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Emetic Action of Glucagon (1): Feedback Experiments on Animals*

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Glucagon (GC)-induced nausea and emesis which were observed in human were examined in non-restrained pigeons, balloon-inserted and restrained Pigeons, and/or non-restrained dogs and cats, and the mechanisms were studied.

In dogs and cats, nausea and emesis were not observed at any dose of GC *iv*. In non-restrained pogeons, percent appearances of GC-induced vomiting were 40% in 100 μg/kg, 43% in 300 μg/kg and 67% in 1 mg/kg *iv*. No deaths occurred at GC 300 μg/kg, but fatalities reached 33% at 1 mg/kg *iv*. The onset times of GC emesis were irregular, but most were within 20 to 60 minutes after *iv*, and emesis disappeared after about 180 minutes. The GC emesis was almost completely suppressed with chlorpromazine hydrochloride (CPZ) 3 mg/kg, but not by bilateral vagotomy. In restrained pigeons, inside pressure of a balloon inserted into the glandular stomach was suppressed or suspended transiently at over 1 μg/kg of GC. AT GC 100 μg/kg, vomiting curves often appeared after the transient suspension, and either emetic action, nausea only or no symptom were observed. These responses were compared with those of digoxin, apomorphine and $CuSO_4$.

The GC emesis which was seen only in pigeons among the tested animals, was dose-dependent and completely suppressed by CPZ, but not by bilateral vagotomy, suggesting the participation of a chemoreceptor trigger zone in the central nervous system.

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