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The effect of apomorphine on oral behaviour in piglets

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The new-born mammal has both nutritive and non-nutritive sucking requirements (Levy, 1934). When non-nutritive sucking is prevented, abnormal oral behaviour which can resemble the effect of apomorphine may be induced. The two types of sucking behaviour can be distinguished using equipment described by Stephens (1975). This consists of a wooden box lined with rubber sheeting. A rubber teat is inserted through a hole in one wall. The teat is connected to two microswitches which record teat movements and milk flow through the teat is also monitored. One-day-old piglets can be trained to feed from the teat in three days at which time they develop a regular pattern of teat activity. This consists of an ingestive phase lasting approximately 15 min during which the piglets drink the milk provided. Then follows a period of sporadic non-nutritive teat activity when the piglets nuzzle at or around the teat without drinking. Low doses of apomorphine (0.1-0.2 mg/kg s.c.) injected during the latter phase greatly prolong and intensify the non-nutritive teat activity. This method is useful for quantifying behavioural effects of apomorphine. The responses of other farm animals to apomorphine and other drugs thought to affect central dopaminergic neuron systems will also be shown and compared with abnormal oral behaviour seen under intensive husbandry conditions.

J.P.F. was supported by an A.R.C. Research Studentship.

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Measurement of vascular changes in acute inflammatory responses

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Acute inflammatory responses are associated with increases in blood flow and accumulation of plasma proteins within the inflammatory lesion. We have modified existing techniques to measure the vascular changes caused by acute inflammatory stimuli in rat hindpaws. Experiments have been made in male rats, body weight 160-200 g, anaesthetized with urethane (1.25 g/kg i.p.). The inflammatory stimulus was applied to one paw and the other paw served as a control. Paw blood content was measured using [^{51}Cr]-labelled rat red blood cells (approximately 1 μCi) and accumulation of albumin in the tissue using [^{125}I]-labelled human serum albumin (approximately 250 nCi), each injected intravenously 5 min before the inflammatory stimulus. Paw blood and albumin content were expressed as volume in terms of venous blood. Blood flow was measured using [^{85}Sr]-labelled microspheres, 25 μ diameter (3M Company). The microspheres were injected into the left ventricle of the heart via a catheter in the right carotid artery. Blood flow to each hindpaw was expressed as a % of cardiac output and flow to the injured paw was also expressed as a % of the flow to the control paw. After injection of the microspheres the rats were killed and both paws removed and placed in vials to permit differential γ-counting of the ^{85}Sr, ^{51}Cr and ^{125}I content of the paws using a Packard autogamma scintillation spectrometer.

Table 1 shows the results from a typical group of experiments in which the inflammatory