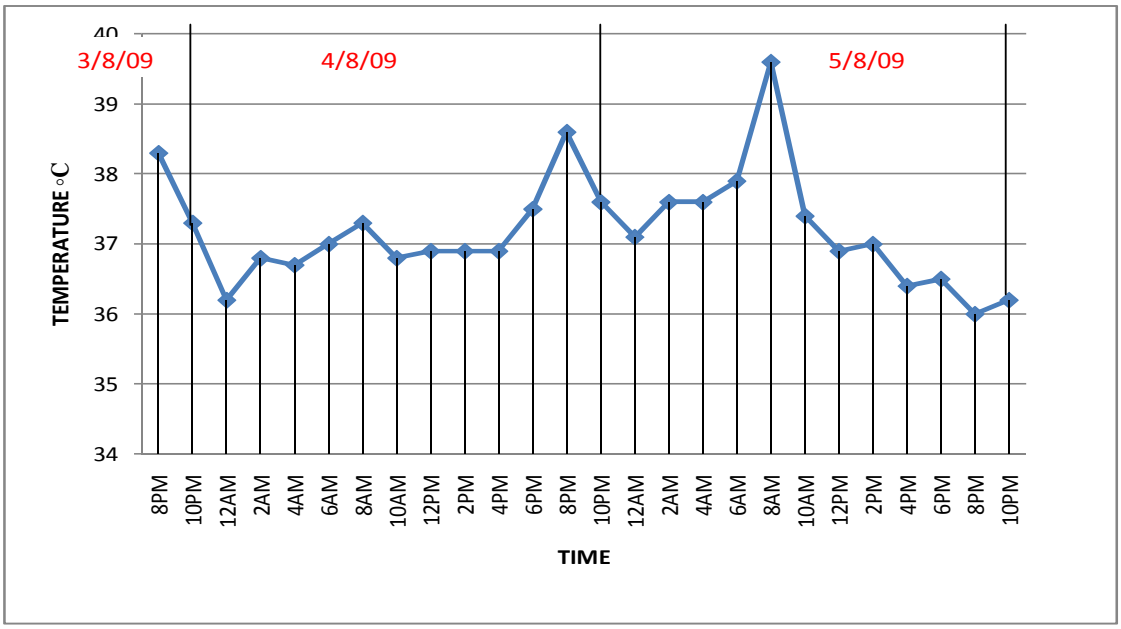

Figure 6. The graph showing body temperature in infant orangutan during fever.

RESULT

The temperature of infant orangutan during fever (figure 5) was presented below:

DISCUSSION

Administration of antipyretic drugs in infant orangutan

We have observed that optimal control of body temperature is essential for the recovery of the infant. In some infants the body temperature can rise up to 39.5°c to 40°c and they do not respond to first line antipyretic alone. A combination of antipyretics drugs seems to produce better result .Tepid sponging were also applied to control the body temperature. Sponging in tepid water (slightly below body temperature) can be useful. Cold water should not be used as it causes peripheral vasoconstriction and rise body temperature (Robinson and Roberton, 1998).

The commonly used antipyretic drug in infant orangutan are Voren® suppositories 12.5 mg, each

Table 1. Antipyretic Drug commonly used in infant orangutan

Trade name	Genetic name	Administration	Dosage
Brufen Suspension	Ibuprofen	OP	2.5ml/infant 12.5mg/kg bwt every four hourly
Voren® Suppositories	Diclofenac sodium	Intrarectally	12.5mg/infant
Arfen Suppositories	Paracetamol BP	Intrarectally	25mg/kg bwt every four hourly

Figure 7. Application of Arfen 125mg suppositories.

suppositories contains Diclofenac sodium 12.5 mg. Diclofenac is a potent non-steroidal anti-inflammatory (NSAID) with analgesic and anti pyretic properties. Diclofenac causes gastric erosions and prolongs the bleeding time. Brufen® 100 mg/5ml suspension. Ibuprofen, the suspension is indicated for short term use for the treatment of pyrexia in human infant. Arfen 125mg suppositories, contains Paracetamol BP125mg Paracetamol BP125mg (figure 6) can also be used during fever. It must be noted that oral medication of orangutan infant are difficult, drugs or preparation that are bitter are normally not consumed by the infant. Then suppositories become the choice drugs because they are more easily administrated. In some cases antipyretic drug may cause bloating of abdomen in the infants but they seem to respond well to semithicone or colimix when such side effects occur. (Table 1)

CONCLUSION

The normal body temperature of orangutan infant is between 36.2°C to 36.5°C. Any raised in body temperature above 36.7°C to 38.5°C warrant further investigations. Blood specimen should be collected and analyzed for full blood picture and cultures. A thorough physical clinical examination must be performed. If the body temperature rises to hyperpyrexial state (more than 40°c) it may lead to occurrence of seizures. Extreme elevation of body temperature (>41.5°C) may be harmful metabolically or neurologically, and in some children fever will precipitate febrile convulsions (Robinson and Roberton, 1998).

The vital signs such as pulse rate ranged between 157-172/min; SPO2 (oxygen saturation) was between 77% - 86%. The infant was showing symptoms of respiratory tract infection. The infant was treated with Ibuprofen at a dose of 2.5ml every 4 hours. A combination antipyretics of Ibuprufen and Diclofenac resinate seems to produce better results. Intramuscular injection of acetaminophen (paracetamol) was rarely used in infant orangutan due to their ineffectiveness.

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