30 O'Sullivan JD, Hughes AJ. Apomorphine-induced penile erections in Parkinson's disease. *Mov Disord* 1998; **13**: 536–539.
31 Giuliano F *et al.* Stimulation of the medical preoptic area of the hypothalamus in the rat elicits increases in intracavernous pressure. *Neurosoi Lett* 1996; **209**: 1–4.
32 Argiolas A, Melis MR, Mauri A, Gessa GL. Paraventricular nucleus lesion prevents yawning and penile erection induced by apomorphine and oxytocin by not by ACTH in rats. *Brain Res* 1987; **421**: 349–352.
33 Laping NJ, Ramirez VD. Prolactin-induced yawning behavior requires an intact nigro-striatal dopamine system. *Pharmacol Biochem Behav* 1988; **29**: 59–62.
34 Veronneau-Longueville F *et al.* Oxytocinergic innervation of autonomic nuclei controlling penile erection in the rat. *Neuroscience* 1999; **93**: 1437–1447.
35 Turgut N *et al.* Asymetry of sympathetic activity in a rat model of Parkinson's disease induced by 6-hydroxydopamine: heamodynamic, electrocardiographic and biochemical changes. *Res Exp Med* 1998; **197**: 281–292.
36 Bernheimer H, Birkmayer W, Hornykiewicz O. Brain dopamine and the syndromes of Parkinson and Huntington. Clinical, morphological and neurochemical correlations. *J Neurol Sci* 1973; **20**: 415–455.
37 Schwarting RK, Huston JP. Unilateral 6-hydroxydopamine lesions of the meso-striatal dopamine neurons and their physiological sequelea. *Prog Neurobiol* 1996; **49**: 215–266.

Editorial Comment

This manuscript tried to demonstrate an interesting animal model for deprivation of central dopamine. This animal model has the potential for advancing knowledge of the central mechanism of penile erection. However, this model may have a couple of questionable aspects.

First, unfortunately, the results did not clearly show the relationship between the deprivation of dopamine and the number of erections following apomorphine injection. The authors divided the animals in the groups with bilateral and unilateral 6-OH-DA injections into two subgroups based on the average number of erections in the control group. Eight animals and five animals demonstrated higher and lower numbers of apomorphine-induced erections, respectively. There seems to be no correlation between the number of erections and deprivation of central dopamine. In addition, I do not think this method of data analysis is reasonable. Instead of such analysis, the average numbers of erections of all animals in each treatment group (ie bilateral or unilateral 6-OH-DA injections) are appropriate parameters to prove the authors' hypothesis. The average values of the erections should then be compared with that of the control group statistically. If there is a significant difference, there is clear evidence that supports the authors' hypothesis.

Secondly, the animals injected with 6-OH-DA demonstrated a significantly lower ICP response following cavernous nerve stimulation. However, electrical stimulation of the cavernous nerve may not be a suitable stimulation method for the purpose of the authors, because the ICP response due to the cavernous nerve stimulation provides information about erectile conditions in peripheral systems (ie the peripheral nervous system and corporal smooth muscle, and peripheral vascular system). In other words, cavernous nerve stimulation can induce a normal ICP response, if the peripheral conditions are normal, even if disorders in the CNS exist. Therefore, for the authors' purpose, measurement of ICP during electrical stimulation of the CNS (ie the MPOA,[1,2] or apomorphine-induced erectile response[3] are more suitable.

To this end, this animal model that mimics Parkinson's disease may have potential, but more work and better analyses are needed for it to become a reliable animal model.

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References

1 Giuliano F, Rampin O, Brown K, Courtois F, Benoit G, Jardin A. Stimulation of the medial preoptic area of the hypothalamus in the rat elicits increase in intracavernous pressure. Neurosci Lett 1996; **209**: 1–4.
2 Sato Y, Christ JG. Differential ICP response elicited by electrical stimulation of the medial preoptic area. *Am J Physiol* 2000; **278:** H964–H970.
3 Anderson K-E, Gemalmaz H, Waldeck K, Chapman TN, Tuttle JB, Steers WD. The effect of sildenafil on apomorphine-evoked increases in intracavernous pressure in the awake rat. *J Urol* 1999; **161:** 1707–1712.