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Abuse liability of the anesthetic propofol: self-administration of propofol in rats under fixed-ratio schedules of drug delivery.

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RATIONALE: Previous reports suggest that propofol (PPF) may have abuse potential in humans. Hence, we hypothesized that PPF could reinforce self-administration behavior in other species. Positive reinforcing effects of PPF could be interpreted as an index of abuse liability. OBJECTIVE: Acquisition and maintenance of i.v. PPF self-administration were examined in 12 rats. METHODS: Six rats were initially given access to methohexital (MHX, 2.0 mg/kg per infusion) under a fixed ratio (FR) 1 schedule, while the other six were initially given access to PPF (1.7 mg/kg per infusion). Once stable responding was established, various doses of PPF (0.56, 1.0, and 1.7 mg/kg per infusion) and vehicle (Intralipid 20%) were made available. RESULTS: The number of PPF infusions per session was an inverse function of dose, with 0.56 mg/kg and 1.0 mg/kg per infusion maintaining significantly more infusions per session than vehicle in most rats under the FR 1 schedule. For some rats, the number of vehicle infusions per session was equal to or greater than the number of PPF infusions. Increasing the response requirement to FR 5 decreased the number of vehicle infusions per session in these rats, while PPF maintained a higher number of infusions than vehicle under this FR value in six of seven rats. CONCLUSION: PPF served as a reinforcer in rats under FR schedules of i.v. drug delivery, adding to the extant evidence that it has abuse potential.

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