Pressor Action of Noradrenaline in Young Dogs

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The relative noradrenaline content of the adrenal gland in young animals was larger than that in adult ones. Therefore, it is of interest to know whether the relative activities of noradrenaline to adrenaline in young animals differ from those in adult ones. In this view, the pressor action of noradrenaline was compared with that of adrenaline in young dogs in the present study.

One female and 4 male dogs, aged 10–16 days and weighing 530–750g., were experimented on in a supine position without general anesthesia. The carotid artery and the femoral vein were exposed under the local anesthesia with 1% procaine solution. A mercury manometer was connected with the artery in order to record the blood pressure and a small cannula was inserted in the vein for injection.

From the standard stock solution 0.1–3.0 µg. of DL-noradrenaline (Sankyo) or 0.25–4.0 µg. of L-adrenaline (Sankyo) were taken and diluted up to 1.0 ml. with 0.9% NaCl solution. Each solution was injected through the cannula in 10 seconds.

As for the pressor action, DL-noradrenaline was more active than L-adrenaline in all cases. The activity ratio of DL-noradrenaline to L-adrenaline was estimated as 1.3:1–4:1, with the mean value of 2:1. Taking L-noradrenaline to be twice as active as DL-noradrenaline, the activity ratio of L-noradrenaline to L-adrenaline will be 4:1. Comparison of this figure with that in non-anesthetized adult dogs (1.6:1–2.0:1) may lead us to the conclusion that the relative pressor action of noradrenaline in young dogs is definitely stronger than that in adult ones.