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Influence of Pregnancy and Lactation on Susceptibility to Arrest of Brain Circulation.*†

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By means of a new technic,¹ it has been possible to obtain constant results from dog to dog with the same period of complete arrest of the brain circulation. The sex, age, or breed of the experimental adult animal had no influence on the sensitivity of the brain to arrest of its blood flow. On the other hand, puppies were much more resistant than adult animals to this procedure.² The present report deals with the influence of pregnancy and lactation on the resistance of the brain to arrest of its circulation.

In every instance, the pregnant or lactating animal was more severely affected by brain stasis than the normal adult animal. A similar increase in susceptibility was shown by 2 young females at about the age of sexual maturity, one of whom was in the first oestrus. The results are compiled in Table I. Only the dogs indicated by asterisks (after survival) died from the arrest of the brain circulation. The others were either sacrificed or are still alive. The striking increase in severity of the brain damage as compared to normal adult animals is evident.

A study of the time of persistence of respiration and the corneal reflex following acute arrest of blood flow in the brain shows no difference between pregnant or lactating and normal adults. Furthermore, the recovery times of respiration and the corneal reflex following restoration of cephalic blood flow were very similar in the 2 groups of dogs. In other words, the survival time and the recovery time are within normal limits while the revival time³ is greatly decreased by pregnancy and lactation. This suggests the possibility that the greater susceptibility during pregnancy and lactation may be due, not to a difference in the rate of metabolism, but rather to a difference in the ability of the animal to overcome reversible neuronal damage.

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¹ Kabat, H., and Dennis, C., *PROC. SOC. EXP. BIOL. AND MED.*, 1938, **38**, 864.

² Kabat, H., and Dennis, C., *PROC. SOC. EXP. BIOL. AND MED.*, 1939, **42**, 534.

³ Gerard, R. W., *Arch. Neurol. and Psychiat.*, 1938, **40**, 985.

TABLE I.
Influence of Pregnancy and Lactation on Susceptibility to Arrest of the Brain Circulation.

Dog	Sex	Condition	Period of			Recovery		Duration of coma	Duration of apathy, days	Duration of ataxia	Survival	End result and comment
			stasis, min	stasis, min	stasis, min	ability to sit up	ability to stand and walk					
BK14	M	Normal adult	2	12 hr	18 hr	12-18 hr	2	1 wk	4 mo	Apparently complete recovery		
BK22	F	" "	2	12 "	18 "	12-18 "	2	5 days	4 "	" "		
18	F	Late pregnancy	2	1 day	9 days	12-18 "	9	2 mo	2½ "	" "		
BK16	F	Active lactation	2	No recovery	No recovery	As long as she survived	—	—	3 days*	No recovery from coma		
17	F	Normal adult	4	18 hr	18 hr	18 hr	4	19 days	19 "	Apparently complete recovery except for slight ataxia		
BK3	M	" "	4	1 day	2 days	18 "	4	21 "	3 mo	Apparently complete recovery		
BK17	M	" "	4	1 "	1½ "	24 "	3	18 "	4 "	" "		
BK13	F	Active lactation	4	No recovery	No recovery	As long as she survived	—	—	6 days	No recovery from coma		
La 1	F	Late lactation (pups weaned)	4	1 day	8 days	24 hr	14	39 days	3 mo	Apparently complete recovery		
La 2	F	Active lactation	5	6 "	12 "	12 days	20	Still has clumsy gait	Still alive (4 mo)	Permanent clumsy gait, slow movements, little spontaneous activity, little emotional expression		
BK15	F	Normal adult	6	24 hr	40 hr	40 hr	4	1½ mos	Still alive (9 mo)	Apparently complete recovery		
BK20	M	" "	6	24 "	48 "	24 "	3	3 wk	3 mo	" "		
BK21	F	" "	6	24 "	48 "	24 "	3	3 "	3 "	" "		
BK18	F	Young ♀ reaching sex maturity	6	No recovery	No recovery	As long as she survived	—	—	9 days	Littermate of BK20 No recovery from coma		

