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Every cat from birth to ten days of age is considered a newborn, but until the twentieth day it is in transition between neonatal and juvenile phase (Prats 2005). At birth, the kitten pass through a relatively free of microorganisms environment in the maternal uterus to another full of physical, chemical and biological pathogens (Schaffer & Avery 1979). At this stage the young cat is susceptible to several infectious disorders due to the break of the barrier represented by the uterine environment during pregnancy associated with the immaturity of physiological pathways (Jones 1987), frequently causing kitten losses, which should not be considered normal despite its physiological vulnerability. The clinical evaluation of newborn kitten, due in the first moments of its life, provides information about supporting a correct therapeutic approach (Crissiuma et al. 2005). A prudent and regular veterinary intervention before, during and after birth can result in increased rates of neonatal survival (Davidson 2008). The purpose of this work was to evaluate clinical and neurological vital parameters and frequency of the disturbances and mortality of newborn cats.

**Materials and Methods**

Eighty randomly chosen newborn cats were evaluated during the year 2008, independent of breed or sex and with the free consent of the owners of the animals. The neurological and clinical parameters of cats were observed in four distinct moments: on day 1, which corresponded to the first 24 hours of the newborn, and on days 7, 10 and 15 post-birth. After anamnesis and semiotics approaches of the queen, semiological evaluation of the kitten was carried, where parameters such as temperature, weight, and heart and breath rate were evaluated. Specific neurological evaluation was performed, which was observed the consciousness condition, posture, reflexes of sucking, of pain and anogenital, control of defecation and urination, vestibular righting reflex, reflex of the neck extension, Magno or Magnus reflex and scratch reflex.

**Results**

All of the analyzed queens were late in vaccination and parasite prevention and control scheme, did not present a satisfactory clinical status and were not care in prenatal period. Of the 80 neonates evaluated, 53.75% were considered healthy with a heart rate average of 215 beats per minute (bpm) on days 1 and 7, and 150bpm on days 10 and 15. Breath rate average was 35, 29, 30 and 25 breaths per minute on days 1, 7, 10 and 15 respectively. The body temperature of all newborns examined had an average of 36, 36.5, 37 and 37.8°C on days 1, 7, 10 and 15 respectively. The kittens weight average at the end of the first week of life was 90 grams (g) and in the end of the second was 180 g. The eyes opened between 11 and 14 days and had a slightly bluish gray iris. Neurological evaluation of the healthy newborns, on day 1, was considered satisfactory in physiological parameters. Kitten losses in the first week of life were observed in 37 animals, with a mortality rate of 46.25%. Congenital defects were present in 16.2% of newborn deaths, all from the same queen which had been treated with progestagen during pregnancy. Hydrocephalus (2.7%), cleft palate (2.7%), cleft lip (8.1%) and associated cleft palate and cleft lip (2.7%) were the congenital defects observed. The cats with cleft lip and cleft palate, especially the last one, showed sneezing, coughing, nasal discharge of lacteal secretion during or after nursing, low weight and they cannot suck because lack of the suck pressure. The cat with hydrocephalus showed lethargy, dementia, and not responding to neurological tests as vestibular righting reflex, reflex of the neck extension, Magno or Magnus reflex and scratch reflex, presenting increase in head by cerebrospinal fluid in subcutaneous tissue. Hypoxia was the cause of 35.1% kitten losses before they complete an hour of life; the newborns had cold extremities, cyanosis and lassitude. These pups respiratory rate average was 45 breaths per minute and heart rate was 90 bpm with frequent expiratory vocalization. Acute death occurred in 19% of the animals, which were submitted to necropsy showing heart dilatation, presence of white bands or streaks of fibrosis and necrotic points on the myocardium surfaces with no pulmonary edema associated, characterized as myocarditis. In 29.7% of the deaths were not possible to establish a specific diagnosis.
Discussion

Kittens considered healthy by the first evaluation had the heart and the breath rate in physiological parameters previously established (Hoskins 1995; Prats 2005). The same physiological standard was evident about temperature which rises slowly as expected for the first weeks of life (Sorriso 1995; Hoskins 1997). The weight cats vary according patterns described previously, which doubling birth weight by two weeks old (Prats 2005). Eyes opened and the color of the iris was characteristics for this neonatal phase (Hoskins 1997). In neurological evaluation, responses were obtained in accordance with the expected for age (Kornegay 1993). The mortality found in this study can be considered high and worrying like a mortality rate of 27% considered high in another study (Kustritz 2004). The causes of mortality and congenital anomalies in this work were associated with the use of progestagen during pregnancy as reported of the animal’s owner. Several methods are employed for abortifacients interruption of pregnancy, most commonly in undesirable copulation, or when the pregnancy confers risk the health of the mother, however, the indiscriminate use of mainly progestageno to interrupts pregnancy can compromising the live of pregnant cat and of kittens (Odenthal 2003), as a result of this there was cleft palate or cleft lip which resulted in kitten losses (Garcia et al. 2005). Similarly, hydrocephalus was observed and caused death before cat first week of life (Lorenz 2006). Other causes involved in mortality were detected as hypoxia that was characterized by clinical parameters described before in other newborns studies: respiratory rate exceeding 40 breaths per minute with hacking breath by apnea, heart rate remained at average of 90 bpm, featuring bradycardia and a characteristic expiratory vocalization (Dumon 2005). The first three hours of life are the most critical period for the newborn cat which is related to the adjustment of the airways. The adequate establishment of breath is dependent of airways maturity which should be adapted to permit breathing, and their partial or total failure induce the low circulation of oxygen in the body of the animal leading to hypoxia that may develop to anoxia and death (Leal et. al. 2005). Sudden death due to myocarditis was observed. The myocarditis was described as involving several different etiologies most related to biopathogens that often cause severe injury of myocardium and may be associated with pulmonary edema, culminating in the death of the affected (Bright & Holmberg 1997). On deaths by nonspecific causes, considering the data obtained by the history of queens, the possibility of involving chemical, physical or biological agents cannot be discarded.

Conclusion

It is necessary to intensify with cat owners the guidance on the vaccination and parasite prevention and control scheme, avoid the use of progestagen in any time, beyond the achievement of prenatal assessment of pregnant, looking for essential care in the management of newborn cats in order to reduce the feline neonatal mortality and provide better welfare of queen and kitten.

References