A comparison of apomorphine, bromocriptine and Sandoz CM 29-712 (6-methyl-8*a*-cyanomethyl-ergoline-I) in four different turning models in the rat

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Apomorphine induces turning in rats following unilateral intranigral administration of 6-hydroxydopamine (6-OHDA) (Ungerstedt & Arbuthnott, 1970) or ethanolamine-0-sulphate (EOS) (Dray, Oakley & Simmonds, 1975), after unilateral electrolytic lesions of the locus coeruleus (Pycock, Donaldson & Marsden, 1975) or asymmetric lesions of the median raphe nucleus (Costall & Naylor, 1974). The ergot derivative bromocriptine behaves differently in that it induces turning in rats which had received intranigral 6-OHDA but not in rats with electrolytic lesions of the median raphe nucleus (Vigouret, Bürki, Jaton, Loew & Züger, 1977).

The ergoline derivative CM 29-712 (6-methyl-8α-cyanomethyl-ergo-line-I) induced dose-dependent, contralateral turning in rats following either unilateral administration of 6-OHDA into the substantia nigra (Figure 1a) or an asymmetric electrolytic lesion of the median raphe nucleus (Figure 1b). In rats with unilateral electrolytic lesion of the locus coeruleus, CM 29-712 (10 and 50 mg/kg i.p.) induced contralateral turning whereas ipsilateral turning was elicited by 50 mg/kg s.c. after intranigral injection of EOS. Under all four conditions, the nature of the effect of CM 29-712 was similar to that of apomorphine, but the duration of action of CM 29-712 was > 7 hours.

Thus, in the four turning models CM 29-712 had effects qualitatively similar to those of apomorphine. However, in rats which had received intranigral 6-OHDA, contralateral turning elicited by bromocriptine or by CM 29-712 was inhibited by previous administration of α-methyl-p-tyrosine (200 mg/kg i.p.). Such an inhibition was not seen when turning was elicited by apomorphine.

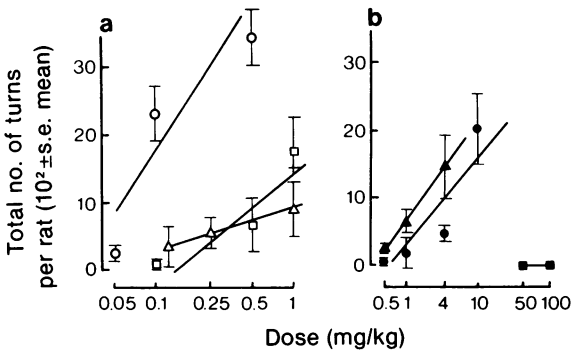

Figure 1 Induction of contralateral turning in rats treated previously with unilateral intranigral 6-hydroxydopamine (Figure 1a) or after asymmetric electrolytic lesion of the median raphe nucleus (Figure 1b) (○), (●) CM 29-712 i.p., (□), (■) bromocriptine s.c., (△), (▲) apomorphine s.c. Turns were counted over 7 hours.

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