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In the second study gravid cows were found to show prominent sclerotic changes in the tunica intima of their arterinae uterinae mediae, i.e. prominent hyperplastic swelling of the tunica intima, hyperplastic smooth muscle fibers and interstitial ground substance. In the region of hyperplastic swelling of the tunica intima, one or more concentric layers of elastic membrane are clearly seen. This appearance is considered to represent gravidity sclerosis in the cow.

In many cases (35%) the number of layers of elastic membrane is exactly same as the parturition frequency. The appearance of sclerotic gestation layers ("sclerotic gestation rings", which TAKAHATA and others advocated) becomes more noticeable as parturition frequency increases.

### STUDIES ON RESPONSES TO MORPHINE HYDROCHLORIDE IN DOGS AND SOME CLINICAL EVALUATIONS\*

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The experiment was conducted to establish criteria for the use of morphine in veterinary clinics. A one percent solution of morphine hydrochloride was administered to dogs, either intravenously ( $A_1$ ) or subcutaneously ( $A_2$ ) in doses of 1 mg ( $D_1$ ), 10 mg ( $D_2$ ) and 30 mg ( $D_3$ ) per kg of body weight, and comparative biochemical studies and clinical examinations were carried out immediately, 24 hours following administration.

The results may be summarized as follows:

The difference between  $A_1$  and  $A_2$  was significant in the changes of eosinophil count, blood sugar, blood  $CO_2$ , blood  $P_{CO_2}$ , blood  $HCO_3^-$ , blood  $H_2CO_3$  and blood  $B_B^+$ , and was insignificant in the changes of red cell count, white cell count, blood  $O_2$ , blood pH and Ht. Comparison between  $A_1$  and  $A_2$  generally indicated that  $A_1$  produced not only a more rapid effect, but smoother recovery.

Comparison between  $D_1$ ,  $D_2$  and  $D_3$  indicated that an increased dosage produced increased effect. Only slight changes were produced by  $D_1$ , but considerable changes were observed by  $D_2$  and  $D_3$ . Changes of serum proteins and liver functions were slight, irrespective of the administered methods or doses.

In clinical symptoms, the considerable difference between  $A_1$  and  $A_2$  was the

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\* The original report of this work will appear in this Journal in the near future.

appearance of remarkable agitation, fall of blood pressure and respiratory depression in A<sub>1</sub> and the appearance of emesis in A<sub>2</sub>. Observed clinical symptoms indicated that D<sub>1</sub> produced either no effect or only sedative effect while D<sub>2</sub> and D<sub>3</sub> produced surgical anesthesia in most cases, either A<sub>1</sub> or A<sub>2</sub>.

It is concluded that morphine is unsuitable as general anesthetic for dogs because of its side effects, but it is felt that small doses of morphine (about 1 mg/kg) are very useful as pre-anesthetic, basal anesthetic or sedative, especially when administered intravenously.

### **STUDIES ON BOVINE ENTEROVIRUSES**

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### **METHODOLOGISCH ORIENTIERTE QUANTITATIVE UNTERSUCHUNG DER SPERMATOGENESE BEIM BULLEN AN DREI FAELLEN VON ASTHENOSPERMIE, DIE MIT ASPERMIE EINHERGEHT**

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